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Le dépistage organisé des cancers en France et en Europe

Bibliographie thématique

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Sommaire

Problématique

Réalisée à la demande de l'Inspection générale des affaires sociales (Igas) dans le cadre de sa mission d'évaluation, cette bibliographie a pour objectif de rassembler de la littérature scientifique sur le dépistage organisé des cancers au niveau des pays européens. Les aspects principalement documentés sont : les modèles d'organisation des dépistages organisés, les taux de participation ainsi que les facteurs explicatifs des écarts de participation (différences de mesure, d'organisation, de comportement…). Trois cancers sont plus particulièrement ciblés : le cancer du sein, le cancer du col de l'utérus et le cancer colorectal.

Les recherches bibliographies ont été menées sur la période allant de 2010 à septembre 2021 sur les bases et portails suivants : Base documentaire de l'Irdes, Banque de données en santé publique (BDSP), Cairn, Medline, Sciencedirect, EMC Consulte, GoogleScholar.

Des éléments sur l'épidémiologie, les coûts et la politique de prise en charge des cancers figurent en début de bibliographie.

Cette bibliographie ne prétend pas à l'exhaustivité.

Aperçus épidémiologiques et économiques

Chiffres-clés

On estime à 382 000 le nombre de nouveaux cas de cancers (incidence) et à 157 400 le nombre de décès (mortalité) en 2018 en France. Le nombre de nouveaux cas de cancers détectés correspond à plus de 1 000 cas par jour. Les cancers les plus fréquents sont ceux de la prostate, du sein, du côlon-rectum et du poumon[1].

INCA (2021). Panorama des cancers. Edition 2021, Boulogne Billancourt : INCA
https://www.e-cancer.fr/Comprendre-prevenir-depister/Qu-est-ce-qu-un-cancer/Chiffres-cles

> Cette brochure synthétise les données essentielles les plus récentes sur les principaux cancers en France (incidence, mortalité, survie, etc.), ainsi que les actions de prévention et de soin que l'on peut mener avant, pendant et après la maladie. Des décryptages d'experts dans le domaine complètent les chiffres présentés.

Ferlay, J., Colombet, M., Soerjomataram, I., et al. (2021). "Cancer statistics for the year 2020: An overview." Int J Cancer.
https://onlinelibrary.wiley.com/doi/10.1002/ijc.33588

> Our study briefly reviews the data sources and methods used in compiling the International Agency for Research on Cancer (IARC) GLOBOCAN cancer statistics for the year 2020 and summarises the main results. National estimates were calculated based on the best available data on cancer incidence from population-based cancer registries (PBCR) and mortality from the World Health Organization mortality database. Cancer incidence and mortality rates for 2020 by sex and age groups were estimated for 38 cancer sites and 185 countries or territories worldwide. There were an estimated 19.3 million (95% uncertainty interval [UI]: 19.0-19.6 million) new cases of cancer (18.1 million excluding non-melanoma skin cancer) and almost 10.0 million (95% UI: 9.7-10.2 million) deaths from cancer (9.9 million excluding non-melanoma skin cancer) worldwide in 2020. The most commonly diagnosed cancers worldwide were female breast cancer (2.26 million cases), lung (2.21) and prostate cancers (1.41); the most common causes of cancer death were lung (1.79 million deaths), liver (830000) and stomach cancers (769000).

Halpern, M. T., Shih, Y. T., Yabroff, K. R., et al. (2021). "A framework for cancer health economics research." Cancer **127**(7): 994-996.

> Cancer has substantial economic impacts for patients, their families and/or caregivers, employers, and the health care system. However, there is only limited understanding of how economic issues can affect access to cancer care services and the receipt of high-quality cancer care. Health economics research in cancer is particularly timely due to the large and increasing number of patients with cancer and cancer survivors, but there are many factors that may create barriers to performing cancer health economics research. This commentary has identified important topics and questions in cancer health economics research and will assist in the development of this critical field.

Jönsson, B. (2019). "Cost of Cancer: Healthcare Expenditures and Economic Impact." Recent Results Cancer Res **213**: 7-23.

> Healthcare expenditures for cancer account for a low share of total healthcare expenditures, compared to the relative burden of the disease. The share has also not changed very much over the last decades. Cost for cancer drugs has increased as a share of total expenditures, but this has been

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[1] Site de l'Inca. Mise à jour février 2021

offset by a reduction of inpatient hospital care for cancer. Accounting for the cost of cancer should not be limited to healthcare expenditures. Resources are also used for public and private care of cancer patients outside the healthcare sector, for example for palliative care. Informal care by family and friends is an important complement to professional care, and estimates indicate that this amounts to between half and one-third of the costs of formal care. Indirect costs related to the loss of production for persons with cancer are estimated to be of the same magnitude as the direct healthcare expenditures. Indirect costs related to premature mortality dominate the estimate of indirect costs, but those costs have declined over time, despite increasing incomes, due to the reduction in mortality due to cancer in the economically active age groups. Estimates of indirect costs due to morbidity are uncertain and vary significantly between published studies. A full accounting of the costs of cancer should include an estimate of the health burden of cancer. Loss of quality-adjusted life expectancy (QALY) can be measured and valued based on the willingness to pay for a QALY. Such estimates are possible to derive from decisions about allocating resources for cancer. There are few estimates of these costs, but available studies indicate that the intangible costs of lost QALY are by far the dominating cost of cancer. The value for policy-making of costs of cancer estimates increases when results with consistent methods and data are available that allow comparisons between countries and over time. The evidence about the cost of cancer is still limited, but when current scientific progress produces an increasing number of new options for prevention, diagnosis and treatment, studies of the cost of cancer become increasingly important to inform decisions about resource allocation.

Schlueter, M., Chan, K., Lasry, R., et al. (2020). "The cost of cancer - A comparative analysis of the direct medical costs of cancer and other major chronic diseases in Europe." Plos One **15**(11): e0241354.

BACKGROUND: Cancer poses a significant mortality, morbidity, economic and humanistic burden to patients and health systems. This study aims to better understand healthcare expenditure on cancer relative to other major chronic diseases across France, Germany, Italy, Spain and the United Kingdom, whilst also considering the burden of illness posed by these conditions. METHODS: A targeted literature review was performed to identify and extract relevant demographic, epidemiological and economic data. A health care payer perspective was adopted for the analysis, with a focus on direct healthcare costs. RESULTS: Between 2006-2015, the cancer-related disability-adjusted life year (DALY) disease burden decreased by 9.3% despite a 6.5% increase in prevalence. Whilst the per patient drug costs increased by a compound annual growth rate (CAGR) of 5.1%, the overall per patient cancer costs decreased over the 10-year study period (CAGR of -1.4%). Compared to cardiovascular disease, neurological/mental disorders and diabetes, cancer was associated with the highest disease burden (20.8% of DALYs across all diseases) but the second-lowest healthcare expenditure levels (4.8% of total healthcare expenditure) among the studied major chronic diseases. CONCLUSIONS: Our study suggests that the costs associated with treating cancer account for a low proportion of total healthcare expenditure relative to the burden of the disease and compared to other major chronic diseases across the countries included in the analysis.

Sung, H., Ferlay, J., Siegel, R. L., et al. (2021). "Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries." CA Cancer J Clin **71**(3): 209-249.
https://acsjournals.onlinelibrary.wiley.com/doi/10.3322/caac.21660

This article provides an update on the global cancer burden using the GLOBOCAN 2020 estimates of cancer incidence and mortality produced by the International Agency for Research on Cancer. Worldwide, an estimated 19.3 million new cancer cases (18.1 million excluding nonmelanoma skin cancer) and almost 10.0 million cancer deaths (9.9 million excluding nonmelanoma skin cancer) occurred in 2020. Female breast cancer has surpassed lung cancer as the most commonly diagnosed cancer, with an estimated 2.3 million new cases (11.7%), followed by lung (11.4%), colorectal (10.0 %), prostate (7.3%), and stomach (5.6%) cancers. Lung cancer remained the leading cause of cancer death, with an estimated 1.8 million deaths (18%), followed by colorectal (9.4%), liver (8.3%), stomach (7.7%), and female breast (6.9%) cancers. Overall incidence was from 2-fold to 3-fold higher in transitioned versus transitioning countries for both sexes, whereas mortality varied <2-fold for men and little for women. Death rates for female breast and cervical cancers, however, were considerably higher in

> transitioning versus transitioned countries (15.0 vs 12.8 per 100,000 and 12.4 vs 5.2 per 100,000, respectively). The global cancer burden is expected to be 28.4 million cases in 2040, a 47% rise from 2020, with a larger increase in transitioning (64% to 95%) versus transitioned (32% to 56%) countries due to demographic changes, although this may be further exacerbated by increasing risk factors associated with globalization and a growing economy. Efforts to build a sustainable infrastructure for the dissemination of cancer prevention measures and provision of cancer care in transitioning countries is critical for global cancer control.

Éléments sur la politique de prise en charge

EN FRANCE

2021

INCA (2021). Stratégie décennale de lutte contre les cancers 2021-2030. Feuille de route 2021-2025, Boulogne Billancourt : INCA

> Alors que plus de 3,8 millions de nos concitoyens vivent ou ont eu à vivre avec un cancer, le Gouvernement a souhaité renforcer la lutte contre les cancers en France en s'attaquant à tous les champs où ces maladies pèsent sur le quotidien des Français, que ce soit en matière de prévention, de prise en charge ou d'accompagnement des patients. Pour la première fois, 4 objectifs chiffrés viennent donner la force de cette ambition : réduire de 60 000 par an le nombre de cancers évitables à horizon 2040 (le nombre de cancers évitables est aujourd'hui estimé à environ 153 000 par an) ; dépister un million de personnes en plus par an à partir de 2025 (9 millions de dépistages sont réalisés chaque année) ;réduire de deux tiers à un tiers la part des patients souffrant de séquelles 5 ans après un diagnostic ; infléchir significativement le rythme de progression du taux de survie des cancers de plus mauvais pronostic, à horizon 2030. Pour y répondre, la stratégie décennale de lutte contre les cancers s'est définie 4 axes stratégiques : Améliorer la prévention, primaire comme secondaire, limiter les séquelles et améliorer la qualité de vie des patients, lutter contre les cancers de mauvais pronostic chez l'adulte et chez l'enfant, s'assurer que les progrès en matière de lutte contre les cancers bénéficient à tous. Une première feuille de route à 5 ans, détaillant les actions pour les années 2021-2025, sera décrite dans un décret publié le vendredi 5 février 2021. Elle sera dotée d'1,74 milliards d'euros, soit une augmentation de près de 20% par rapport au précédent Plan cancer 2014-2019.

Or, Z., Toure, M. et Rococo, E. (2021). Impact de la concurrence sur la qualité des soins hospitaliers : l'exemple de la chirurgie du cancer du sein en France. Document de travail Irdes ; 85. Paris Irdes**:** 27.
https://www.irdes.fr/recherche/documents-de-travail/085-impact-de-la-concurrence-sur-la-qualite-des-soins-hospitaliers-exemple-de-la-chirurgie-du-cancer-du-sein-en-france.pdf

> Les conséquences de la concurrence entre les hôpitaux sur la qualité des soins font débat. D'une part, la théorie économique suggère que lorsque les prix sont réglementés, la qualité des soins augmente dans les marchés compétitifs. A l'inverse, les économies d'échelle et l'existence d'une relation positive entre le volume d'activité et la qualité des soins plaident en faveur de la concentration de l'offre de soins hospitaliers. En utilisant des données individuelles du Programme de médicalisation des systèmes d'information (PMSI) sur deux années (2005 et 2012), nous suivons l'évolution de la concurrence entre les hôpitaux pratiquant la chirurgie du cancer du sein en France. Nous utilisons la pratique de deux techniques chirurgicales innovantes comme une mesure de la qualité des soins : la Reconstruction mammaire immédiate (RMI) après une mastectomie et la technique du Ganglion sentinelle (GS)... (résumé d'auteur).

2020

Bensadon, A. C., Nuytten, B., Ott, M. O., et al. (2020). Evaluation du 3ème Plan cancer (2014-2019). 2 tomes. Paris IGAS**:** 2 vol. (273;265).
www.igas.gouv.fr/spip.php?article801

> Avec 382.000 nouveaux cas et 157.000 décès annuels (chiffres de 2018), le cancer est la première cause de mortalité chez l'homme, et la deuxième chez la femme.Afin de préparer les orientations de la prochaine stratégie décennale de lutte contre les cancers, les inspections générales des affaires sociales et de la recherche ont été chargées d'évaluer le troisième plan cancer couvrant la période 2014-2019. Ce plan comportait quatre axes : Guérir ; - Préserver la qualité de vie des patients ; Investir dans la prévention et dans la recherche ; Conforter les organisations. Les besoins des enfants, adolescents et jeunes adultes atteints de cancer devaient recevoir une attention prioritaire, de même que la réduction des inégalités devant la maladie et des pertes de chance. La mission a mené des travaux très approfondis et rencontré près de 200 personnes (représentants des patients, professionnels de santé, sociétés savantes, conseils professionnels, collège de médecine générale, fédérations d'établissements, institutions de recherche, etc.), tout en parcourant plusieurs régions. Ses constats et ses recommandations tournent autour de 11 thèmes : Recherche - Observation – Prévention – Dépistage – Soins – Vie pendant et après le cancer – Démocratie en santé – Besoins des enfants, adolescents et jeunes adultes – Réduction des inégalités – Ressources - Gouvernance.Ces thèmes sont développés de manière détaillée dans le rapport complet, qu'accompagne un rapport de synthèse pour connaître l'essentiel.

INCA (2020). Plan cancer 2014-2019 : Plan cancer : Sixième rapport au président de la République - Mars 2020. Paris Institut National du Cancer**:** 56.
https://www.e-cancer.fr/Expertises-et-publications/Catalogue-des-publications/Sixieme-rapport-au-president-de-la-Republique-Mars-2020

> Pilote de la mise en oeuvre du Plan cancer 2014-2019, sous la responsabilité des ministres chargés de la santé et de la recherche, l'Institut national du cancer présente au président de la République les principales réalisations obtenues avec ses partenaires dans cette sixième année. Avec cette dernière année du troisième Plan cancer, la persévérance de l'ensemble des acteurs, locaux et nationaux, a permis de réaliser près de 90 % des jalons du Plan.

2019

Castel, P., Juven, P. A. et Vezian, A. (2019). Les politiques de lutte contre le cancer en France, Rennes : Presses de Ehesp

> 2019 sonne la fin du troisième Plan cancer. Depuis 2003, chaque nouveau Plan est précédé de rapports et de débats concernant l'évaluation de l'engagement de l'État dans les politiques de lutte contre le cancer. Alors que l'éventuel quatrième Plan n'a pas encore livré ses contours, le présent ouvrage invite à porter un regard sociologique sur les politiques passées, en abordant les principaux enjeux de la lutte contre le cancer: la recherche, les pratiques de soin, la place accordée aux patients, l'organisation de la prise en charge du dépistage, le prix des traitements médicamenteux, la place des médecins et les transformations de leurs pratiques du fait des innovations biomédicales…Par des enquêtes empiriques conduites en France, les auteurs proposent de rendre compte des formes de l'action publique et de ses effets sur les dynamiques professionnelles et marchandes dans le secteur de la cancérologie. Adoptant une perspective d'analyse au plus près des pratiques et des discours des acteurs, cet ouvrage donne matière à penser les défis actuels pour les patients et leurs associations, les professionnels de santé et de la recherche, et les autorités publiques. (4ème couv.)

INCA (2019). Les cancers en France en 2018. L'essentiel des faits et des chiffres (édition 2019). Les Données / Epidémiologie. Boulogne Billancourt INCa**:** 27 , ill.
https://www.e-cancer.fr/content/download/255246/3573612/file/Cancers_en_France-Essentiel_Faits_et_chiffres-2018.pdf

L'Institut national du cancer propose la onzième édition du rapport Les cancers en France, sous une forme synthétique reprenant L'essentiel des faits et chiffres. Cette synthèse a pour objectif de rassembler des données récentes et fiables pour informer le grand public et les professionnels, éclairer les décideurs et les parties prenantes de la lutte contre le cancer. Les données essentielles et les faits marquants sur les cancers en France en 2018 sont complétés par un volet focus interrogeant les priorités en matière de lutte contre le cancer. L'attention y est portée sur les cancers de mauvais pronostic et la connaissance du poids des facteurs de risque de cancer permettant de guider les actions de prévention.

Quintin, C. et Rogel, A. (2019). Évaluation du programme de dépistage organisé du cancer du sein : résultats et évolution des indicateurs de performance depuis 2004 en France métropolitaine. Saint-Maurice, Santé publique France**:** 48 p.

Introduction : le programme de dépistage organisé du cancer du sein a pour objectif de réduire la mortalité de ce cancer en le détectant à un stade précoce. En France, depuis 2004, les femmes de 50 à 74 ans sont invitées, tous les 2 ans, à effectuer une mammographie bilatérale de dépistage et un examen clinique des seins. Les clichés sont lus par un premier radiologue (L1) et complétés si besoin par un bilan immédiat. Tous les clichés normaux lors de la L1 sont relus par un deuxième radiologue expérimenté (L2). L'objectif de ce rapport est de présenter la performance de ce programme sur la période 2004-2014. Matériel et méthodes : les données sont recueillies chaque année par les structures départementales de dépistage et transmises à Santé publique France. Les indicateurs de performance du programme sont calculés pour estimer l'activité de dépistage, les résultats des dépistages et les cancers détectés. Résultats : après une phase d'augmentation (2004-2008) puis de stabilisation (2008-2012), le taux de participation a diminué et atteint 50,1 % en 2016. Il est très variable d'un département à l'autre. Les dépistages positifs avant bilan en L1 ou L2 ont diminué de 13,5 % en 2004 à 8,7 % en 2014. À l'issue de la procédure de dépistage, le taux de cancers détectés est stable (7 ‰ en 2014). En 2014, pour 1 000 femmes dépistées, étaient détectés : 1,0 cancer canalaire in-situ, 1,9 cancer invasif de petite taille et 3,9 cancers invasifs sans envahissement ganglionnaire. Ces résultats sont stables depuis 2004. La valeur prédictive positive d'un résultat positif avant bilan, en augmentation constante depuis 2004, était de 8,5 % en 2014. L'ensemble des résultats aux différentes étapes du programme de dépistage varient selon le rang du dépistage et l'âge. Conclusion : la plupart des indicateurs de performance attestent de la qualité du programme français, condition nécessaire à une réduction de la mortalité. Bien que la quantification précise du dépistage hors programme reste difficile, elle sera nécessaire pour mieux appréhender la réalité du dépistage du cancer du sein par mammographie en France.

2018

INCA (2018). Plan cancer 2014-2019 : cinquième rapport au président de la République. Paris Institut National du Cancer**:** 164.
https://www.e-cancer.fr/%20Expertises-et-publications/Catalogue-des-publications/Cinquieme-rapport-au-president-de-la-Republique-Avril-2019

Dans ce 5e (et dernier) rapport adressé au président de la République, l'Institut national du cancer, responsable du pilotage du Plan cancer 2014-2019 pour le compte des ministres chargés de la santé et de la recherche, présente avec ses partenaires la progression globale et l'avancement des actions en matière de prévention, dépistage, recherche, offre de soins et recommandations.

INCA (2018). Plan cancer 2014-2019 : quatrième rapport au président de la République. Paris Institut National du Cancer: 80 , tab., graph., fig.
www.e-cancer.fr/content/download/223223/3043246/file/Rapport%20au%20PR%202018_%20FINAL_COMPIL%C3%89.pdf

À deux ans de l'échéance de ce troisième Plan cancer, ce quatrième rapport fait un bilan de l'ensemble des actions menées. La mobilisation des partenaires du secteur, communauté des soignants, chercheurs, acteurs de la prévention, des grandes associations et fondations dans la lutte contre les cancers a permis de réaliser plus de 64 % des jalons identifiés (1 369 au total) répondant aux attentes des malades et de leurs proches

INCA (2018). Stade au diagnostic des cancers du sein, du côlon et du rectum - Étude réalisée à partir des registres des cancers du réseau FRANCIM. Etat des lieux et des connaissances / Epidémiologie. Boulogne-Billancourt INCA: 38 , tabl., fig.
http://www.e-cancer.fr/content/download/233155/3195375/file/Stade_au_diagnostic_des_cancers_du_sein_du_colon_du_rectum_mel_20180418.pdf

Ce rapport fournit la première estimation nationale des stades au diagnostic des cancers du sein et des cancers colorectaux (période 2009-2012). Le stade au diagnostic apporte un nouvel éclairage pour évaluer les politiques publiques de prévention, de dépistage et de lutte contre les cancers, en association avec les circonstances du diagnostic et les taux de survie associés.

2017

INCA (2017). Plan cancer 2014-2019 : troisième rapport au président de la République. Paris Institut National du Cancer: 176.
http://www.e-cancer.fr/Expertises-et-publications/Catalogue-des-publications/Troisieme-rapport-au-president-de-la-Republique-Fevrier-2017

Dans ce 3e rapport adressé au président de la République, l'Institut national du cancer (INCa), responsable du pilotage du Plan cancer 2014-2019 pour le compte des ministres chargés de la santé et de la recherche, présente avec ses partenaires sa progression globale et l'avancement de chacune des 208 actions.

2016

HCSP (2016). Évaluation de la politique de lutte contre le cancer. Paris HCSP: 259.
http://www.hcsp.fr/explore.cgi/avisrapportsdomaine?clefr=557

À partir de l'analyse des 6 axes clés de la politique de lutte contre le cancer (Recherche, Observation, Prévention, Dépistage, Soins, Qualité de vie), le HCSP s'est, plus particulièrement, attaché à répondre aux 4 questions principales suivantes : Quel a été l'impact des deux premiers Plans cancer en termes de réduction des inégalités de santé ? Dans quelle mesure un plan thématique et un opérateur dédié (Institut national du Cancer –INCa) ont-ils constitué un progrès ? L'expérience acquise dans ce champ est-elle extrapolable à d'autres maladies chroniques ? Quels enseignements peut-on tirer d'une comparaison avec les expériences étrangères, notamment sur l'organisation des dépistages ? Cette évaluation a conduit à formuler 60 recommandations visant à améliorer la prévention, le dépistage et la prise en charge des cancers, à garantir des soins personnalisés et efficaces, à améliorer la qualité de vie des patients pendant et après le cancer, et à réduire les inégalités sociales et territoriales de santé face au cancer. Il s'agit aussi de renforcer la recherche et le recueil des données en cancérologie et d'optimiser le pilotage et la gouvernance concernant cette maladie.

INCA (2016). Evolution de l'organisation du dispositif de dépistage des cancers réponse saisine. Appui à la décision / Dépistage et détection précoce. Boulogne-Billancourt INCA**:** 72 , tabl., fig., annexes.
http://www.e-cancer.fr/content/download/169098/2176821/file/Evolution-de-l-organisation-du-dispositif-de-depistage-des-cancers_20161207.pdf

Ce rapport de l'INCA, en réponse à une saisine du Directeur général de la santé, propose un schéma-cible d'évolution des structures en charge des programmes de dépistage des cancers. L'enjeu est de définir une organisation plus efficiente répondant, d'une part, à l'objectif 16 du Plan cancer qui vise à optimiser l'ensemble des structures de la cancérologie, et devant, d'autre part : préserver la qualité du dispositif porté par les 90 structures de gestion des dépistages, qui ont permis le déploiement des dépistages organisés du dépistage du cancer du sein et du cancer colorectal ; faciliter l'accès au dépistage sur l'ensemble du territoire ; permettre la mise en œuvre des actions portées par le Plan cancer, le déploiement du dépistage organisé du cancer du col de l'utérus, le suivi des populations à risques aggravés de cancers, l'évolution des modalités et des techniques de dépistage.

INCA (2016). Généralisation du dépistage du cancer du col de l'utérus. Etude médico-économique. Phase 1. Bilans d'activité et évaluations / Dépistage. Boulogne-Billancourt INCA**:** 6 vol. (81; 149; 104; 136; 168; 143; 194 .
http://www.e-cancer.fr/Expertises-et-publications/Catalogue-des-publications/Generalisation-du-depistage-du-cancer-du-col-de-l-uterus-etude-medico-economique-Phase-1

Conformément à sa mission d'observation, de coordination et d'évaluation des actions de lutte contre le cancer en France, l'INCa évalue l'efficience des dépistages et celle de leurs modalités d'organisation/d'évolution. Dans ce cadre, il a confié au groupement PHE/OpusLine une étude évaluant au plan médico-économique la généralisation du dépistage du cancer du col de l'utérus. Cette étude était scindée en deux phases : une analyse permettant de caractériser les femmes ne réalisant pas de dépistage et les populations les plus vulnérables, couplée à une analyse d'impact budgétaire permettant d'identifier différentes options de dépistage du CCU susceptibles d'être mises en oeuvre à court terme (phase 1) ; une étude medico-économique fondée sur une modélisation permettant d'évaluer l'efficience de différentes stratégies de dépistage organisé à moyen terme et tenant compte, notamment, des évolutions technologiques, de la démographie médicale et de l'organisation du dispositif de dépistage (phase 2). La phase 1 vise à caractériser de façon fine les populations ciblées par l'action 1.1 du Plan cancer 2014-2019 et à évaluer au plan budgétaire l'impact à court terme de la mise en place du programme national de dépistage organisé dans le cadre fixé par cette action. La phase 2 de l'étude doit permettre d'anticiper les évolutions attendues du contexte de ce dépistage, de façon à en intégrer ou prévoir d'en intégrer les conséquences potentielles dès la mise en place du programme national de dépistage organisé. Le présent document vient conclure la première phase de l'étude et comprend dans ses annexes l'intégralité des rapports des études menées dans le cadre de cette première analyse, c'est-à-dire : une revue de la littérature (annexe 1) ; une enquête par entretiens qualitatifs (annexe 2); une analyse des éléments d'activité sur les sites expérimentaux de dépistage organisé du CCU (annexe 3); une analyse des données de l'échantillon généraliste des bénéficiaires (EGB) de l'assurance maladie (annexe 4) ; une enquête d'opinion réalisée auprès de 1 000 femmes (annexe 5) ; une analyse d'impact budgétaire (annexe 6).

2015

INCA (2015). Plan cancer 2014-2019 : premier rapport au président de la République. Paris Institut National du Cancer**:** 91 , tab., graph., fig.
http://www.e-cancer.fr/publications/93-plan-cancer/826-premier-rapport-au-president-de-la-republique-plan-cancer-2014-2019

Ce rapport constitue une première évaluation de la première année du troisième Plan cancer. Des efforts importants ont été déployés en 2014 pour programmer la mise en œuvre des 185 actions qui composent le Plan et en organiser le pilotage et le suivi. Si trente-huit actions connaissent un retard, la grande majorité des actions programmées respecte le planning prévu et trois actions sont désormais achevées. Ce rapport fait un bilan de réalisation autour des 3 axes, avec pour objectif : Guérir plus de personnes malades ; L'annexe 1 du rapport (p. 31) regroupe les tableaux de suivi de toutes les actions au 1er janvier 2015.

2014

MSSPS (2014). Plan cancer 2013-2019 : guérir et prévenir les cancers. Donnons les mêmes chances à tous et partout en France. Paris Ministère chargé de la santé**:** 152 , tabl.

Le 4 février, Journée mondiale contre le cancer, le Président François Hollande a lancé le troisième plan cancer (2014-2019). Doté d'un montant d'1,5 milliard d'euros, ce troisième plan a pour fil rouge la réduction des inégalités face au cancer. Le Plan s'organise autour de quatre priorités, qui sont déclinées en 17 objectifs opérationnels. La première priorité est de guérir plus de malades, ce qui implique de favoriser le dépistage et l'accès rapide et pour tous à une médecine d'excellence. La seconde priorité est de préserver la continuité et la qualité de vie des malades, en assurant des prises en charge globales et personnalisées, et en réduisant les séquelles des traitements et les conséquences du cancer sur la vie personnelle. La troisième priorité va à l'investissement dans la prévention et la recherche. Enfin, la quatrième priorité concerne le pilotage et l'organisation de la lutte contre le cancer, qui devraient, notamment, affirmer le rôle des patients et des usagers dans la mise en œuvre des politiques.

2013

INCA (2013). Cartographie des indicateurs disponibles en France dans le domaine du cancer et de la cancérologie - Etat des lieux en 2012. Etat des lieux et connaissances. Boulogne-Billancourt INCA**:** 67 , tabl.
http://www.e-cancer.fr/publications/69-epidemiologie/716-cartographie-des-indicateurs

Les données existantes dans le domaine du cancer et de la cancérologie sont éparses, du fait de la multiplicité des sources et des producteurs de données. Ces données sont nécessaires à l'observation des cancers, à la prise de décisions de santé publique, ainsi qu'à l'évaluation des actions mises en place. L'INCa (Institut national du cancer) a été chargé de centraliser et organiser les données nécessaires à l'observation des cancers et à l'évaluation des politiques de lutte contre le cancer. Il a en particulier élaboré une cartographie ainsi qu'une représentation ouverte au public, le portail des données du cancer (http://lesdonnees.e-cancer.fr/). Lors de la création de ce portail, un travail de sélection des indicateurs les plus pertinents à intégrer au site internet a été réalisé. Ce rapport a pour objectif de faire un état des lieux des indicateurs disponibles en 2012 dans le domaine du cancer et de la cancérologie. Il se limite donc aux indicateurs les plus pertinents, et ne se veut pas exhaustif. Son approche des données disponibles concernant le cancer et la cancérologie se veut transversale et pluridisciplinaire. Ce rapport tend également à apporter une réponse au souhait du HCSP (Haut Conseil de la santé publique) en faisant un état des lieux des indicateurs disponibles aux niveaux régional et départemental (dimension géographique). Il propose également des indicateurs disponibles selon différents facteurs d'inégalité sociale comme les bénéficiaires de la CMU-C, les catégories socioprofessionnelles ou le niveau de revenu (dimension sociale) (résumé de l'éditeur).

Lastier, D., Rogel, A. et Salines, E. (2013). Programme de dépistage du cancer du sein en France : résultats 2010, évolutions depuis 2006, Saint-Maurice : Institut de veille sanitaire

[BDSP. Notice produite par InVS nnR0xlJs. Diffusion soumise à autorisation]. Le programme national de dépistage organisé du cancer du sein a été généralisé en 2004. Il comprend un examen clinique et deux mammographies par sein interprétées par un premier radiologue, suivis si nécessaire d'un bilan de diagnostic immédiat, ainsi qu'une seconde lecture systématique des clichés normaux. Entre 2004 et 2010 le nombre de femmes dépistées est passé de 1 621 000 à 2 362 000. Le taux de participation a progressé fortement entre 2004 et 2008 passant de 40,2% à 52,4% et il est depuis stabilisé avec un taux de 52,0% en 2010. Pour 7,1% des femmes dépistées en 2010, la mammographie était anormale et le bilan de diagnostic immédiat a confirmé l'anomalie pour 44,8% de ces femmes soit 3,1% des femmes dépistées. Une mammographie normale était associée à un examen clinique anormal dans 6,1% des cas. Après la seconde lecture, 1,3% des femmes ont été rappelées. Les taux de cancers détectés par le programme étaient de 6,8 pour mille en 2009 et 6,8 pour mille (données provisoires) en 2010. Parmi l'ensemble des cancers dépistés, 6,2% l'ont été par la seconde lecture. En 2010,15,2% des cancers étaient in situ. Parmi les cancers invasifs, 38,2% avaient une taille inférieure ou égale à 10 mm et 76,0% de ceux dont le statut ganglionnaire était connu ne comportaient pas d'envahissement. En 2010, pour la troisième année, le programme autorisait la mammographie numérique. Des différences assez nettes sont constatées entre la technologie numérique plein champ (DR) d'une part et les technologies analogique et numérique à plaques (CR) d'autre part. Les mammographes DR étaient à l'origine de plus d'examens positifs en première lecture, de plus de cancers dépistés, mais d'une valeur prédictive positive des examens après bilan plus faible et d'un apport moindre de la deuxième lecture que les deux autres types de mammographes. Ces conclusions doivent être considérées avec prudence pour la technologie numérique CR car ce groupe hétérogène recouvre des appareils très différents dans leurs performances. Ces indicateurs demeurent conformes au référentiel européen et au cahier des charges français hormis pour la participation au programme de dépistage organisé qui reste insuffisante dans le contexte de la coexistence avec un dépistage individuel. (R.A.).

Vernant, J. P. (2013). Recommandations pour le troisième Plan Cancer. Paris Ministère chargé de la santé**:** 162.
http://www.e-cancer.fr/publications/93-plan-cancer/710-recommandations-pour-le-troisieme-plan-cancer

Ce rapport comprend trois parties : la formulation d'objectifs stratégiques pour le troisième Plan cancer : réduire effectivement les inégalités liées au cancer ; adapter le système de santé aux évolutions de la prise en charge ; simplifier l'organisation pour une meilleure efficacité. Il offre des propositions d'objectifs et de recommandations organisées par axe thématique, à savoir le développement de la prévention et du dépistage ; la recherche ; les métiers, les formations et les pratiques de la cancérologie ; le parcours de soins ; la vie pendant et après le cancer. Enfin, il suggère des recommandations sur cinq axes transversaux : la place des médecins généralistes ; l'évolution des modalités d'implication des patients ; l'évolution des organisations; les systèmes d'information ; les problèmes économiques que pose le cancer.

2012

Lastier, D., Salines, E. et Rogel, A. (2012). Évaluation du programme de dépistage organisé du cancer du sein en France : Résultats 2009, évolutions depuis 2005. graph., fig.

Le programme national de dépistage organisé du cancer du sein a été généralisé en 2004. Il comprend un examen clinique et deux mammographies par sein interprétées par un premier radiologue, suivis si nécessaire d?un bilan de diagnostic immédiat, ainsi qu'une seconde lecture systématique des clichés normaux. Entre 2004 et 2009, le nombre de femmes dépistées est passé de 1 621 000 à 2 344 000 ce qui correspond à un taux de participation qui a progressé de 40 à 52,3 %. Les résultats d?évaluation précoce du programme sont présentés pour tous les départements. Pour 7,4 % des femmes dépistées en 2009, la mammographie était anormale et le bilan de diagnostic immédiat a confirmé l?anomalie pour 42,9 % de ces femmes, soit 3,1 % des femmes dépistées. Le bilan de diagnostic immédiat comportait dans 75,4 % des cas une échographie mammaire. Une mammographie normale était associée à un examen clinique anormal dans 0,2 % des cas. Après la seconde lecture, 1,3 % des femmes ont été rappelées. Les taux de cancers détectés par le programme étaient de 6,8 ? en 2008 et 6,4 ? (données provisoires) en 2009. Parmi l'?ensemble des cancers dépistés, 6,4 % l?ont été par la seconde lecture. En 2009, 14,2 % des cancers étaient in situ. Parmi les cancers invasifs, 35,9 % avaient une taille inférieure ou égale à 10 mm et 76,1 % de ceux dont le statut ganglionnaire était connu ne comportaient pas d?envahissement. En 2009, pour la deuxième année, le programme autorisait la mammographie numérique. Des différences assez nettes sont constatées entre la technologie numérique plein champ (DR) d’une part et les technologies analogique et numérique à plaques (CR) d?autre part. Les mammographes DR étaient à l’origine de plus d?examens positifs en première lecture, de plus de cancers dépistés, mais d’une valeur prédictive positive des examens après bilan plus faible et d’un apport moindre de la deuxième lecture que les deux autres types de mammographes. Ces conclusions doivent être considérées avec prudence pour la technologie numérique CR car ce groupe hétérogène recouvre des appareils très différents dans leurs performances. Ces indicateurs demeurent conformes au référentiel européen et au cahier des charges français hormis pour la participation au programme de dépistage organisé qui reste insuffisante dans le contexte de la coexistence avec un dépistage individuel.

MSSPS (2012). Plan cancer 2009-2013. 5ème rapport d'étape au président de la République. Paris Ministère chargé de la santé**:** 132 , tabl.

Sur les 119 actions du Plan cancer, 101 progressent conformément au calendrier prévu et 11 sont déjà réalisées. Avec 879 millions d'euros exécutés sur les trois premières années du Plan (2009-2011), les moyens sont mobilisés à hauteur des montants programmés. Des avancées ont été réalisées dans les domaines de :la recherche sur les cancers, avec pour objectif d'accélérer le transfert des découvertes scientifiques au bénéfice des malades; la qualité et la sécurité des soins pour tous les patients, ainsi que la coordination des prises en charge entre les professionnels de santé en ville et à l'hôpital ; la connaissance et l'information sur les cancers pour mieux agir sur les facteurs de risques et promouvoir le dépistage.Les efforts doivent être soutenus pour consolider ces avancées et faire progresser la prévention et la qualité de vie des personnes atteintes. La mise en œuvre du Plan cancer fait l?objet chaque semestre d?un rapport au Président de la République par le comité de pilotage interministériel.

2011

HAS (2011). La participation au dépistage du cancer du sein chez les femmes de 50 à 74 ans en France : Situation actuelle et perspectives d'évolution. Evaluation des programmes et politiques de santé publique. Saint-Denis**:** 210.
http://www.has-sante.fr/portail/upload/docs/application/pdf/2012-02/argumentaire_-_participation_depistage_cancer_du_sein_2012-02-02_15-27-14_245.pdf

[BDSP. Notice produite par HAS sR0x9IIJ. Diffusion soumise à autorisation]. Le cancer du sein est le cancer le plus fréquent chez la femme et la principale cause de mortalité par cancer. Depuis 2004, la France a mis en place un dépistage organisé du cancer du sein afin de permettre à toutes les femmes de 50 à 74 ans d'accéder à une prise en charge précoce, et de qualité. Ce dispositif national coexiste avec un dépistage individuel. Il ne bénéficie, huit ans plus tard, qu'à la moitié des femmes concernées. A partir d'un état des lieux de la situation actuelle, la HAS a analysé différents scénarios d'évolution du dépistage du cancer du sein en termes d'efficience et de faisabilité. Les conclusions et constats dressés à l'issue de cette évaluation ont conduit la HAS à émettre des recommandations en santé publique dont les objectifs sont de : favoriser l'accès pour toutes les femmes à un dispositif de santé publique de qualité et limiter le renoncement à la prévention et aux soins ; améliorer l'efficacité et l'efficience du dépistage du cancer du sein ; renforcer la place des professionnels de santé dans dispositif organisé ; rendre plus lisible la politique de dépistage du cancer du sein en France et faciliter son appropriation par les professionnels de santé et les femmes ; favoriser les bonnes pratiques professionnelles ; rationaliser les consommations de soins et l'utilisation des ressources collectives.

INCA (2011). La situation du cancer en France en 2011. Rapports & synthèses. Boulogne Billancourt INCa**:** 316 , tabl., annexes.

Pour la quatrième année consécutive, l'Institut national du cancer publie une synthèse des données relatives au cancer et à la cancérologie. Cet état des lieux, qui rassemble les résultats d'études et les données d'observations les plus récentes fournis par les producteurs et les systèmes d'information ou issus des publications, s'inscrit dans le cadre de l'action 6.1 du Plan cancer 2009-2013. Il contribue à améliorer le partage de l?information et la transparence vis-à-vis des citoyens et éclaire les décideurs sur l'évolution des principaux indicateurs de la politique de lutte contre le cancer. Il permet également d?objectiver les évolutions profondes de la réalité du cancer aujourd'hui et d'évaluer les résultats des actions mises en oeuvre dans le cadre des plans cancer successifs. Cette publication se fait conjointement avec l'ouverture au public du portail des données du cancer sur le site de l'INCa (onglet Les données, www.lesdonnees.e-cancer.fr). Elle constitue dorénavant une synthèse annuelle des principaux indicateurs présentés sur le portail, mesure 6.2 du Plan cancer. Cette synthèse ainsi que le portail couvrent l?ensemble des domaines et disciplines concernés par le cancer et la cancérologie.

MSSPS (2011). Plan cancer 2009-2013 : 4e rapport d'étape au Président de la République. Paris Ministère chargé de la Santé**:** 124.

Ce rapport constitue le quatrième rapport d'évaluation du plan cancer 2009-2013. 107 des 119 mesures du Plan cancer progressent conformément au calendrier prévu et 5 mesures sont déjà achevées ; les efforts sont à maintenir afin de poursuivre la mise en œuvre des actions et permettre la réalisation des objectifs fixés d'ici 2013. Plusieurs actions restent en retard. L'évolution de la démographie médicale en cancérologie reste en deçà des objectifs. La prévention a été renforcée mais la prévalence du tabagisme en France ne diminue pas (aujourd'hui le tabagisme est reparti à la hausse aussi bien en population générale que chez les jeunes). Les programmes de dépistage organisé des cancers n'ont pas encore atteint la cible attendue en matière de participation des populations cibles.

MSSPS (2011). Plan cancer 2009-2013. 3ème rapport d'étape au président de la République. Paris Ministère chargé de la santé**:** 132 tabl.

Le rapport d’étape au président de la République présente l’état des lieux de la mise en oeuvre du Plan cancer 2009-2013 en juin 2011. Il comprend les éléments suivants : la présentation de la gouvernance du Plan cancer 2009-2013 ; la synthèse de l’état d’avancement du Plan au 15 juin 2011 ; les chiffres-clés du cancer en 2011 ; les actions engagés à mi parcours du Plan cancer 2009-2013; les données de pilotage des comprenant les indicateurs de résultats par mesure, l?état d?avancement de chacune des actions et le bilan 2010 de l?exécution budgétaire. Un lexique des sigles et acronymes utilisés dans le rapport figure en dernière partie du document.

2010

HAS (2010). Dépistage du cancer de la prostate - Analyse critique des articles issus des études ERSPC et PLCO publiés en mars 2009. Evaluation des programmes et politiques de santé publique. Saint-Denis : Has**:** 50.
http://www.has-sante.fr/portail/upload/docs/application/pdf/2010-06/depistage_du_cancer_de_la_prostate_-_analyse_des_nouvelles_donnees_rapport.pdf

[BDSP. Notice produite par HAS prR0xADG. Diffusion soumise à autorisation]. A l'issue de l'analyse critique des articles issus des études ERSPC et PLCO publiés en mars 2009 et au vu des travaux récents parus en France, la HAS : - Considère qu'aucun élément scientifique nouveau n'est de nature à justifier la réévaluation de l'opportunité de la mise en place d'un programme de dépistage systématique du cancer de la prostate par dosage du PSA ; - Rappelle, dans ces conditions, les recommandations publiées par l'Anaes en 1999 et 2004 considérant que "les connaissances actuelles ne permettent pas de recommander un dépistage de masse du cancer de la prostate" par dosage du PSA et propose que soit étudiée l'inscription au programme de travail de la HAS de l'élaboration de recommandations professionnelles afin de préciser les indications du dosage du PSA dans le cadre de la démarche diagnostique ; - Relève l'existence d'éléments concordants tendant à démontrer l'importance des inconvénients du dépistage et insiste sur la nécessité de mieux apprécier les effets délétères des pratiques actuelles de prescription des dosages de PSA, au moyen de la mise en place d'une étude de pratiques ; - Insiste enfin sur l'importance de l'information à apporter aux hommes envisageant la réalisation d'un dépistage individuel du cancer de la prostate et rappelle l'existence d'un guide d'information publié par l'Anaes en 2004, dont la mise à jour devra être réalisée conformément aux recommandations de la HAS sur l'élaboration de l'information à destination des patients et en fonction des données acquises de la science, par la HAS en collaboration avec l'INCa.

MSSPS (2010). Plan cancer 2009-2013. 2 ème rapport d'étape au président de la République. Paris Ministère chargé de la santé**:** décembre 2010.

Le rapport d'étape au président de la République présente l'état des lieux de la mise en œuvre du Plan cancer 2009-2013 en décembre 2010. Faisant suite au premier rapport d'étape rendu public en juin 2010, il comprend les éléments suivants : la présentation de la gouvernance du Plan cancer 2009-2013 ; la synthèse de l'état d'avancement du Plan au 15 décembre 2010 ; les chiffres-clés du cancer en 2010 ; le rapport des actions engagées en 2009 et 2010 ; les données de pilotage établies à décembre 2010, comprenant les indicateurs de résultats par mesure, l'état d'avancement de chacune des actions et le bilan 2009 de l'exécution budgétaire. Un lexique des sigles et acronymes utilisés dans le rapport figure en dernière partie du document.

MSSPS (2010). Plan cancer 2009-2013. 1er rapport d'étape au président de la République. Paris Ministère chargé de la santé**:** juin 2010.
https://solidarites-sante.gouv.fr/ministere/documentation-et-publications-officielles/rapports/sante/article/plan-cancer-2009-2013-rapport-d-etape-au-president-de-la-republique-juin-2010

EN EUROPE ET DANS LE MONDE

2020

IARC (2020). World cancer report : cancer research for cancer prevention. Lyon : IARC**:** 612.
https://shop.iarc.fr/products/world-cancer-report-cancer-research-for-cancer-prevention-pdf

This study is a multidisciplinary publication, with leading international scientists as authors and reviewers. More than 60 different chapters describe multiple aspects of cancer prevention and the research that underpins prevention, focusing on research activity during the past 5 years. Starting with the latest trends in cancer incidence and mortality worldwide, this publication provides wide-ranging insights into cancer prevention based on the known causes of cancer, factors that determine how cancer develops, and the behaviour of different tumour types, and presents a broad scope of interventions to reduce the cancer burden from a global perspective, including addressing inequalities that affect cancer prevention.

2017

Ponti, A., Anttila, A., Ronco, G., et al. (2017). Cancer screening in the European Union (2017). Report on the implementation of the council recommendation on cancer screening. Brussels, European Commission**:** 333 pp.

This second report on the status of implementation of cancer screening programmes in the European Union (EU) reflects the extent of organization, performance and quality of the screening programmes currently ongoing or being established in the member states. It demonstrates the substantial progress made by member states to ensure access to organized, quality-assured screening for breast, cervical and colorectal cancers since the publication of the first report in 2007. It also demonstrates the state of adoption of the recommendations of the European guidelines for quality assurance in breast, cervical and colorectal cancer screening, especially regarding the new screening technologies. This report is intended to provide the evidence base for policy-making and future improvements in reporting of the screening programmes, which should be conducted at regular and more frequent intervals. It will also assist the European Commission in supporting the implementation of the best practices in cancer screening in the EU and minimize the current inequalities in implementation of cancer control among the member states.

Dépistage des cancers : sein, col de l'utérus, colorectal

REVUES DE LITTERATURE

2021

Dressler, J., Johnsen, A. T., Madsen, L. J., et al. (2021). "Factors affecting patient adherence to publicly funded colorectal cancer screening programmes: a systematic review." Public Health **190**: 67-74.

OBJECTIVES: Colorectal cancer (CRC) is the third most common cancer. Many countries in Europe have already implemented systematic screening programmes as per the recommendations by the European Union. The impact of screening is highly dependent on participation rates. The aim of the study was to identify barriers, facilitators and modifiers to participation in systematised, stool sample-based, publicly financed CRC screening programmes. STUDY DESIGN: Systematic review. METHODS: A systematic search in PubMed, Embase, MEDLINE, CINAHL, Cochrane CENTRAL, Google Scholar and PsycINFO was undertaken. We included both qualitative and quantitative studies reporting on barriers and facilitators (excluding sociodemographic variables) to participation in stool sample-based CRC screening. Barriers and facilitators to participation were summarised and analysed. RESULTS: The inclusion criteria were met in 21 studies. Reported barriers and facilitators were categorised into the following seven themes (examples): psychology (fear of cancer), religion (believing cancer is the will of God), logistics (not knowing how to conduct the test), health-related factors (mental health), knowledge and awareness (lack of knowledge about the test), role of the general practitioner (being supported in taking the test by the general practitioner), and environmental factors (knowing someone who has participated in a screening programme). Six studies reported that non-participation was not due to a negative attitude towards screening for CRC. CONCLUSION: Many barriers to screening were found. It is important to work with peoples' fear of screening. Moreover, this review suggests that it might be possible to increase participation rates, if the population-wide awareness and knowledge of potential health benefits of CRC screening are increased and proper logistical support is provided.

Maes-Carballo, M., Moreno-Asencio, T., Martín-Díaz, M., et al. (2021). "Shared decision making in breast cancer screening guidelines: a systematic review of their quality and reporting." European Journal of Public Health **31**(4): 873-883.
https://doi.org/10.1093/eurpub/ckab084

Shared decision making (SDM) is a key component of evidence-based and patient-centred care. The aim of this study is to systematically review the quality of SDM proposals in clinical practice guidelines (CPGs) and consensus statements (CSs) concerning breast cancer (BC) screening.Guidances were identified, without language restrictions, using a prospectively planned systematic search (MEDLINE, EMBASE, Web of Science, Scopus and guideline websites) from January 2010 to August 2020. Duplicate data extraction used a 31-item SDM quality assessment tool; reviewer agreement was 98%.SDM appeared only in 38 (49.4%) (33/68 CPGs, 4/9 CSs) documents (overall compliance with the quality tool: mean 5.74, IQR 3–8). CPGs and CSs specifically mentioning the term SDM (n = 12) had higher quality (mean 6.8, IQR 4–9 vs. mean 2.1, IQR 0–3; P = 0.001). No differences were found in mean quality comparing CPGs with CSs (3 vs. 1.6; P = 0.634), use of systematic review (4.2 vs. 2.9; P = 0.929) and publication in a journal (4 vs. 1.9; P = 0.094). Guidances with SDM were more recently reported than those without it (mean 41 vs. 57 months; P = 0.042).More than half of all the guidelines did not meet SDM quality criteria. Those that explored it were more recently reported. There is an urgent need for promoting SDM in guidances concerning BC screening issued by institutions, professional associations and medical journals.

Walji, L. T., Murchie, P., Lip, G., et al. (2021). "Exploring the influence of rural residence on uptake of organized cancer screening – A systematic review of international literature." Cancer Epidemiol **74**: 101995.
https://www.sciencedirect.com/science/article/pii/S1877782121001120

Lower screening uptake could impact cancer survival in rural areas. This systematic review sought studies comparing rural/urban uptake of colorectal, cervical and breast cancer screening in high income countries. Relevant studies (n = 50) were identified systematically by searching Medline, EMBASE and CINAHL. Narrative synthesis found that screening uptake for all three cancers was generally lower in rural areas. In meta-analysis, colorectal cancer screening uptake (OR 0.66, 95 % CI = 0.50–0.87, I2 = 85 %) was significantly lower for rural dwellers than their urban counterparts. The meta-analysis found no relationship between uptake of breast cancer screening and rural versus urban residency (OR 0.93, 95 % CI = 0.80–1.09, I2 = 86 %). However, it is important to note the limitation of the significant statistical heterogeneity found which demonstrates the lack of consistency between the few studies eligible for inclusion in the meta-analyses. Cancer screening uptake is apparently lower for rural dwellers which may contribute to poorer survival. National screening programmes should consider geography in planning.

2020

Byrnes, K., Hamilton, S., McGeechan, G. J., et al. (2020). "Attitudes and perceptions of people with a learning disability, family carers, and paid care workers towards cancer screening programmes in the United Kingdom: A qualitative systematic review and meta-aggregation." Psychooncology **29**(3): 475-484.

OBJECTIVE: Evidence suggests that people with a learning disability (PwLD) are less likely to attend cancer screening than the general population in the United Kingdom. The aim of this systematic review was to identify and synthesise qualitative studies reporting the attitudes and opinions of PwLD, family carers, and paid care workers towards national cancer screening programmes. METHODS: Five electronic and two grey literature databases were searched. Fourteen thousand eight hundred forty-six papers were reviewed against predetermined inclusion criteria. Included papers were critically appraised. Findings were synthesised using meta-aggregation. RESULTS: Eleven papers met the inclusion criteria, all related to cervical and breast screening. No papers were related to colorectal cancer screening. Findings were clustered into four synthesised findings: (1) supporting women with a learning disability (WwLD) to attend screening, (2) WwLD's awareness of screening and their psychophysical experiences, 3) professional practice barriers including the need for multidisciplinary working and an understanding of the needs of WwLD, and (4) approaches to improve the uptake of cervical and breast cancer screening. The synthesis highlights the significance of WwLD having support to understand the importance of screening to be able to make an informed choice about attending. CONCLUSIONS: WwLD may not attend cancer screening due to fear, concerns over pain, and the potential influence of family carers and paid care workers. The review identified practical mechanisms which could help WwLD attend screening. Future research should focus on identifying potential barriers and facilitators as a proactive measure to promote colorectal cancer screening.

Mosquera, I., Mendizabal, N., Martín, U., et al. (2020). "Inequalities in participation in colorectal cancer screening programmes: a systematic review." European Journal of Public Health.
https://doi.org/10.1093/eurpub/ckz236

Colorectal cancer (CRC) is a major public health problem due to its incidence and mortality. Screening programmes help decrease its impact on the population through early detection. However, the uneven distribution of social determinants of health can cause inequalities. The aim of this study is to identify the social inequalities in the participation in CRC screening programmes.A systematic review of the literature was carried out, searching in both health and social databases for papers published since 2000 in English, Spanish, Portuguese and French. The search strategies combined terms regarding screening, CRC, participation and social inequalities. Included papers were quantitative or qualitative primary studies analyzing gender and socioeconomic inequalities in the participation in CRC screening programmes implemented by public and private health-care providers and addressing 45- to 75-year-old population.A total of 96 studies, described in 102 articles, were included. Most were quantitative observational studies and analyzed population-based screening programmes. They were carried out mainly in the UK (n=29) and the USA (n=18). Participation in screening programmes varied from 1.1% to 82.8% using several methods. A total of 87 studies assessed participation by sex and one focussed on men, but only two provided an analysis from a gender perspective. Although men are at a higher risk of developing CRC, they generally were less likely to participate in screening programmes. Screening attendance was higher among the least deprived areas.Gender and socioeconomic inequalities in CRC screening participation should be addressed through the design of tailored interventions with a multidimensional focus.

Rahbek, O. J., Jauernik, C. P., Ploug, T., et al. (2020). "Categories of systematic influences applied to increase cancer screening participation: a literature review and analysis." European Journal of Public Health **31**(1): 200-206.
https://doi.org/10.1093/eurpub/ckaa158

Health authorities can influence citizens in subtle ways that render them more likely to participate in cancer screening programmes, and thereby possibly increase the beneficial effects. If the influences become too severe, the citizens' ability to make a personal choice may be lost on the way. The purpose of this analysis was to identify and categorize the influences while questioning whether they still permit the citizens to make their own choices regarding participation.A two-stringed approach was used to obtain empirical examples of systematic influences that aim to raise participation rates in cancer screening programmes: First, a systematic literature search was conducted on three databases. Second, relevant experts were contacted via internationally based e-mail lists and asked for examples of systematic influences in cancer screening. The present analysis was based on direct, conventional content analysis to address different categories of systematic influences.The literature search yielded 19 included articles and the expert inquiry yielded 11 empirical examples of which content analysis of the empirical examples generated six major categories of systematic influence: (i) misleading presentation of statistics, (ii) misrepresentation of harms vs. benefits, (iii) opt-out systems, (iv) recommendation of participation, (v) fear appeals and (vi) influencing the general practitioners and other healthcare professionals.The six categories of identified influences work through psychological biases and personal costs and are still in widely use. The use of these types of influence remains ethically questionable in cancer screening programmes since they might compromise informed decision making.

Unanue-Arza, S., Solís-Ibinagagoitia, M., Díaz-Seoane, M., et al. (2020). "Inequalities and risk factors related to non-participation in colorectal cancer screening programmes: a systematic review." European Journal of Public Health **31**(2): 346-355.
https://doi.org/10.1093/eurpub/ckaa203

Colorectal cancer (CRC) screening programmes require high levels of participation in order to reduce mortality. To improve participation rates, it is necessary to identify the health risk factors and social inequalities associated with non-participation.A systematic review was conducted between June and September of 2019 in six databases: CINHAL, Medline, Scopus, Social Sciences Citation Index, Embase and PsycINFO. Studies assessing the relationship between health risk factors, participation in preventive activities and participation in CRC screening were included. Methodological assessment was carried out according to the Quality Assessment Tools of the National Heart, Lung and Blood Institute.A total of nine studies that analyze participation in both organized and opportunistic screening programmes using any type of screening method were finally selected. Data were mainly self-reported although in two studies medical records were also studied. We identified several variables: gender, body mass index, consultation with a doctor or a specialist, educational level, employment, health insurance, residence, ethnicity, age, marital status, income, other preventive activities, obesity, physical activity, smoking, family history of CRC and general health status.The scarcity of studies linking risk factors, social inequalities and participation in preventive activities for participation in screening in the same study makes it difficult to reach definitive patterns related to non-participation in CRC screening programmes. Nevertheless, being under 60, obese, smoker and sedentary have shown an association with non-participation as well as not visiting a doctor.

2019

Bromley, H. L., Petrie, D., Mann, G. B., et al. (2019). "Valuing the health states associated with breast cancer screening programmes: A systematic review of economic measures." Soc Sci Med **228**: 142-154.

Policy decisions regarding breast cancer screening and treatment programmes may be misplaced unless the decision process includes the appropriate utilities and disutilities of mammography screening and its sequelae. The objectives of this study were to critically review how economic evaluations have valued the health states associated with breast cancer screening, and appraise the primary evidence informing health state utility values (cardinal measures of quality of life). A systematic review was conducted up to September 2018 of studies that elicited or used utilities relevant to mammography screening. The methods used to elicit utilities and the quality of the reported values were tabulated and analysed narratively. 40 economic evaluations of breast cancer screening programmes and 10 primary studies measuring utilities for health states associated with mammography were reviewed in full. The economic evaluations made different assumptions about the measures used, duration applied and the sequalae included in each health state. 22 evaluations referenced utilities based on assumptions or used measures that were not methodologically appropriate. There was significant heterogeneity in the utilities generated by the 10 primary studies, including the methods and population used to derive them. No study asked women to explicitly consider the risk of overdiagnosis when valuing the health states described. Utilities informing breast screening policy are restricted in their ability to reflect the full benefits and harms. Evaluating the true cost-effectiveness of breast cancer screening will remain problematic, unless the methodological challenges associated with valuing the disutilities of screening are adequately addressed.

Goodwin, B. C., Ireland, M. J., March, S., et al. (2019). "Strategies for increasing participation in mail-out colorectal cancer screening programs: a systematic review and meta-analysis." Syst Rev **8**(1): 257.

BACKGROUND: Population mail-out bowel screening programs are a convenient, cost-effective and sensitive method of detecting colorectal cancer (CRC). Despite the increased survival rates associated with early detection of CRC, in many countries, 50% or more of eligible individuals do not participate in such programs. The current study systematically reviews interventions applied to increase fecal occult blood test (FOBT) kit return, specifically in population mail-out programs. METHODS: Five electronic databases (PubMed, PsycINFO, Scopus, CINAHL, and ProQuest Dissertations and Theses) were searched for articles published before the 10th of March 2018. Studies were included if they reported the results of an intervention designed to increase the return rate of FOBT kits that had been mailed to individuals' homes. PRISMA systematic review reporting methods were applied and each study was assessed using Cochrane's Risk of Bias tool. Pooled effect sizes were calculated for each intervention type and the risk of bias was tested as a moderator for sensitivity analysis. RESULTS: The review identified 53 interventions from 30 published studies from which nine distinct intervention strategy types emerged. Sensitivity analysis showed that the risk of bias marginally moderated the overall effect size. Pooled risk ratios and confidence intervals for each intervention type revealed that telephone contact RR = 1.23, 95% CI (1.08-1.40), GP endorsement RR = 1.19, 95% CI (1.10-1.29), simplified test procedures RR = 1.17, 95% CI (1.09-1.25), and advance notifications RR = 1.09, 95% CI (1.07-1.11) were effective intervention strategies with small to moderate effect sizes. Studies with a high risk of bias were removed and pooled effects remained relatively unchanged. CONCLUSIONS: Interventions that combine program-level changes incorporating the issue of advance notification and alternative screening tools with the involvement of primary health professionals through endorsement letters and telephone contact should lead to increases in kit return in mail-out CRC screening programs. SYSTEMATIC REVIEW REGISTRATION: This review is registered with PROSPERO; registration number CRD42017064652.

Mauro, M., Rotundo, G. et Giancotti, M. (2019). "Effect of financial incentives on breast, cervical and colorectal cancer screening delivery rates: Results from a systematic literature review." Health Policy.
https://doi.org/10.1016/j.healthpol.2019.09.012

Preventive care, such as screening, is important for reducing the risk of cancer, a leading cause of death worldwide. Indeed, some type of cancers are detected through screening programs, which in most countries run for colorectal, breast, and cervical cancers. In this context, general practitioners play a key role in increasing the participation rate in cancer screening programs. To improve cancer screening delivery rates, performance incentives have increasingly been implemented in primary care by healthcare payers and organizations in different countries. The effects of these tools are still not clear. We conducted a systematic literature review in order to answer the following research question: What is the evidence in the literature for the effects of financial incentives on the delivery rates of breast, cervical and colorectal cancer screening in general practice? We performed a literature search in Web of Science, PubMed, Cochrane Library and Google Scholar, according to the PRISMA guidelines. 18 studies were selected, classified and discussed according to the health preventive services investigated. Most of studies showed partial or no effects of financial incentives on breast and cervical cancer screening delivery rates. Few positive or partial effects were found regarding colorectal cancer screening. Ongoing monitoring of incentive programs is critical to determining the effectiveness of financial incentives and their effects on the improvement of cancer screening delivery rates.

2018

Agide, F. D., Garmaroudi, G., Sadeghi, R., et al. (2018). "A systematic review of the effectiveness of health education interventions to increase cervical cancer screening uptake." European Journal of Public Health: cky197-cky197.
http://dx.doi.org/10.1093/eurpub/cky197

BackgroundCervical cancer screening reduced cancer morbidity and mortality in developed countries. Health education interventions are expected to enhance screening and early detection. Thus, this review is aimed to see the effectiveness of the interventions in cervical cancer screening uptake.MethodsOnline databases (PubMed/MEDLINE/PubMed Central, EMBASE, Cochrane Central Register of Controlled Trials, Web of Science and Google Scholar) were searched for all published eligible research articles in the past 12 years (as of January 2005–2017). A total of 17 research articles were included. The interventions were classified as 'individual level', 'community level' and 'cultural sensitive educations' which contains various interventions in their content as compared with usual care. A quality coding system was assessed using Cochrane checklists and rated by each researcher independently and the average score was given accordingly. This study was registered in PROSPERO 2017: CRD42017060405.ResultsThe review dovetailed 17 studies. Ten studies (58.82%) were conducted in the United States, three in Iran (17.65%) and one each in Malaysia, China, Cameroon and Nigeria (23.53%). Almost all levels of the interventions boosted the screening uptake and the Pap test. However, the individual level health education interventions were prioritized in many of the studies.ConclusionThe review indicated that health education interventions have immense contributions in boosting the screening uptake. However, the effectiveness varies with study setting, populations and the way of delivery. Therefore, the limited quality of the studies indicated that further research is required to develop a simple and effective intervention to boost cervical cancer screening uptake.

Deandrea, S., Salakari, M., Neamţiu, L., et al. (2018). "Validated tools measuring women's satisfaction in breast cancer screening programmes: A systematic review." Breast **39**: 33-38.

International guidelines recommend assessing women's satisfaction with breast cancer screening programmes; however, validated tools are needed. A systematic review to identify and evaluate the quality of validated instruments for screening satisfaction, from 01/1965 until 11/2017 was performed. From 3283 individual citations, six instruments were identified. Evaluation of the MammoGraphy Questionnaire using the COSMIN checklist resulted in 'good' to 'excellent' scores in most assessed domains, while the other tools were mostly 'poor'/'fair' quality or did not provide enough information for assessment. Nevertheless, substantial changes in screening processes and programmes have been implemented in recent years. Thus, further development work is needed.

Gocko, X., Leclerq, M. et Plotton, C. (2018). "[Discrepancies and overdiagnosis in breast cancer organized screening. A "methodology" systematic review]." Rev Epidemiol Sante Publique **66**(6): 395-403.

BACKGROUND: The risk-benefit ratio of breast cancer organized screening is the focus of much scientific controversy, especially about overdiagnosis. The aim of this study was to relate methodological discrepancies to variations in rates of overdiagnosis to help build future decision aids and to better communicate with patients. METHODS: A systematic review of methodology was conducted by two investigators who searched Medline and Cochrane databases from 01/01/2004 to 12/31/2016. Results were restricted to randomized controlled trials (RCTs) and observational studies in French or English that examined the question of the overdiagnosis computation. RESULTS: Twenty-three observational studies and four RCTs were analyzed. The methods used comparisons of annual or cumulative incidence rates (age-cohort model) in populations invited to screen versus non-invited populations. Lead time and ductal carcinoma in situ (DCIS) were often taken into account. Some studies used statistical modeling based on the natural history of breast cancer and gradual screening implementation. Adjustments for lead time lowered the rate of overdiagnosis. Rate discrepancies, ranging from 1 to 15 % for some authors and around 30 % for others, could be explained by the hypotheses accepted concerning very slow growing tumors or tumors that regress spontaneously. CONCLUSION: Apparently, research has to be centered on the natural history of breast cancer in order to provide responses concerning the questions raised by the overdiagnosis controversy.

2017

Baxi, S. S., Kale, M., Keyhani, S., et al. (2017). "Overuse of Health Care Services in the Management of Cancer: A Systematic Review." Med Care **55**(7): 723-733.

BACKGROUND: Overuse, the provision of health services for which harms outweigh the benefits, results in suboptimal patient care and may contribute to the rising costs of cancer care. We performed a systematic review of the evidence on overuse in oncology. METHODS: We searched Medline, EMBASE, the Cochrane Library, Web of Science, SCOPUS databases, and 2 grey literature sources, for articles published between December 1, 2011 and March 10, 2017. We included publications from December 2011 to evaluate the literature since the inception of the ABIM Foundation's Choosing Wisely initiative in 2012. We included original research articles quantifying overuse of any medical service in patients with a cancer diagnosis when utilizing an acceptable standard to define care appropriateness, excluding studies of cancer screening. One of 4 investigator reviewed titles and abstracts and 2 of 4 reviewed each full-text article and extracted data. Methodology used PRISMA guidelines. RESULTS: We identified 59 articles measuring overuse of 154 services related to imaging, procedures, and therapeutics in cancer management. The majority of studies addressed adult or geriatric patients (98%) and focused on US populations (76%); the most studied services were diagnostic imaging in low-risk prostate and breast cancer. Few studies evaluated active cancer therapeutics or interventions aimed at reducing overuse. Rates of overuse varied widely among services and among studies of the same service. CONCLUSIONS: Despite recent attention to overuse in cancer, evidence identifying areas of overuse remains limited. Broader investigation, including assessment of active cancer treatment, is critical for identifying improvement targets to optimize value in cancer care.

2016

Lundqvist, A., Andersson, E., Ahlberg, I., et al. (2016). "Socioeconomic inequalities in breast cancer incidence and mortality in Europe—a systematic review and meta-analysis." The European Journal of Public Health **26**(5): 804-813.

Background: Breast cancer is the leading cause of female cancer in Europe and is estimated to affect more than one in 10 women. Higher socioeconomic status has been linked to higher incidence but lower case fatality, while the impact on mortality is ambiguous. Methods: We performed a systematic literature review and meta-analysis on studies on association between socioeconomic status and breast cancer outcomes in Europe, with a focus on effects of confounding factors. Summary relative risks (SRRs) were calculated. Results: The systematic review included 25 articles of which 8 studied incidence, 10 case fatality and 8 mortality. The meta-analysis showed a significantly increased incidence (SRR 1.25, 1.17–1.32), a significantly decreased case fatality (SRR 0.72, 0.63–0.81) and a significantly increased mortality (SRR 1.16, 1.10–1.23) for women with higher socioeconomic status. The association for incidence became insignificant when reproductive factors were included. Case fatality remained significant after controlling for tumour characteristics, treatment factors, comorbidity and lifestyle factors. Mortality remained significant after controlling for reproductive factors. Conclusion: Women with higher socioeconomic status show significantly higher breast cancer incidence, which may be explained by reproductive factors, mammography screening, hormone replacement therapy and lifestyle factors. Lower case fatality for women with higher socioeconomic status may be partly explained by differences in tumour characteristics, treatment factors, comorbidity and lifestyle factors. Several factors linked to breast cancer risk and outcome, such as lower screening attendance for women with lower socioeconomic status, are suitable targets for policy intervention aimed at reducing socioeconomic-related inequalities in health outcomes.%U http://eurpub.oxfordjournals.org/content/eurpub/26/5/804.full.pdf

2015

van der Heide, I., Uiters, E., Jantine Schuit, A., et al. (2015). "Health literacy and informed decision making regarding colorectal cancer screening: a systematic review." Eur J Public Health **25**(4): 575-582.

Making an informed decision about participation in colorectal cancer (CRC) screening may be challenging for invitees with lower health literacy skills. The aim of this systematic review is to explore to what extent the level of a person's health literacy is related to their informed decision making concerning CRC screening. We searched for peer-reviewed studies published between 1950 and May 2013 in MEDLINE, EMBASE, SciSearch and PsycINFO. Studies were included when health literacy was studied in relation to concepts underpinning informed decision making (awareness, risk perception, perceived barriers and benefits, knowledge, attitude, deliberation). The quality of the studies was determined and related to the study results. The search returned 2254 papers. Eight studies in total were included, among which seven focused on knowledge, four focused on attitudes or beliefs concerning CRC screening, and one focused on risk perception. The studies found either no association or a positive association between health literacy and concepts underpinning informed decision making. Some studies showed that higher health literacy was associated with more CRC screening knowledge and a more positive attitude toward CRC screening. The results of studies that obtained a lower quality score were no different than studies that obtained a higher quality score. In order to obtain more insight into the association between health literacy and informed decision making in CRC cancer screening, future research should study the multiple aspects of informed decision making in conjunction instead of single aspects.

2014

Merten, J., Pomeranz, J., King, J., et al. (2014). "Barriers to cancer screening for people with disabilities: A literature review." Disability and Health Journal: 1-8.

Over 50 million Americans are currently living with some form of disability. Studies have shown that people with disabilities are underinsured, have less access to health care, and are more likely to engage in risky health behavior. Routine preventive screenings for breast, cervical and colorectal cancer are recommended for all adults to improve early detection and treatment of cancer. Although early detection of cancer offers the best chances for treatment and survival, cancer screening has been limited for many people with disabilities. To present results of a scoping review of studies focused on barriers to cancer screening for people with disabilities. Online databases were searched for research articles on barriers to cancer screening (breast, cervical, prostate, and colorectal) in people with disabilities. Thirty-five peer-reviewed articles met inclusion criteria. Existing research on cancer screenings, particularly prostate cancer, among people with disabilities is limited. Current studies suggest that those with advanced disabilities are not being screened for cancer as often as the able-bodied population with the exception of military veterans. Education, income, age, employment, screening history, tobacco use, activity level, disability level, and geography affected screening rates. Barriers include cost, access, health care provider discomfort, and physical and cognitive restraints. Future interventions to improve routine preventive cancer screenings rates could include specialized health care provider training, community interventions, emphasis on the value of health promotion and the specific health care needs of people with disabilities.

Stacey, D., Légaré, F., Col, N. F., et al. (2014). "Decision aids for people facing health treatment or screening decisions." Cochrane Database Syst Rev **1**.

2013

Camilloni, L., Ferroni, E., Cendales, B. J., et al. (2013). "Methods to increase participation in organised screening programs: a systematic review." BMC Public Health **13**(1): 464.
https://doi.org/10.1186/1471-2458-13-464

The European Community recommends the implementation of population-based screening programmes for cervical, breast, and colorectal cancers. This recommendation is supported by many observational studies showing that organised programmes effectively reduce mortality and control the inappropriate use of screening tests. We conducted a systematic review of studies assessing the efficacy of interventions to increase participation in organised population-based screening programs.

2012

Broeders, M., Moss, S., Nyström, L., et al. (2012). "The impact of mammographic screening on breast cancer mortality in Europe: a review of observational studies." J Med Screen **19 Suppl 1**: 14-25.

OBJECTIVES: To assess the impact of population-based mammographic screening on breast cancer mortality in Europe, considering different methodologies and limitations of the data. METHODS: We conducted a systematic literature review of European trend studies (n = 17), incidence-based mortality (IBM) studies (n = 20) and case-control (CC) studies (n = 8). Estimates of the reduction in breast cancer mortality for women invited versus not invited and/or for women screened versus not screened were obtained. The results of IBM studies and CC studies were each pooled using a random effects meta-analysis. RESULTS: Twelve of the 17 trend studies quantified the impact of population-based screening on breast cancer mortality. The estimated breast cancer mortality reductions ranged from 1% to 9% per year in studies reporting an annual percentage change, and from 28% to 36% in those comparing post- and prescreening periods. In the IBM studies, the pooled mortality reduction was 25% (relative risk [RR] 0.75, 95% confidence interval [CI] 0.69-0.81) among invited women and 38% (RR 0.62, 95% CI 0.56-0.69) among those actually screened. The corresponding pooled estimates from the CC studies were 31% (odds ratio [OR] 0.69, 95% CI 0.57-0.83), and 48% (OR 0.52, 95% CI 0.42-0.65) adjusted for self-selection. CONCLUSIONS: Valid observational designs are those where sufficient longitudinal individual data are available, directly linking a woman's screening history to her cause of death. From such studies, the best 'European' estimate of breast cancer mortality reduction is 25-31% for women invited for screening, and 38-48% for women actually screened. Much of the current controversy on breast cancer screening is due to the use of inappropriate methodological approaches that are unable to capture the true effect of mammographic screening.

2010

Javanparast, S., Ward, P., Young, G., et al. (2010). "How equitable are colorectal cancer screening programs which include FOBTs? A review of qualitative and quantitative studies." Prev Med **50**(4): 165-172.

OBJECTIVE: To review published literature on the equity of participation in colorectal cancer screening amongst different population subgroups, in addition to identifying factors identified as barriers and facilitators to equitable screening. Studies were included in the review if they included FOBT as at least one of the screening tests. METHOD: Relevant published articles were identified through systematic electronic searches of selected databases and the examination of the bibliographies of retrieved articles. Studies of the association with colorectal cancer screening test participation, barriers to equitable participation in screening, and studies examining interventional actions to facilitate screening test participation were included. Data extraction and analysis was undertaken using an approach to the synthesis of qualitative and quantitative studies called Realist Review. RESULTS: Sixty-three articles were identified that met the inclusion criteria. SES status, ethnicity, age and gender have been found as predictors of colorectal cancer screening test participation. This review also found that the potential for equitable cancer screening test participation may be hindered by access barriers which vary amongst population sub-groups. CONCLUSION: This review provides evidence of horizontal inequity in colorectal cancer screening test participation, but limited understanding of the mechanism by which it is sustained, and few evidence-based solutions.

ÉTUDES FRANÇAISES

2021

Koïvogui, A., Vincelet, C., Ait-Hadad, H., et al. (2021). "[Colorectal cancer screening program : Test completion rate and follow-up results after selective mailing of the test kit, based on likelihood of participation]." Rev Epidemiol Sante Publique.

BACKGROUND: Even though theinterest of a Colorectal-Cancer Screening Program has been amply demonstrated, in French departments the participation rate (PR) seldom reaches 45%. In the absence of mass mailing, a strategy (S-1) consisting in mailing a test kit to people having made a request was implemented in 2015. In 2017, another mailing strategy (S-2), which consisted in sending the test kit only to people likely to take the test, was programmed. This study assesses the respective impact of these two strategies as compared to the standard approach (S-0). METHODS: The study included 254,113 (S-0), 4,130 (S-1) and 10,887 (S-2) people aged 50-74, targeted during the 2016-2017 campaign in Seine-Saint-Denis (France). S-0 persons received a 2nd reminder without a test-kit, while S-1 persons received, at their request, a mailed test kit. Without having made a request, S-2 persons the mailed test kit according to probability of participation (Proba) which was estimated a priori by the ratio between the sum total of index values (frequency of previous participation, date of most recent participation, age) and a theoretical maximum. Completion rates (test/colonoscopy) were compared 18 months after the last S-2 kit was sent. RESULTS: PR was highest in S-1 (S-0: 5.8%, S-1: 74.9%, S-2: 31.3%; $p < 0.0001$). In S-2, PR rose as Proba increased (Proba:]0-30%],]30-50%],]50-75%],]75-100%]; PR: 21.1%, 23.3%, 36.2%, 52.8% respectively; $p < 0.05$). Compared to the ≥70 years age-group, the 50-54 years age-group presented a lower PR in S-1 (65.9% vs. 85.1%; $p < 0.05$) whereas it presented a higher PR in S-0 (4.3% vs. 7.1%; $p < 0.05$) and in S-2 (23.2% vs. 54.5%; $p < 0.05$). All in all, colonoscopy completion rates were highest in S-1 (S-0: 62.2%, S-1: 80.0%, S-2: 65.0%; $p < 0.001$). CONCLUSION: Test-kit mailing without spontaneous request does not lead to an optimal level of participation, thereby highlighting a need to give thought to new and improved mobilization methods. The relatively pronounced participation of younger persons, who are not favored by present-day testing specifications, underscores the interest of a specific approach addressed to active people, who are less inclined than elderly individuals to regularly consult their attending physicians.

Penneau, A. et Pichetti, S. (2021). "Les femmes en situation de handicap vivant en institution ont-elles un meilleur accès au dépistage des cancers féminins ?" Questions D'economie De La Sante (Irdes)(256): 8. https://www.irdes.fr/recherche/questions-d-economie-de-la-sante/256-les-femmes-en-situation-de-handicap-vivant-en-institution-ont-elles-un-meilleur-acces-au-depistage-des-cancers-feminins.pdf

De nombreuses barrières physiques et psychiques réduisent l'accès à la prévention des cancers féminins pour les femmes en situation de handicap. Pourtant, les institutions qui accueillent certaines de ces femmes sont susceptibles de développer une politique de prévention qui réduit ces difficultés d'accès. Nous questionnons l'effet facilitateur des établissements sociaux et médico-sociaux pour accéder aux dépistages des cancers féminins pour les femmes âgées de 25 à 75 ans déclarant des restrictions d'activité dans la vie quotidienne. Afin de mesurer les différences de recours aux dépistages des cancers féminins des femmes vivant en institution, leur accès à la prévention est comparé à celui des femmes déclarant des restrictions d'activité dans la vie quotidienne et résidant à domicile. Ces recours sont également distingués en fonction des types d'établissements sociaux et médico-sociaux dans lesquels elles sont accueillies. Les femmes vivant en institution ont des profils et des caractéristiques (type de handicap, niveau de dépendance, liens sociaux…) qui diffèrent de ceux des femmes résidant à domicile. Ces caractéristiques peuvent aussi influer sur la probabilité de réaliser des actes de prévention des cancers féminins. Après prise en compte de ces différences de caractéristiques individuelles, les femmes handicapées résidant en institutions ont une probabilité significativement plus élevée de déclarer avoir été dépistées que les femmes handicapées résidant à domicile. Nos résultats confirment donc un effet facilitateur des institutions pour accéder aux dépistages des cancers féminins des femmes en situation de handicap.

Seigneurin, A., Exbrayat, C., Molinié, F., et al. (2021). "Association of Mammography Screening With a Reduction in Breast Cancer Mortality: A Modeling Study Using Population-Based Data From 2 French Departments." Am J Epidemiol **190**(5): 827-835.

Meta-analyses of randomized controlled trials that started from 1963 to 1991 reported a decrease of breast cancer mortality, associated with mammography screening. However, the effectiveness of population-based screening programs conducted currently might have changed due to the higher effectiveness of treatments for late-stage cancers and the better diagnostic performance of mammography. The main objective of this study was to predict the reduction of breast cancer mortality associated with mammography screening in the current French setting. We compared breast cancer mortality in 2 simulated cohorts of women, which differed from each other solely in a 70% biennial participation in screening from 50 to 74 years old. The microsimulation model used for predictions was calibrated with incidence rates of breast cancer according to stage that were observed in Isère and Loire-Atlantique departments, France, in 2007-2013. The model predicted a decrease of breast cancer mortality associated with mammography screening of 18% (95% CI: 5, 31) and 17% (95% CI: 3, 29) for models calibrated with data from Isère and Loire-Atlantique departments, respectively. Our results highlight the interest in biennial mammography screening from ages 50 to 74 years old to decrease breast cancer mortality in the current setting, despite improvements in treatment effectiveness.

SPF (2021). Dépistage du cancer du sein : quelle participation des femmes en 2020 ?, Saint-Maurice : Santé publique FRance
https://www.santepubliquefrance.fr/les-actualites/2021/depistage-du-cancer-du-sein-quelle-participation-des-femmes-en-2020

Cette page du site de Santé publique France publie les nouvelles données de participation des femmes au programme de dépistage organisé du cancer du sein. Ce programme invite tous les 2 ans les femmes âgées de 50 à 74 ans à effectuer une mammographie de dépistage, complétée par un examen clinique des seins.

2020

Barré, S., Leleu, H., Vimont, A., et al. (2020). "[Estimated impact of the current colorectal screening program in France]." Rev Epidemiol Sante Publique **68**(3): 171-177.

BACKGROUND: Colorectal cancer is the third most common cancer and the second most deadly in France. A Cochrane meta-analysis has confirmed the benefits of colorectal cancer screening. A nationwide colorectal screening program was set up in France in 2009 for medium-risk, asymptomatic people aged 50 to 74 years. It has been based, since 2015, on the Fecal Immunochemical Test. The participation rate for 2016-2017 was 34%, which is lower than the European objectives. The objective of this study was to evaluate the impact of the program at the current participation rate and at rates of 45% and 65%. METHODS: The epidemiological impact of the program was estimated from the results of an individual simulation model adapted from the Microsimulation Screening Analysis Colon model, calibrated and transposed to the French context. An initial analysis was conducted to estimate the individual impact of screening and a second for the entire eligible population, at various participation rates. RESULTS: The test is associated with a lifetime reduction in the risk of colorectal cancer of 24% for men and 21% for women, and a reduction in the risk of death from colorectal cancer of 51% and 43% respectively. At the current level of participation, the program reduces incidence by 5% and mortality by 14% compared to no organized screening. The impact would be reduced by an additional 3% and 8% for participation rates of 45% and 65% respectively. Similarly, mortality would decrease by an additional 8% and 22%. CONCLUSION: These results confirm that in a population at medium risk for colorectal cancer, the organised programme is an effective strategy for reducing its incidence. They also confirm that the achievement of European objectives remains a key issue for improving the effectiveness of organized screening. An evolution of immunological test delivery modalities could help to achieve these participation objectives.

Bouvet de la Maisonneuve, P., Plaine, J., Quintin, C., et al. (2020). Dépistage organisé du cancer du col de l'utérus. Définition des indicateurs de performance et format des données pour l'évaluation du programme national. Saint-Maurice, Santé publique France**:** 104 p.

Chaque année en France, le cancer du col de l'utérus touche environ 3 000 femmes et génère environ 1 100 décès. L'objectif du dépistage du cancer du col de l'utérus est de réduire l'incidence et la mortalité par ce cancer avec le moins d'effets négatifs possibles pour les femmes. Le dépistage vise à détecter des lésions précancéreuses et à les traiter avant qu'elles n'évoluent en cancer. Il permet également de détecter des cancers à un stade précoce et ainsi d'en améliorer les chances de guérison. Le programme national de dépistage organisé du cancer du col de l'utérus est un nouveau programme de dépistage des cancers, mis en place par les autorités de santé publique en 2018. Ce programme a pour objectif d'augmenter la couverture du dépistage pour atteindre 80 %, de réduire les inégalités d'accès à ce dépistage et de diminuer de 30 % l'incidence et la mortalité par cancer du col de l'utérus à 10 ans. Santé publique France a pour mission de réaliser l'évaluation épidémiologique des programmes de dépistage des cancers. Ce guide méthodologique a pour finalité la construction d'un système d'évaluation du programme de dépistage du cancer du col de l'utérus fondé sur des indicateurs de performance standardisés afin de suivre l'atteinte des objectifs du programme et d'identifier et de corriger des problèmes éventuels. Il s'adresse aux centres régionaux de coordination des dépistages des cancers (CRCDC) chargés de l'organisation des programmes à l'échelle régionale, aux éditeurs de logiciels équipant les CRCDC de logiciels métiers, ainsi qu'à l'ensemble des professionnels et institutions concernés par le dépistage du cancer du col de l'utérus. Il a pour objectifs de (i) définir les indicateurs de performance du programme ; (ii) définir les données nécessaires à la production de ces indicateurs à transmettre par les CRCDC à Santé publique France selon un format standardisé ; (iii) décrire la procédure de transmission de ces données à Santé publique France. Ce guide est susceptible d'évoluer en fonction de l'évolution du programme national de dépistage organisé et notamment de l'intégration dans le programme du test HPV comme test de dépistage primaire.

de Rycke, Y., Tubach, F., Lafourcade, A., et al. (2020). "Cervical cancer screening coverage, management of squamous intraepithelial lesions and related costs in France." Plos One **15**(2): e0228660.

Until 2018, cervical cancer screening in France was an unorganized individual screening, with the exception of some pilot programs in some territories. We aimed to assess, before the implementation of organized cervical cancer screening and human papillomavirus (HPV) nonavalent vaccine introduction in the vaccination schedule in 2018, (i) the individual cervical cancer screening coverage, (ii) the management of squamous intraepithelial lesions (SIL) and (iii) the related costs. We used the Système National des Données de Santé (SNDS) (Echantillon Généraliste de Bénéficiaires [EGB] and Programme de Médicalisation des systèmes d'information [PMSI]) to assess the cervical screening coverage rate in France between January 1st, 2012 and December 31st, 2014, and to describe diagnostic investigations and therapeutic management of SIL in 2013. After extrapolation to the general population, a total of 10,847,814 women underwent at least one smear test over the 3-year study period, corresponding to a coverage rate of 52.4% of the women aged 25 to 64 included. In 2013, 126,095 women underwent HPV test, 327,444 women underwent colposcopy, and 9,653 underwent endocervical curettage; 31,863 had conization and 12,162 had laser ablation. Besides, 34,067 women experienced hospital stays related to management of SIL; 25,368 (74.5%) had high-grade lesions (HSIL) and 7,388 (21.7%) low-grade lesions (LSIL). Conization was the most frequent in-hospital therapeutic procedure: 89.5% (22,704) of women with an in-hospital procedure for HSIL and 64.7% (4,781) for LSIL. Mean cost of smear test, colposcopy and HPV tests were around 50€. Total cost for hospital stays in 2013 was estimated at M41€, or a mean cost of 1,211€ per woman; 76% were due to stays with HSIL. This study highlights the low coverage rate of individual cervical cancer screening and a high burden related to SIL management.

Gandré, C. et Coldefy, M. (2020). "Le recours aux soins somatiques des personnes suivies pour des troubles psychiques sévères en France : comparaison avec la population générale." Revue d'Épidémiologie et de Santé Publique **68**: S31.
http://www.sciencedirect.com/science/article/pii/S0398762020300778

Introduction La surmortalité des individus suivis pour des troubles psychiques a été récemment objectivée en France, appelant des éléments explicatifs et suggérant que cette population est confrontée à des inégalités de santé. Dans ce contexte, notre objectif est d'identifier d'éventuels défauts dans les parcours de soins somatiques des personnes suivies pour des troubles psychiques sévères. Méthodes Nous mobilisons le Système national des données de santé (SNDS) pour décrire et comparer le recours aux soins somatiques entre les individus suivis pour des troubles psychiques sévères (identifiés via la cartographie médicalisée de la Caisse nationale d'assurance maladie pour l'année 2014) et la population générale. Plusieurs aspects des parcours de soins sont étudiés sur une période allant jusqu'à deux ans (2015 et 2016) : notamment le recours aux soins préventifs, aux soins somatiques courants, aux soins en urgence et aux hospitalisations évitables. Résultats La part des personnes ayant recours à la vaccination et au dépistage du cancer du sein et/ou de l'utérus est moindre chez les personnes suivies pour des troubles psychiques en comparaison avec la population générale (ratios de 0,91 et 0,76 respectivement). Ce moindre recours est également observé pour les soins dentaires, gynécologiques et ophtalmologiques (ratios compris entre 0,66 et 0,94). Les individus suivis pour des troubles psychiques présentent un nombre moyen de passage aux urgences annuelles 2,4 fois plus élevé que la population générale. Les disparités sont particulièrement marquées pour les hospitalisations évitables qui sont 3,4 fois plus fréquentes chez les personnes avec des troubles psychiques. Discussion/Conclusion Ces premiers résultats mettent en évidence des disparités dans le recours aux soins somatiques courants des individus suivis pour des troubles psychiques sévères, dont la persistance après ajustement sur les caractéristiques individuelles (notamment socio-économiques) devra être explorée. Ils soutiennent le développement d'approches qualitatives visant à mieux comprendre les difficultés et obstacles dans les parcours de soins somatiques des patients suivis pour des troubles psychiques.

Gocko, X., Fondacci, M., Dibi, C., et al. (2020). "[Information around organized breast cancer screening. Do INCa and Cancer Rose meet criteria for decision aids?]." Rev Epidemiol Sante Publique **68**(1): 33-36.

BACKGROUND: Controversies around organized breast cancer screening emphasize the need for information for women. In France, the institute of cancer (INCa) is in charge of conveying this information. Cancer Rose's website (CR) provides complementary information considering INCa's incomplete. The objective of this study was to identify if these informations meet criteria for decision aid. METHODS: Information documents were selected and analyzed using International Patient Decision Aid Standards (IPDAS). Each item was noted A (absent), P (present) or I (present but incomplete). RESULTS: Information booklet and press kit for INCa and studies section for CR were the document meeting most criteria. The document meeting fewer criteria were the INCa's video and information leaflet for CR. Videos are more accessible tools for people with lower levels of health literacy. INCa's video did not present the risks of screening and CR's emphasized the risks. CONCLUSION: These documents have not been evaluated for intelligibility, clarity and readability. Addressing these criteria limits social inequities and improves health literacy.

Grainville, T., Bretagne, J. F., Piette, C., et al. (2020). "Management of T1 colorectal cancers detected at screening colonoscopy: A study from the French national screening programme." Dig Liver Dis **52**(8): 909-917.

AIM: The main aim of this study was to examine the management strategies that were used and to determine the outcomes (survival and recurrence rate) of screen-detected T1-CRC. METHODS: Medical records from 207 patients with T1-CRC diagnosed through the French national screening programme in one district from 2003 to 2015 were analysed. The 5-year overall, CRC-specific and CRC-free survival were calculated for the whole cohort and for the 3 groups treated by endoscopic resection (ER) alone, ER followed by subsequent surgery (ERSS), and primary surgery (PS). RESULTS: Of the 207 patients, 81 (39%) underwent PS, and 126 (61%) underwent primary ER, of whom 82 (64%) underwent subsequent surgery. The 5-year overall and cancer-specific survival rates were 95.5% (95% CI, 90.8; 97.9) and 98.8% (95% CI, 95.4; 99.7%), respectively. Long-term cancer-specific mortality and recurrence crude rates were 2.4% and 5.6%, respectively. The 5-year CRC-free survival rate was 96.1% (95% CI, 91.8; 98.1%) and did not differ amongst the 3 groups (ER alone, ERSS and PS). CONCLUSION: This study demonstrates the good prognosis of screen-detected T1-CRC, regardless of the treatment strategy used. But, there is a room to improve the screening programme quality with regard to the management of screen-detected CRC.

Grigore, M., Nandrean, A. et Gafitanu, D. (2020). "[How can we improve cervical cancer screening: What can we learn from mistakes?]." Bull Cancer **107**(3): 322-327.

Cervical cancer screening is considered one of the most significant public health interventions that can reduce not only the incidence, but also the mortality of the disease. One of the most important factors for screening effectiveness is coverage defined as the number of women tested within a recommended interval. In the first years of the cervical screening, the participation rate in National Screening Program in Romania was 14.2% with slight difference in different region of the country. In the northeastern part of the country, in the first four years of the program, the rate was 16.9% with an alarmingly continuous decrease. Thus, increasing the rate of uptake of cervical screening is essential. The policy-makers should take new measures to increase women's participation in this screening program. The objective of this paper was to review situation of the screening program and to identify gaps and needs in the system and to bring or suggest solution.

Pernin, J.-L. (2020). "Le dépistage par mammographie en France dans la théorie du comportement planifié : bénéfice collatéral, confiance, valeur perçue et comportements périphériques." Sciences sociales et santé **38**(1): 39-66.
https://www.cairn.info/revue-sciences-sociales-et-sante-2020-1-page-39.htm

Cet article propose d'utiliser une version étendue de la théorie du comportement planifié pour étudier les déterminants psychosociologiques de la participation des femmes aux campagnes de dépistage du cancer du sein par mammographie en France. Les modifications théoriques concernent : l'intégration d'un bénéfice collatéral, le test du rôle de la confiance et de la valeur perçue dans la formation de l'intention et l'intégration de comportements périphériques. Une enquête par questionnaire (n = 135) a été menée auprès de femmes de 40 à 75 ans. Les analyses sont réalisées à l'aide de modélisations par équations structurelles. Les principaux résultats concernent l'importance du bénéfice collatéral dans la formation de l'attitude et le lien entre l'acceptation de faire des analyses de sang et le dépistage par mammographie. Le temps est le principal frein pour se faire dépister. Ni la confiance ni la valeur perçue ne sont prédictifs de l'intention comportementale.

Raginel, T., Grandazzi, G., Launoy, G., et al. (2020). "Social inequalities in cervical cancer screening: a discrete choice experiment among French general practitioners and gynaecologists." BMC Health Serv Res **20**(1): 693.

BACKGROUND: Cervical cancer screening is effective in reducing mortality due to uterine cervical cancer (UCC). However, inequalities in participation in UCC screening exist, especially according to age and social status. Considering the current situation in France regarding the ongoing organized UCC screening campaign, we aimed to assess general practitioners' (GPs) and gynaecologists' preferences for actions designed to reduce screening inequalities. METHODS: French physicians' preferences to UCC screening modalities was assessed using a discrete choice experiment. A national cross-sectional questionnaire was sent between September and October 2014 to 500 randomly selected physicians, and numerically to all targeted physicians working in the French region Midi-Pyrénées. Practitioners were offered 11 binary choices of organized screening scenarios in order to reduce inequalities in UCC screening participation. Each scenario was based on five attributes corresponding to five ways to enhance participation in UCC screening while reducing screening inequalities. RESULTS: Among the 123 respondents included, practitioners voted for additional interventions targeting non-screened women overall ($p < 0.05$), including centralized invitations sent from a central authority and involving the mentioned attending physician, or providing attending physicians with the lists of unscreened women among their patients. However, they rejected the specific targeting of women over 50 years old ($p < 0.01$) or living in deprived areas ($p < 0.05$). Only GPs were in favour of allowing nurses to perform Pap smears, but both GPs and gynaecologists rejected self-collected oncogenic papillomavirus testing. CONCLUSIONS: French practitioners tended to value the traditional principle of universalism. As well as rejecting self-collected oncogenic papillomavirus testing, their reluctance to support the principle of proportionate universalism relying on additional interventions addressing differences in socioeconomic status needs further evaluation. As these two concepts have already been recommended as secondary development leads for the French national organized screening campaign currently being implemented, the adherence of practitioners and the adaptation of these concepts are necessary conditions for reducing inequalities in health care.

2019

Bloy, G. et Rigal, L. (2019). "En quête de pertinence et d'égalité ? Quand les prescriptions des dépistages des cancers gynécologiques s'emmêlent." Revue française des affaires sociales(3): 11-33.
https://www.cairn.info/revue-francaise-des-affaires-sociales-2019-3-page-11.htm

Cet article croise épidémiologie et sociologie pour réfléchir aux inégalités sociales présentes dans le dépistage des cancers gynécologiques (cancers du col de l'utérus et du sein). Il cherche à en préciser les logiques de prescription « ordinaires », en les référant à un système de prescripteurs, pour éclairer la fabrique des inégalités sociales en matière de dépistages gynécologiques. De la prescription, l'analyse remonte aux principaux acteurs professionnels, gynécologues et médecins généralistes, et examine comment leurs logiques d'action cohabitent, plus qu'elles ne s'articulent de façon synergique, pour produire des problèmes de pertinence et des gradients sociaux dans la réalisation des frottis et mammographies de dépistage. Le (dys)fonctionnement de l'organisation de l'offre de soins pour ces dépistages est le produit d'une histoire spécifique, saisie à un moment de tension particulier. L'analyse repose sur deux enquêtes originales autour des pratiques préventives des généralistes, dont nous mobilisons le volet dépistage des cancers gynécologiques, et est adossée à la littérature.

Caporossi, A., Olicard, C., Seigneurin, A., et al. (2019). "[Interval between two smear tests for cervical cancer screening and characteristics of women with a short interval: Study in the department of Isère]." Rev Epidemiol Sante Publique **67**(3): 143-147.

AIMS: In France, guidelines for cervical cancer screening recommend that women between the ages of 25-65 have a smear test performed once every three years. However, some women are screened significantly more frequently. In this study, we used a data-driven approach as opposed to a traditional hypothesis-driven approach to characterise the population of women who are screened more frequently than advised. METHODS: Data came from an organised cervical cancer screening programme of a French department in the Alps (Isère). We retrospectively selected women aged between 25 to 65 years old who had at least two smear tests during the follow up period (2011-2015). We used a data-driven clustering approach to compare the population of over-screened women with other populations. We then performed a descriptive analysis of the over-screened population using univariate (Chi(2) test) and multivariate (logistic regression) methods. RESULTS: A total of 10,000 patients were randomly chosen from a population of 54,073. In our univariate analysis, women in the over-screened population were significantly younger, participated less in organised screening, were more likely to be followed by a gynaecologist and had more smear test results showing inflammation than the other populations. Patient location (urban v.s. rural area) was not significant for this population. The multivariate analysis confirmed these results. CONCLUSION: This data-driven approach based on an unsupervised learning method enables us to more accurately characterise the over-screened population. These data invite to improve communication with the youngest women and the gynecologists to recall the benefit of an interval between two normal smears complying with the recommendations. This approach could help to improve the prevention and have a real impact on this Public Health issue.

Dawidowicz, S., Le Breton, J., Moscova, L., et al. (2019). "Predictive factors for non-participation or partial participation in breast, cervical and colorectal cancer screening programmes†." Family Practice **37**(1): 15-24.
https://doi.org/10.1093/fampra/cmz031

No study has investigated factors associated with non-participation or partial participation in the different combination patterns of screening programmes for all three cancers, that is, breast, colorectal and cervical cancer.In a retrospective cohort study, we sought to describe combinations of cancer screening participation rates among women in the Val-de-Marne area of France and to identify individual and contextual factors associated with non-participation or partial participation.Women aged between 50 and 65 and who were eligible for all three screening programmes (n = 102 219) were analysed in multilevel logistic models, with the individual as the Level 1 variable and the place of residence as the Level 2 variable. The women who did not participate in any of the screening programmes were 34.4%, whereas 30.1%, 24% and 11.5% participated in one, two or all three screening programmes, respectively. Age below 55, a previous false-positive mammography, prior opportunistic mammography only, no previous mammography, membership of certain health insurance schemes (all P < 0.05) and residence in a deprived area (P < 0.001) were independently associated with non-participation or partial participation. We observed a stronger effect of deprivation on non-participation in all three cancers than in combinations of screening programmes.Our findings suggest that the health authorities should focus on improving cancer screenings in general rather than screenings for specific types of cancer, especially among younger women and those living in the most socially deprived areas.

Doutre-Leclercq, E. et Charles, R. (2019). "Déficience intellectuelle et dépistage organisé des cancers." Medecine : De La Medecine Factuelle a Nos Pratiques **15**(9): 417-422.

Les personnes avec une déficience intellectuelle ont un risque plus élevé de développer un cancer colique ; le cancer du sein survient plus tôt et est plus souvent disséminé. Le taux de réalisation du dépistage organisé des cancers reste inférieur à la population générale. Cet article tente de comprendre les particularités du dépistage organisé des cancers chez les personnes avec une déficience intellectuelle et d'effectuer un focus sur une action de promotion en Auvergne-Rhône-Alpes.

Hamers, F. et Jezeweski-Serra, D. (2019). "Couverture du dépistage du cancer du col de l'utérus en France." Bull Epidemiol Hebd(22-23): 417-423.

Introduction - Le Programme national de dépistage organisé (PNDO) du cancer du col de l'utérus (CCU), en cours de déploiement depuis 2018, a pour objectif d'augmenter la couverture du dépistage pour atteindre 80%, de réduire les inégalités d'accès à ce dépistage et de diminuer de 30% l'incidence et la mortalité par CCU à 10 ans. Disposer d'estimations fiables de la couverture du dépistage du CCU avant la mise en place du PNDO CCU est essentiel pour mesurer l'impact de ce programme. Méthodes - En France, le dépistage du CCU repose actuellement sur la réalisation d'une cytologie (frottis cervico-utérin - FCU) tous les tois ans pour les femmes âgées de 25 à 65 ans. Le taux de couverture du dépistage triennal a été calculé à partir des données de l'Assurance maladie, pour l'ensemble des femmes de 25-65 ans et par classe d'âge quinquennale, pour la France entière et par région et département, pour la période 2015-2017 ainsi que pour les trois périodes triennales glissantes précédentes depuis 2012. Résultats - Parmi les 17,8 millions de femmes âgées de 25 à 65 ans résidant en France, 10,4 millions avaient réalisé un FCU au cours de la période 2015-17, soit un taux de couverture national de 58,7%. La couverture diminue de manière importante avec l'âge à partir de 50 ans pour tomber à 44,2% chez les femmes de 60-65 ans. Les taux nationaux globaux et par âge étaient relativement stables depuis 2012. Les données révèlent d'importantes disparités géographiques, avec des taux variant de 42% à 68% et des taux particulièrement faibles dans les départements et régions d'outre-mer, à l'exception de La Réunion. Conclusion - Le suivi des tendances de la couverture du dépistage du CCU devrait permettre de mesurer le progrès du PNDO CCU vers ses objectifs d'amélioration de la couverture et de réduction des disparités d'accès à ce dépistage.

Hamers, F., Woronoff, A.-S. et Réseau français des registres de cancers, F. (2019). "Cancer du col de l'utérus en France : tendances de l'incidence et de la mortalité jusqu'en 2018." Bull Epidemiol Hebd(22-23): 410-416.

L'objectif de cet article est de dresser un état des lieux du fardeau du cancer du col de l'utérus (CCU) en France et des tendances d'incidence et de mortalité à partir des estimations les plus récentes au niveau national et infranational. En 2018, en France métropolitaine, le nombre de nouveaux diagnostics de CCU est estimé à 2 920 et le nombre de décès par CCU à 1 120. Les estimations d'incidence territoriales révèlent une hétérogénéité géographique importante. La diminution de l'incidence et de la mortalité observée depuis plusieurs décennies se poursuit, mais à un rythme décroissant. Les analyses d'incidence par âge et cohorte de naissance indiquent que le ralentissement de la baisse de l'incidence est probablement dû à une augmentation de l'exposition aux papillomavirus humains à haut risque oncogènes (HPV-HR), résultant de modifications dans les comportements sexuels. Les données suggèrent que l'impact de l'augmentation de la transmission du HPV-HR sur l'incidence et la mortalité du CCU a été contrebalancée par l'effet du dépistage mais que cet effet s'essouffle et qu'il existe un risque d'inversion des tendances. Une meilleure couverture de la vaccination contre le HPV, jusqu'ici très insuffisante (<25%), combinée à un programme de dépistage organisé fondé sur le test HPV est indispensable à l'élimination du cancer du col de l'utérus, déclarée priorité de santé publique par l'Organisation mondiale de la santé.

Hamers, F. F., Plaine, J. et Assogba, F. (2019). Baromètre DOM de Santé publique France : dépistage du cancer du col de l'utérus. Saint-Maurice, Santé publique France**:** 8 p.

La présente étude, réalisée à partir de données déclaratives du Baromètre santé DOM 2014, a pour objectif de comparer dans les DOM et en France métropolitaine le recours déclaré au frottis cervico-utérin chez les femmes de 25 à 65 ans, c'est à dire celles constituant la population cible du dépistage du cancer du col de l'utérus, et d'identifier, pour chaque DOM, les facteurs associés à la non réalisation par ces femmes d'un frottis dans les trois dernières années.

Koïvogui, A., Ecochard, R., Le Mab, G., et al. (2019). "Impact of stopping sending colorectal cancer screening test kits by regular mail." Public Health **173**: 33-41.

OBJECTIVE: From 2009 to 2013, the French colorectal cancer screening program (CRCSP) provided for a medical phase and a phase of systematic mailing of the test kit (SMTK) to people who could not participate in the medical phase. After 2013, the SMTK was abandoned in most districts. This study aims to analyze the impact of this termination. STUDY DESIGN: This was a descriptive and cohort study. METHODS: The study concerned a cohort of 143,989 people (aged 50-74 years) living in Seine-Saint-Denis (France), invited to participate in the 2013 campaign (with SMTK) and in the 2015 campaign (without SMTK). The impact of SMTK termination was analyzed in terms of the difference between the participation rates and between the delay (expected vs observed) in performing the screening test in 2015. These differences were described based on previous solicitation in the CRCSP. Expected rates and expected delay were estimated in a Monte Carlo simulation. RESULTS: The participation rate observed (20.0%) was higher than expected (16.1% [15.9-16.3]). People who have never had a SMTK between 2007 and 2013 (80.0% [79.3-80.7] vs 69.6%) and those who participated in all campaigns before 2015 (97.0% [96.7-97.3] vs 82.6%) had an observed rate lower than expected. The delay observed (4.2 months) was longer than expected (2.5 months). CONCLUSION: The sudden termination certainly contributed to the extension of the delay. However, it did not have a major impact on the participation rate, partly due to information campaigns on the new screening test. In this cohort, the low participation would be explained better by the behavior in the previous campaigns than by the lack of SMTK.

Konopka, A. M., Barnay, T., Billaudeau, N., et al. (2019). "Les déterminants du recours au dépistage du cancer du col de l'utérus : une analyse départementale." Économie & prévision **216**(2): 43-63.
https://www.cairn.info/revue-economie-et-prevision-2019-2-page-43.htm

L'objectif de cette étude est d'analyser les déterminants des disparités géographiques de recours au dépistage du cancer du col en France. L'échantillon étudié est composé de femmes âgées de 25 à 65 ans, assurées à la Mutuelle Générale de l'Éducation Nationale (MGEN) au moins en Régime Obligatoire (RO) sur la période du 1er janvier 2012 au 31 décembre 2014. Les modèles multiniveaux confirment l'existence d'inégalités territoriales de recours au dépistage. Par ailleurs, ils montrent que l'âge, le tarif de la consultation de gynécologie et un contexte socio-économique défavorisé sont associés à une diminution de la probabilité de se faire dépister. Au contraire, le fait d'être en couple, d'être couverte en Régime Complémentaire (RC) par la MGEN, d'avoir eu un suivi pour une contraception ou une grossesse, de s'être faite dépister pour le cancer du sein (mammographie) et la densité de professionnels de santé sont associés à une augmentation du recours au dépistage. Différents leviers d'action sont discutés au regard du rôle majeur joué par les professionnels de santé dans l'accès au dépistage.

Launoy, G. (2019). "[Impact of the integration of FIT in the colorectal cancer screening program in France]." Bull Cancer **106**(7-8): 703-706.

While organized screening for colorectal cancer has been extended to the whole of France since 2008, there is no evidence to suggest that this screening based on use of the guaiac test had a significant impact on trends in its incidence and mortality in France in the last 10 years. Following the first prospective trials conducted in Normandy, FIT (Fecal Immunological Test) was proposed to the entire national territory from 2015. Three years after its generalization, it is of course impossible to measure the effects of this modification of strategy on the incidence or mortality from colorectal cancer. However, for both models and data from the ten departments of the Greater East region, this test should make it possible to detect 2.5 more cancers and 3.7 times more advanced adenomas than the guaiac test and sensitivity. A biennial program using an immunoassay should be about 75%. On the other hand, it is reasonable to hope that the technical characteristics of the test and the newfound confidence of the doctors eventually improve the participation of the target population. The result of an improvement in the technical performance of the test and an (expected) increase in participation should ultimately be measurable translation into the general population in terms of improving the survival of people with cancer, lowering the risk of cancer incidence of the most advanced forms and decline in mortality.

Moutel, G., Darquy, S., Jullian, O., et al. (2019). "[Ethics of organized cancer screening in France]." Sante Publique **S2**(Hs2): 67-74.

Cancer screening has been among the priorities of the French Cancer Plans since 2003. However, participation in screening programs remains below expectations. The predominance of the value of autonomy in today's society may compromise the legitimacy of a public health action if it does not gain the adhesion of individuals. The Group of Reflection on the Ethics of Screening (GRED) set up by the French National Cancer Institute has brought together experts from different disciplines around this issue. The aim of the present article is to summarize the work of the group, which successively focused on breast and colorectal cancer screening programs, followed by reflection on the implementation of organized cervical cancer screening. Information and health education appear to be key levers to enable individuals to understand the collective interest of public health policies and thus to be able to adhere to the proposed actions in an informed manner. This should be made possible by providing complete and high quality information, addressing the limits of each screening including benefits and risks. Valuing the collective dimension of public health, which calls for solidarity, must make it possible to raise awareness of the proper use of public services.

Padilla, C. M., Painblanc, F., Soler-Michel, P., et al. (2019). "Mapping Variation in Breast Cancer Screening: Where to Intervene?" Int J Environ Res Public Health **16**(13).

Small geographic areas with lower mammography screening participation rates may reflect gaps in screening efforts. Our objective was to use spatial analyses to understand disparities in mammography screening use and to identify factors to increase its uptake in areas that need it in Lyon metropolitan area, France. Data for screened women between the ages of 50 and 74 were analyzed. Census blocks of screened and non screened women were extracted from the mammography screening programme 2015-2016 dataset. We used spatial regression models, within a generalized additive framework to determine clusters of census blocks with significantly higher prevalence of non-participation of mammography screening. Smoothed risk maps were crude and adjusted on the following covariates: deprivation index and opportunistic screening. Among 178,002 women aged 50 to 74, 49.9% received mammography screening. As hypothesized, women living in highly deprived census blocks had lower participation rates compared to less deprived blocks, 45.2% vs. 51.4% $p < 0.001$. Spatial analyses identified four clusters, one located in an urban area and three in suburban areas. Moreover, depending on the location of the cluster, the influence came from different variables. Knowing the impact of site-specific risk factors seems to be important for implementing an appropriate prevention intervention.

Quintin, C. et Rogel, A. (2019). Évaluation du programme de dépistage organisé du cancer du sein : résultats et évolution des indicateurs de performance depuis 2004 en France métropolitaine. Saint-Maurice, Santé publique France**:** 48 p.

Introduction : le programme de dépistage organisé du cancer du sein a pour objectif de réduire la mortalité de ce cancer en le détectant à un stade précoce. En France, depuis 2004, les femmes de 50 à 74 ans sont invitées, tous les 2 ans, à effectuer une mammographie bilatérale de dépistage et un examen clinique des seins. Les clichés sont lus par un premier radiologue (L1) et complétés si besoin par un bilan immédiat. Tous les clichés normaux lors de la L1 sont relus par un deuxième radiologue expérimenté (L2). L'objectif de ce rapport est de présenter la performance de ce programme sur la période 2004-2014. Matériel et méthodes : les données sont recueillies chaque année par les structures départementales de dépistage et transmises à Santé publique France. Les indicateurs de performance du programme sont calculés pour estimer l'activité de dépistage, les résultats des dépistages et les cancers détectés. Résultats : après une phase d'augmentation (2004-2008) puis de stabilisation (2008-2012), le taux de participation a diminué et atteint 50,1 % en 2016. Il est très variable d'un département à l'autre. Les dépistages positifs avant bilan en L1 ou L2 ont diminué de 13,5 % en 2004 à 8,7 % en 2014. À l'issue de la procédure de dépistage, le taux de cancers détectés est stable (7 ‰ en 2014). En 2014, pour 1 000 femmes dépistées, étaient détectés : 1,0 cancer canalaire in-situ, 1,9 cancer invasif de petite taille et 3,9 cancers invasifs sans envahissement ganglionnaire. Ces résultats sont stables depuis 2004. La valeur prédictive positive d'un résultat positif avant bilan, en augmentation constante depuis 2004, était de 8,5 % en 2014. L'ensemble des résultats aux différentes étapes du programme de dépistage varient selon le rang du dépistage et l'âge. Conclusion : la plupart des indicateurs de performance attestent de la qualité du programme français, condition nécessaire à une réduction de la mortalité. Bien que la quantification précise du dépistage hors programme reste difficile, elle sera nécessaire pour mieux appréhender la réalité du dépistage du cancer du sein par mammographie en France.

Rousseau, S., Massetti, M., Barré, S., et al. (2019). "Évaluation coût-efficacité de la vaccination contre les papillomavirus humains dans le cadre du dépistage du cancer du col de l'utérus en France." Bull Epidemiol Hebd(22-23): 457-465.

Introduction - L'Institut national du Cancer (INCa) a souhaité quantifier les bénéfices de santé additionnels (lésions précancéreuses, cancers du col de l'utérus (CCU) et décès par CCU évités) en France de la vaccination contre les papillomavirus humains (HPV), dans le contexte de la récente commercialisation du vaccin nonavalent (Gardasil® 9) et de la mise en place du dépistage organisé (DO) du CCU. Méthodes - L'étude est fondée sur un modèle de micro-simulation qui reproduit l'histoire naturelle du CCU générant une cohorte de jeunes filles de 14 ans et suit chacune d'elles jusqu'à son décès. Les autres affections liées à l'infection HPV (condylomes, cancers de l'anus, cancer du pénis et oropharynx) ne sont pas modélisées. Différentes stratégies sont comparées à la situation de couverture vaccinale (CV) actuelle de 21,4% (2017) : impact de l'augmentation de la CV seule et impact de l'augmentation de la CV conjuguée à la correction des inégalités de vaccination (hypothèse où les femmes bénéficiaires de la couverture maladie universelle complémentaire (CMU-C) sont autant vaccinées que les femmes non bénéficiaires de la CMU-C). Un horizon temporel vie entière et une perspective collective (tous payeurs) sont utilisés. L'analyse de sensibilité inclut la durée de protection du vaccin (20 ans ou vie entière) et le prix du vaccin (prix français et prix moyens européens) est évaluée et discutée. Résultats - Toutes les stratégies évaluées sont associées à un ratio différentiel coût-résultat (RDCR) inférieur à 15 000 euros par QALY (quality-adjusted life year : année de vie pondérée par la qualité de vie). En comparaison à la situation actuelle, une augmentation de CV jusqu'à 85% avec correction des inégalités permettrait d'éviter a minima par cohorte annuelle de jeunes filles de 14 ans : 2 546 conisations, 2 347 lésions précancéreuses CIN2/3 diagnostiquées, 377 CCU, 139 décès par CCU (protection du vaccin de 20 ans). Les scénarios basés sur l'augmentation de la CV avec correction des inégalités sont les plus coûts-efficaces. Conclusion - L'étude permet d'estimer les cas de lésions précancéreuses, CCU et décès par CCU qui pourraient être évités en augmentant la couverture vaccinale et de chiffrer les investissements permettant la mise en place d'actions visant à améliorer l'efficience des stratégies actuelles et à lutter contre les inégalités de santé (campagne de communication, actions à destination des femmes bénéficiaires de la CMU-C).

Sancho-Garnier, H., Triboulet, J. P., Villet, R., et al. (2019). "Rapport 19-07. Rapport sur l'évolution des programmes de dépistage « organisé » des cancers du sein, du côlon et du rectum, et du col utérin, en France." Bulletin de l'Académie Nationale de Médecine **203**(8): 641-652.
https://doi.org/10.1016/j.banm.2019.10.005

Résumé Le dépistage des cancers est une démarche de santé publique pour réduire la mortalité d'un cancer donné. L'intervention identifie les porteurs probables de ce cancer par un « test » proposé à une population asymptomatique dont la majorité des individus ne sont pas porteurs de ce cancer. Le bénéfice du dépistage s'objective par la baisse de la mortalité due au cancer ciblé dans la population testée. Les effets indésirables (faux positifs, examens et traitements inutiles, faux négatifs…) doivent aussi être mesurés afin de s'assurer que les bénéfices sont supérieurs aux effets négatifs. Ces données ne sont connues et gérables que dans le cadre d'un programme organisé. À l'heure actuelle, seuls les cancers du sein, du colon-rectum et du col de l'utérus satisfont à ces principes et font l'objet d'un dépistage organisé en France. Cette balance bénéfice/risque doit être estimée régulièrement, car elle se modifie avec le temps en raison des acquis médicaux (nouveaux tests…) ou de modifications épidémiologiques (nouvelles populations atteintes…). En conséquence, cette évaluation doit entraîner une interrogation régulière sur les programmes en cours et une mise en place rapide des ajustements nécessaires. Dans l'état actuel des évaluations, en ce qui concerne les cancers du sein, seul le dépistage organisé (DO) est préconisé en France de 50 à 74 ans ; le taux actuel de participation (50 %) devrait être stimulé pour atteindre 70 %. La détection individuelle (hors DO), avant ou après 50 ans, non justifiée par un risque familial ou un symptôme doit être clairement déconseillée. Les travaux de recherche pour un meilleur ciblage de la population soumise au dépistage doivent être soutenus. En ce qui concerne les cancers colorectaux, le dépistage doit avant tout être mieux ciblé sur une tranche d'âge plus efficiente soit : 55–75 chez les hommes et 60–80 chez les femmes. Sous peine de rester inefficace, le taux de participation doit être au moins doublé par diverses mesures d'organisation dont la prise en charge totale du reste à payer. La possibilité d'utiliser d'autres tests doit être également évaluée. Enfin pour les cancers du col de l'utérus où le dépistage par frottis cervical a largement démontré son efficacité, il reste à convaincre les 40 % de femmes non participantes. Dans ce but il faut mettre en place des mesures adaptées : élargissement des habilitations à prélever (infirmières…), utilisation des tests HPV, remboursement du reste à charge… Par ailleurs grâce à l'existence d'un vaccin efficace ce cancer pourrait être éradiqué. Malheureusement actuellement plus de 70 % des jeunes filles françaises ne sont pas vaccinées ; il est capital d'augmenter la couverture vaccinale en luttant contre les lobbies anti-vaccin, en vaccinant les garçons (éviction de porteurs de virus et prévention des cancers buccaux et oropharyngés), et en intégrant l'information sur les virus HPV dans le programme d'éducation sanitaire à l'école.

2018

Barratt, A., Jørgensen, K. J. et Autier, P. (2018). "Reform of the National Screening Mammography Program in France." JAMA Intern Med **178**(2): 177-178.

Bertaut, A., Coudert, J., Bengrine, L., et al. (2018). "Does mammogram attendance influence participation in cervical and colorectal cancer screening? A prospective study among 1856 French women." Plos One **13**(6): e0198939.

BACKGROUND: We aimed to determine participation rates and factors associated with participation in colorectal (fecal occul blood test) and cervical cancer (Pap-smear) screening among a population of women participating in breast cancer screening. METHODS: From August to October 2015, a self-administered questionnaire was sent by post to 2 900 women aged 50-65, living in Côte-d'Or, France, and who were up to date with mammogram screening. Polytomic logistic regression was used to identify correlates of participation in both cervical and colorectal cancer screenings. Participation in all 3 screenings was chosen as the reference. RESULTS: Study participation rate was 66.3% (n = 1856). Besides being compliant with mammogram, respectively 78.3% and 56.6% of respondents were up to date for cervical and colorectal cancer screenings, while 46.2% were compliant with the 3 screenings. Consultation with a gynecologist in the past year was associated with higher chance of undergoing the 3 screenings or female cancer screenings (p<10-4), when consultation with a GP was associated with higher chance of undergoing the 3 screenings or organized cancer screenings (p<0.05). Unemployment, obesity, age>59 and yearly flu vaccine were associated with a lower involvement in cervical cancer screening. Women from high socio-economic classes were more likely to attend only female cancer screenings (p = 0.009). Finally, a low level of physical activity and tobacco use were associated with higher risk of no additional screening participation (p<10-3 and p = 0.027). CONCLUSIONS: Among women participating in breast screening, colorectal and cervical cancer screening rates could be improved. Including communication about these 2 cancer screenings in the mammogram invitation could be worth to explore.

Buchmueller, T. C. et Goldzahl, L. (2018). "The effect of organized breast cancer screening on mammography use: Evidence from France." Health Economics **27**(12): 1963-1980.
https://onlinelibrary.wiley.com/doi/abs/10.1002/hec.3813

Abstract In 2004, France introduced a national program of organized breast cancer screening. The national program built on preexisting local programs in some, but not all, départements. Using data from multiple waves of a nationally representative biennial survey of the French population, we estimate the effect of organized screening on the percentage of women obtaining a mammogram. The analysis uses difference-in-differences methods to exploit the fact that the program was targeted at women in a specific age group: 50 to 74 years old. We find that organized screening significantly raised mammography rates among women in the target age range. Just above the lower age threshold, the percentage of women reporting that they had a mammogram in the past 2 years increased by over 10 percentage points after the national program went into effect. Mammography rates increased even more among women in their 60s. Estimated effects are particularly large for women with less education and lower incomes, suggesting that France's organized screening program has reduced socioeconomic disparities in access to mammography.

Buchmueller, T. C. et Goldzahl, L. (2018). The Effect of Organized Breast Cancer Screening on Mammography Use: Evidence from France. NBER Working Paper Series ; n° 24316. Cambridge NBER**:** 39 , tabl., fig.
http://papers.nber.org/papers/W24316

In 2004, France introduced a national program of organized breast cancer screening. The national program built on pre-existing local programs in some, but not all, départements. Using data from multiple waves of a nationally representative biennial survey of the French population, we estimate the effect of organized screening on the percentage of women obtaining a mammogram. The analysis uses difference-in-differences methods to exploit the fact that the program was targeted at women in a specific age group: 50 to 74 years old. We find that organized screening significantly raised mammography rates among women in the target age range. Just above the lower age threshold, the percentage of women reporting that they had a mammogram in the past two years increased by over 10 percentage points after the national program went into effect. Mammography rates increased even more among women in their sixties. Estimated effects are particularly large for women with less education and lower incomes, suggesting that France's organized screening program has reduced socioeconomic disparities in access to mammography.

Darquy, S., Moutel, G., Jullian, O., et al. (2018). "Towards equity in organised cancer screening: the case of cervical cancer screening in France." BMC Womens Health **18**(1): 192.

BACKGROUND: The French national cancer institute (INCa) conducted a series of studies to assist decision-making in view of the implementation of organised cervical cancer screening that will be launched in 2018. The programme will concern all women aged 25-65 and targeted interventions will be developed for underscreened populations. This is an evolution from an equality-based approach to a step-by-step strategy of equity aiming to tackle health cancer inequalities that are avoidable and represents unfair differences. Here we present the work of the expert-group in ethics drafted by INCa to review the ethical issues prior to the programme implementation. DISCUSSION: We discuss the value of such a strategy and presents reflections with regard to issues of stigmatization, respect for individual freedom and autonomy. Indeed, the balance has to be found between the search for beneficence and the potential occurrence of perverse effects, which should be considered with particular attention. CONCLUSION: Moving toward an equity-oriented policy under a strategy of proportionate universalism faces a number of challenges, thus an overview of ethics and social sciences must be an integral part of the process.

De Mil, R., Guillaume, E., Guittet, L., et al. (2018). "Cost-Effectiveness Analysis of a Navigation Program for Colorectal Cancer Screening to Reduce Social Health Inequalities: A French Cluster Randomized

Controlled Trial." Value Health **21**(6): 685-691.

BACKGROUND: Patient navigation programs to increase colorectal cancer (CRC) screening adherence have become widespread in recent years, especially among deprived populations. OBJECTIVES: To evaluate the cost-effectiveness of the first patient navigation program in France. METHODS: A total of 16,250 participants were randomized to either the usual screening group (n = 8145) or the navigation group (n = 8105). Navigation consisted of personalized support provided by social workers. A cost-effectiveness analysis of navigation versus usual screening was conducted from the payer perspective in the Picardy region of northern France. We considered nonmedical direct costs in the analysis. RESULTS: Navigation was associated with a significant increase of 3.3% (24.4% vs. 21.1%; P = 0.003) in participation. The increase in participation was higher among affluent participants (+4.1%; P = 0.01) than among deprived ones (+2.6%; P = 0.07). The cost per additional individual screened by navigation compared with usual screening (incremental cost-effectiveness ratio) was €1212 globally and €1527 among deprived participants. Results were sensitive to navigator wages and to the intervention effectiveness whose variations had the greatest impact on the incremental cost-effectiveness ratio. CONCLUSIONS: Patient navigation aiming at increasing CRC screening participation is more efficient among affluent individuals. Nevertheless, when the intervention is implemented for the entire population, social inequalities in CRC screening adherence increase. To reduce social inequalities, patient navigation should therefore be restricted to deprived populations, despite not being the most cost-effective strategy, and accepted to bear a higher extra cost per additional individual screened.

Deborde, T., Chatignoux, E., Quintin, C., et al. (2018). "Breast cancer screening programme participation and socioeconomic deprivation in France." Prev Med **115**: 53-60.

The objective was to quantify the relationship between deprivation and national breast cancer screening programme (NBCSP) participation at an ecological level in mainland France. Data from 4,805,390 women-living in 36,209 municipalities within 95 departments-participating in the 2013-2014 NBCSP were analysed using the French Deprivation Index (FDep). FDep population quintiles by municipality were computed to describe NBCSP participation according to deprivation. To better examine the relationship between continuous value of deprivation index and participation rates at the municipality level, we built a generalized linear mixed model. Geographical variations in participation rates were marked. The national standardized participation rate was higher in the intermediate quintiles (55%), 45% for the least deprived one and 52% for the most deprived one. Using our model, we also obtained an inverted U-curve for the relationship between NBCSP participation and municipality deprivation: participation was lower for both the least and most deprived municipalities. This relationship was also observed for each of the two subpopulations-urban municipalities and rural ones-considered separately. Introducing the FDep in the model reduced slightly the unexplained variations in participation rates between departments and between municipalities (with a proportional change in variance of 14% and 12% respectively). We highlight major disparities in departmental participation rates and FDep/participation profiles. However, deprivation appears to have only little influence on geographical variation in participation rates. There is a need to further understand the factors affecting geographical variation in participation rates, in particular the use of opportunistic screening.

Favre, J., Rochoy, M., Raginel, T., et al. (2018). "The Effect of Cervical Smears Performed by General Practitioners on the Cervical Cancer Screening Rate of their Female Patients: A Claim Database Analysis and Cross-Sectional Survey." J Womens Health (Larchmt) **27**(7): 933-938.

PURPOSE: Cervical cancer screening reduces the incidence and specific mortality rate of cervical neoplasms. In most cases screening by means of Pap smears is performed in France by gynecologists. The primary objective of this study was to confirm whether the participation rate is increased when general practitioners (GPs) carry out the smears themselves. The secondary objective was to evaluate other independent characteristics of GPs predicting participation rates in women. METHODS: The population of 347 GPs, including their relevant characteristics and their 90,094 female patients eligible for screening over 2 years (2013-2014), was derived from the SIAM claim database of the Flanders

Healthcare Insurance Fund (CPAM). A telephone survey among all GPs was carried out to know whether they were performing smears in their surgeries. RESULTS: A total of 343 GPs were included for analysis (98.8% participation rate). The mean cervical cancer screening participation rate over 2 years among all the women in the recommended age group (25-65 years) was 43.3% (±6.9). Bivariate analysis showed that participation rate was higher when the GP performed smears (adjusted difference of mean: 2.06 [95% CI: 0.67-3.45], p = 0.037) and whether the GP was female (2.08 [0.42-3.74], p = 0.0144). After multivariate analysis the only significant characteristic of the GP was the performance of smears (1.71 [0.27-3.16], p = 0.0204). CONCLUSIONS: Cervical smears performed by GPs led to increased screening participation rates within the recommended age group of women. However, the size of this increase is insufficient to reach the expected participation rates.

Gandilhon, C., Soler-Michel, P., Vecchiato, L., et al. (2018). "A motivational phone call improves participation to screening colonoscopy for those with a positive FIT in a national screening programme (NCT 03276091)." Dig Liver Dis **50**(12): 1309-1314.

BACKGROUND: A large proportion of individuals with a positive faecal immunologic test (FIT) will never undergo the recommended colonoscopy despite a full sequence of reminders. AIMS: This prospective study aimed to recruit refractory individuals by a motivational personalised phone call given by a screening physician. METHODS: We evaluated the impact of a motivational phone call given by a physician of the screening organisation in order to convince patients with positive FIT to undergo a colonoscopy. RESULTS: 115 individuals with a positive FIT were targeted. After GP phone call, it was ascertained that 15 had had a colonoscopy, one died, one moved outside the region, and the GP refused the study phone call for 13. Finally, we attempted to call 85 individuals; 24 could not be reached, 5 colonoscopies had been performed, and thus 56 individuals were included. The main reason for colonoscopy refusal (33.9%) was wrong advice from the GP or the gastroenterologist. Among those included, 33.9% (19/56) underwent the colonoscopy within 22.7 months after FIT; 1 invasive cancer, 18 adenomas and 9 serrated sessile lesions were found. CONCLUSION: Motivational phone call performed by a physician from the screening organisation is effective to recruit a third of refractory individuals. Education for GPs and gastroenterologists is necessary to increase participation to colonoscopy and to avoid the performance of an inappropriate secondary FIT. TRIAL REGISTRATION: NCT 03276091.

Gocko, X., Leclerq, M. et Plotton, C. (2018). "[Discrepancies and overdiagnosis in breast cancer organized screening. A "methodology" systematic review]." Rev Epidemiol Sante Publique **66**(6): 395-403.

BACKGROUND: The risk-benefit ratio of breast cancer organized screening is the focus of much scientific controversy, especially about overdiagnosis. The aim of this study was to relate methodological discrepancies to variations in rates of overdiagnosis to help build future decision aids and to better communicate with patients. METHODS: A systematic review of methodology was conducted by two investigators who searched Medline and Cochrane databases from 01/01/2004 to 12/31/2016. Results were restricted to randomized controlled trials (RCTs) and observational studies in French or English that examined the question of the overdiagnosis computation. RESULTS: Twenty-three observational studies and four RCTs were analyzed. The methods used comparisons of annual or cumulative incidence rates (age-cohort model) in populations invited to screen versus non-invited populations. Lead time and ductal carcinoma in situ (DCIS) were often taken into account. Some studies used statistical modeling based on the natural history of breast cancer and gradual screening implementation. Adjustments for lead time lowered the rate of overdiagnosis. Rate discrepancies, ranging from 1 to 15 % for some authors and around 30 % for others, could be explained by the hypotheses accepted concerning very slow growing tumors or tumors that regress spontaneously. CONCLUSION: Apparently, research has to be centered on the natural history of breast cancer in order to provide responses concerning the questions raised by the overdiagnosis controversy.

Hamers, F. F., Assogba, F. A. G. et Rogel, A. (2018). "Implementation and organization of cancer screening in France." Int J Cancer **143**(12): 3281.

Hamers, F. F., Duport, N. et Beltzer, N. (2018). "Population-based organized cervical cancer screening pilot program in France." Eur J Cancer Prev **27**(5): 486-492.

In France, cervical cancer screening is recommended every 3 years for women aged 25-65 years. With the exception of a few local organized programs, screening is mainly opportunistic. In view of setting up a nationwide population-based organized screening program, a pilot intervention was implemented in nine geographic areas using a common protocol. Women aged 25-65 years who had not undergone a cytological screening in the past 3 years were invited for screening during 2010-2012 and reminded up to 1 year after the initial invitation. Cytological results and follow-up data were collected up to the end of 2014 for all women screened irrespective of whether spontaneously or following invitation. Aggregate data were centralized nationally. Among the 2.4 million women from the total target population aged 25-65 years, 1.3 million were invited for screening. The overall screening coverage during 2010-2012 was 62.3%, with wide variations across geographic areas, ranging from 41.6 to 72.5%. Initial invitations and reminders enabled nearly 280 000 women to be screened, corresponding to an estimated increase in coverage of 12% points. Overall, 4.2% of the women screened had an abnormal smear. A total of 5180 high-grade cervical precancers and 323 invasive cervical cancers were reported, corresponding to detection rates of, respectively, 623 and 39 per 100 000 women screened 3-yearly. This study indicates that such organized screening may markedly improve the uptake of cervical cancer screening. On the basis of this pilot program, nationwide organized cervical cancer screening is currently being rolled out in France.

Koïvogui, A., Mab, G. L. et Benamouzig, R. (2018). "Detection of Colorectal Neoplasia in a Cohort Before and After the Change of Fecal Occult Blood Test in a French Colorectal Cancer Screening Program." Am J Gastroenterol **113**(12): 1891-1899.

OBJECTIVE: To estimate the change in the participation rate and the change in neoplasia incidence before and after the change of the Fecal Occult Blood Test (FOBT) in the cohort included in the Colorectal Cancer Screening Program (CRCSP). METHODS: Cohort of 279,210 people, aged 50-74 years, invited at least once before 2009, to participate in a CRCSP campaign. The participation rate and the cumulative neoplasia incidence were described on 4 campaigns (≤2008, 2009-2010, 2011-2012 and 2013-2014) with a Guaiac FOBT (gFOBT) and a first campaign (2015-2016) with a Fecal Immunochemical Test (FIT). The cumulative incidence was estimated by the actuarial method and its confidence interval by the Greenwood method. RESULTS: The participation rate decreased from 32.7% (first gFOBT-campaign) to 24.4% (fourth gFOBT-campaign) then, made a significant bound in the FIT-campaign (28.4%; $p < 0.001$). 35.4% of the 965 high-risk-polyps screened in this cohort were detected in the FIT-campaign. CRC incidence gradually decreased from 0.4 to 0.1/1000 person-years from the first to the fourth gFOBT-campaign before reaching a bound to 0.4/1000 person-years in the FIT-campaign. CONCLUSION: Although it was still below the minimum European target (45%), the participation rate has increased between the last gFOBT-campaign and FIT-campaign, justifying the impact of promotional campaigns and the acceptance of the new test by people and GPs. A decline in the neoplasia incidence was observed between the initial and the fourth gFOBT-campaign. The change from gFOBT to FIT between the fourth and fifth campaigns, was associated with a significant increase in detection of neoplasia.

Maura, G., Chaignot, C., Weill, A., et al. (2018). "Cervical cancer screening and subsequent procedures in women under the age of 25 years between 2007 and 2013 in France: a nationwide French healthcare database study." Eur J Cancer Prev **27**(5): 479-485.

Cervical cancer screening in young women may lead to the detection of lesions with a high potential for spontaneous regression and no benefit of surgery. French guidelines recommend initiating cervical cancer screening by the Pap test from the age of 25 years. To date, no French nationwide study has assessed cervical cancer screening in young women and the related subsequent work-up and surgical procedures among screen-positive women. Using data from the French national healthcare databases (around 50 million beneficiaries), annual and 3-year Pap test screening rates were calculated among women aged 15-24 years between 2007 and 2013. Cervical excisional procedures were assessed during the 15-month period following a first Pap test in women aged 20-24 years in 2007 and 2012. About 10% of the almost six million women aged 15-65 years with at least one annual Pap test were under the age of 25, mainly women aged 20-24 years, in whom the 3-year screening coverage was 35.5% in 2013. In screened women aged 20-24 years, human papillomavirus testing rates increased markedly over the study period (+105%) and surgical management became less conservative with an increased rate of both conization (+16.5%) and other excisional treatments (+74.5%). Nevertheless, because of the overall decrease in screening coverage, the absolute yearly number of women who underwent conization decreased from 1974 to 1766 between 2007 and 2012. Higher adherence to guidelines is needed to reduce the burden of surgical treatment that is potentially associated with adverse obstetric outcomes among women under the age of 25 years.

Pellat, A., Deyra, J., Coriat, R., et al. (2018). "Results of the national organised colorectal cancer screening program with FIT in Paris." Sci Rep **8**(1): 4162.

In France, colorectal cancer (CRC) benefits from a nationwide screening program. The faecal immunochemical test (FIT) is being used since April 2015. The test is recommended in asymptomatic patients followed by a colonoscopy if positive for identification and treatment of colorectal lesions. We investigate the CRC national organised screening program using FIT in Paris. We performed a retrospective observational study, collecting data from the screening program in Paris using the ADECA75 database. Rates of participation, numbers of positive FIT, detection rates and positive predictive values (PPV) for advanced adenomas (AA) and/or CRC were determined. Between 01/01/2016 and 30/06/2017, 620.227 Parisians were eligible and 409.340 were invited to participate to the program. A total of 88.796 participants (23%) performed the test with 3.839 positive tests (4.3%). In the positive test population, 2.706 out of 3.839 individuals (70.5%) performed the required colonoscopy with available reports. Histology reports were only available for 2.401 participants (88,7%). Regarding lesions, 733 (30,5%) and 205 patients (8.5%) had AA and CRC, respectively. Over 18 months of screening with FIT in Paris, the PPV is in line with expected results while the participation rate is below European recommendations.

Sportes, A., Catajar, N., Charles, S., et al. (2018). "Invitation letter with a standardized form is a reliable tool to exclude increased risk patients from organized fecal immunological testing-based colorectal cancer screening program." Dig Liver Dis **50**(12): 1339-1342.

In Europe, screening guidelines for colorectal cancer (CRC) recommend colonoscopy for high-risk patients and fecal immunological testing (FIT) for the standard-risk group. Currently, there is not any validated screening tool to exclude high-risk patients. The aim of the study is to evaluate the validity of exclusion and evaluate the follow-up of patients identified as increased risk for CRC. In this retrospective study using a prospective database, patients at increased risk were identified using the standardized form and then excluded from the FIT screening invitation. A specific questionnaire was sent to all patients at increased risk in order to confirm the reason for the exclusion and evaluate their follow-up. Among 220 695 eligible individuals, 16 693 (7.5%) were excluded after being characterized at increased risk using the standardized form. The questionnaire was sent to these 16.693 excluded patients and completed by 5076 (30.7%) patients. Validity of exclusion was confirmed in 92% of cases. Endoscopic follow-up was in agreement with guideline in 89% of persons at increased risk (inflammatory bowel disease 93%, personal history of CCR 92%, of colonic polyps 82%, family history of CRC 77%). This study suggests that the standardized form is a reliable tool to correctly exclude from the screening program 92% of patients at increased risk for CRC.

Viguier, J., Morère, J. F., Pivot, X., et al. (2018). "Fluctuating Behavior of the French Population in Cancer Screening: 5th Edition of the EDIFICE Survey." Curr Oncol Rep **20**(Suppl 1): 14.

BACKGROUND: The EDIFICE surveys have assessed cancer screening behavior in the French population since 2005. METHODS: The 2016 edition was conducted among a representative sample of 1501 individuals (age, 50-75 years). The current analysis focuses on breast, colorectal, prostate, lung, and cervical cancer screening. RESULTS: The rate of women (50 to 74 years) declaring having had at least one breast cancer screening test in their lifetime remained stable and high between 2005 and 2016. Compliance with recommended screening intervals improved between 2005 and 2011 from 75 to 83%, respectively, then decreased significantly to 75% in 2016 (P = 0.02). Uptake of at least one lifetime colorectal cancer screening test procedure declared (individuals aged 50-74 years) increase from 25% in 2005 to 59% in 2011, stabilized at 60% in 2014, then reached 64% in 2016. Opportunistic prostate cancer screening (men aged 50-75 years) rose between 2005 and 2008 from 36 to 49%, plateaued until 2014 then dropped to 42% in 2016. The proportion of women aged 50-65 declaring having undergone one cervical cancer screening test dropped significantly between 2014 and 2016 from 99 to 94% (P < 0.01). Lastly, 11% of our survey population in 2014 and 2016 (55-74 years) declared having already undergone lung cancer screening. CONCLUSION: Cancer screening behavior fluctuates in France, regardless of the context, i.e., organized programs or opportunistic screening. This observation highlights the need for constant analysis of population attitudes to optimize public awareness campaigns.

2017

Abramovici, F. (2017). "Dépistage du cancer du col de l'utérus (CCU) : éviter la sous-médicalisation comme la surmédicalisation." Medecine : De La Medecine Factuelle a Nos Pratiques **13**(7): 312-315.

Le cancer du col de l’utérus (CCU) est, avec le mélanome, l’unique cancer pour lequel nous avons un fort niveau de preuve de l’utilité du dépistage tant en termes de morbidité que de mortalité. Des tests non invasifs, le frottis du col utérin (FCU) et la recherche d’Human Papilloma Virus (HPV), détectent la maladie dans sa phase préclinique, avec une spécificité et une sensibilité suffisantes pour aboutir à un dépistage efficace. Néanmoins, une proportion importante des femmes concernées par le dépistage n’en bénéficie pas, en même temps que trop de femmes le pratiquent en excès. Suite à une expérimentation sur 13 départements français, un dépistage organisé (DO) du cancer du col de l’utérus (CCU) devrait être généralisé en 2018. Le dépistage et le traitement des lésions doivent respecter des critères de qualité et éviter les surdiagnostics et surtraitements aux effets secondaires certains.

Barre, S., Beltzer, N., Catajar, N., et al. (2017). "Caractérisation des femmes ne réalisant pas de dépistage du cancer du col de l'utérus par frottis cervico-utérin en France." Bull Epidemiol Hebd(2-3): 39-47.
http://invs.santepubliquefrance.fr/beh/2017/2-3/index.html

[BDSP. Notice produite par InVS DImR0xot. Diffusion soumise à autorisation]. Introduction : l'Institut national du cancer a conduit une étude visant à caractériser les populations vulnérables et les femmes non-participantes au dépistage du cancer du col de l'utérus (CCU), en amont de la généralisation du programme de dépistage organisé (DO). Méthodes : l'étude est une analyse transversale des données de l'Échantillon généraliste des bénéficiaires (EGB) de l'Assurance maladie sur la période 2010-2013. Elle a porté sur 125 519 femmes. Résultats : près de 40% des femmes n'avaient réalisé aucun dépistage en quatre ans. Les taux de non-participation au dépistage augmentaient à partir de l'âge de 50 ans, chez les femmes ayant un moindre recours au système de santé, en ALD, en invalidité et présentant des caractéristiques socioéconomiques défavorables. Près de 60% des femmes non-participantes résidaient dans une commune identifiée comme défavorisée et 15% étaient bénéficiaires de la CMUc. Conclusion : les résultats sont cohérents avec les données issues de la littérature. La caractérisation au plan quantitatif des femmes non-participantes et des populations vulnérables permet d'évaluer les moyens que le programme de DO CCU devra déployer. Toutefois, pour mieux atteindre ces populations, des approches qualitatives ciblées devront être conduites en complément, dans une démarche d'universalisme proportionné.

Barre, S., Beltzer, N., Leleu, H., et al. (2017). "Évaluation médico-économique du dépistage du cancer du col de l'utérus en France." Bull Epidemiol Hebd(2-3): 48-58.

[BDSP. Notice produite par InVS 979AR0xB. Diffusion soumise à autorisation]. Introduction : l'Institut national du cancer a conduit une étude médico-économique de la généralisation du dépistage du cancer du col de l'utérus (CCU) afin d'évaluer l'efficience de différentes stratégies de dépistage organisé (DO). Méthodes : l'étude est fondée sur un modèle de microsimulation qui reproduit l'histoire naturelle du CCU. Les stratégies de DO incluaient la situation actuelle et des stratégies de DO avec invitation des femmes non-participantes au dépistage. Différents tests (frottis cervico-utérin (FCU), test HPV, double marquage immunochimique p16/Ki67) et plusieurs intervalles de dépistage (3,5 et 10 ans) ont été évalués. Résultats : toutes les stratégies de DO testées permettent d'améliorer la couverture du dépistage du CCU et de diminuer l'incidence et la mortalité qui lui sont liées. Les réductions d'incidence et de mortalité étaient comprises entre 13% et 26% et les gains d'espérance de vie atteignaient 35 à plus de 60 ans pour 10 000 femmes. Les stratégies de "rationalisation de la participation du dépistage spontané", "DO par FCU triennal avec auto-prélèvement HPV" et "DO par test HPV tous les 5 ans" constituaient la frontière d'efficience. Conclusion : conformément au Plan cancer 2014-2019, l'étude confirme l'intérêt de déployer en France un programme de DO du CCU (incluant l'invitation et la relance des femmes ne participant pas spontanément au dépistage) par FCU triennal puis, à terme, par test HPV tous les 5 ans.

Barré, S., Massetti, M., Leleu, H., et al. (2017). "Organised screening for cervical cancer in France: a cost-effectiveness assessment." BMJ Open **7**(10): e014626.

OBJECTIVE: According to the third cancer plan, organised screening (OS) of cervical cancer (CC) among women aged 25-65 years should be implemented in France in the forthcoming years. The most efficient way to implement OS in the French healthcare system is yet to be determined. METHODS: A microsimulation model was developed adopting a collective 'all payers' perspective. A closed cohort of women eligible for CC screening and representative in terms of age and participation in individual screening (IndScr) by annual Papanicolaou (Pap) testing every 3 years was modelled on a lifetime horizon. Different OS strategies, additive to IndScr with a 61.9% participation rate based on mailed invitations to non-participant women to perform OS were assessed. Similar modalities were applied to OS and IndScr participants. Strategies implied different screening tests (Papanicolaou (Pap) test, human papillomavirus (HPV) test and p16/Ki67 double staining) and OS periodicity. RESULTS: Compared with IndScr only, all OS strategies were associated with decreased cancer incidence/mortality (from 14.2%/13.5% to 22.9%/25.8%). Most strategies generated extra costs ranging from €37.9 to €1607 per eligible woman. HPV testing every 10 and 5 years were cost saving. HPV tests every 10 and 5 years were the most efficient strategies, generating more survival at lower costs than Pap-based strategies. Compared to IndScr only, an HPV test every 10 years was cost saving. The most effective strategies were p16/Ki67 as primary or HPV positive confirmation tests, with respective incremental cost-effectiveness ratios of €6 541 250 and €101 391 per life year. Pap-based strategies generated intermediary results. CONCLUSION: OS strategies based on the HPV test appear highly efficient. However, our results rely on the assumption that women and practitioners comply with the recommended OS periodicities (3, 5, 10 years). Implementing these OS modalities will require major adaptations to the current CC screening organisation. Pap test-based strategies might be simpler to setup while preparing an appropriate implementation of more efficient OS screening modalities.

Beltzer, N., Duport, N. et Hamers, F. F. (2017). "Résultats finaux de l'évaluation du dépistage du cancer du col de l'utérus organisé dans 13 départements en France, 2010-2014." Bull Epidemiol Hebd(2-3): 26-31.
http://invs.santepubliquefrance.fr/beh/2017/2-3/index.html

[BDSP. Notice produite par InVS B7CR0xA9. Diffusion soumise à autorisation]. Entre 2010 et 2012,13 départements français ont mis en place une expérimentation de dépistage organisé du cancer du col de l'utérus (CCU) reposant sur un protocole commun : invitation et relance des femmes de 25 à 65 ans non testées dans les trois dernières années, et recueil par les structures de gestion de tous les tests réalisés par les femmes, que le dépistage ait été réalisé spontanément ou suite à une invitation. Dans le contexte d'une future généralisation du dépistage organisé du CCU, cet article propose d'estimer l'impact de cette organisation de dépistage sur la couverture, la qualité des échantillons et la prévalence des frottis anormaux. L'expérimentation a porté sur près de 2,4 millions de femmes de 25 à 65 ans, soit 13,4% de la population-cible totale en France (Insee), dont 1 319 660 femmes invitées à réaliser un frottis. La couverture globale du dépistage était de 62%, avec d'importantes disparités territoriales et une diminution après 50 ans. Les invitations ont permis de dépister près de 231 000 femmes et les relances 48 000 femmes supplémentaires soit, rapporté à la population-cible totale, une augmentation de la participation au dépistage de 12 points de pourcentage. La qualité du prélèvement était bonne, la proportion de frottis non satisfaisants ne dépassant pas le seuil de 2%. Mais la proportion de femmes qui ne refaisaient pas alors un frottis était importante : 30 à 80% à six mois, selon les départements. Parmi les frottis interprétables, 4,2% étaient positifs, la majorité présentant des anomalies de type ASC-US (2,3%) ou de bas grade (1,2%). Au total, 5 125 lésions malpighiennes précancéreuses de haut grade, 55 carcinomes glandulaires in situ (AIS) et 323 cancers invasifs ont été dépistés, soit des taux de détection respectifs de 620,5, de 6,7 et de 39,1 pour 100 000 femmes dépistées. Cette évaluation montre qu'une généralisation du dépistage organisé permettrait d'accroître le nombre de femmes dépistées.

Cimmino, A. (2017). "Dépistage du cancer du col de l'utérus à Mayotte : principaux résultats de la deuxième campagne Rédéca, 2013-2015." Bull Epidemiol Hebd(24-25): 520-529.
http://invs.santepubliquefrance.fr/beh/2017/24-25/index.html

[BDSP. Notice produite par SANTE-PUBLIQUE-FRANCE E8DpDR0x. Diffusion soumise à autorisation]. Introduction : le Réseau de dépistage des cancers de Mayotte (Rédéca) assure l'organisation du dépistage du cancer du col de l'utérus depuis 2010. Cet article présente les principaux résultats de l'activité et du suivi de sa 2e campagne de dépistage, menée de 2013 à 2015. Méthodes : le dépistage s'adresse à toutes les femmes âgées de 25 à 65 ans, avec ou sans couverture sociale, selon un mode d'invitation assuré principalement par les professionnels de santé associés au réseau et par les médiatrices de santé Rédéca. Les examens cytologiques sont réalisés en milieu liquide et envoyés en région parisienne pour analyse. Le réseau s'assure du suivi diagnostique et thérapeutique selon les recommandations nationales, en partenariat avec le Centre hospitalier de Mayotte (CHM). Résultats : à l'issue de la 2e campagne de dépistage du cancer du col de l'utérus 2013-2015, le taux de couverture était de 39% versus 36% à l'issue de la campagne précédente 2010-2012. Les lésions cytologiques de type ASCUS (atypies cellulaires malpighiennes de signification indéterminée) représentaient l'anomalie la plus fréquente entre 25 et 49 ans. Les lésions de haut grade étaient 2,5 fois plus importantes que la moyenne observée dans quatre départements pilotes de France métropolitaine (Alsace, Isère, Indre-et-Loire et Maine-et-Loire) : 7,1 frottis HSIL pour 1 000 femmes dépistées à Mayotte en 2014 versus 2,8 frottis HSIL pour 1 000 femmes dépistées pour l'ensemble des quatre départements métropolitains entre 2010 et 2014. Près de la moitié des frottis anormaux suivis d'une histologie présentaient des lésions cytologiques de haut grade HSIL. Durant la 2e campagne, 6 cancers ont été découverts à la suite du dépistage organisé par Rédéca Mayotte. Conclusion : les résultats obtenus permettent d'apporter des éléments d'informations sur la prévalence élevée des lésions précancéreuses du col de l'utérus à Mayotte, mais aussi sur les moyens nécessaires pour leur prise en charge. Ils soulignent l'importance d'une structure organisatrice du dépistage à Mayotte pour augmenter la couverture du dépistage, tenant compte des inégalités de recours et d'accès aux soins très présentes sur le territoire et dans la perspective de la généralisation à la France entière du dépistage du cancer du col utérin en 2018.

Demoor-Goldschmidt, C., Drui, D., Doutriaux, I., et al. (2017). "A French national breast and thyroid cancer screening programme for survivors of childhood, adolescent and young adult (CAYA) cancers - DeNaCaPST programme." BMC Cancer **17**(1): 326.

BACKGROUND: Survival of childhood, adolescent and young adult (CAYA) cancers has increased with progress in the management of the treatments and has reached more than 80% at 5 years. Nevertheless, these survivors are at great risk of second cancers and non-malignant co-morbidities in later life. DeNaCaPST is a non-interventional study whose aim is to organize a national screening for thyroid cancer and breast cancer in survivors of CAYA cancers. It will study the compliance with international recommendations, with the aim, regarding a breast screening programme, of offering for every woman living in France, at equal risk, an equal screening. METHOD: DeNaCaPST trial is coordinated by the INSERM 1018 unit in cooperation with the LEA (French Childhood Cancer Survivor Study for Leukaemia) study's coordinators, the long term follow up committee and the paediatric radiation committee of the SFCE (French Society of Childhood Cancers). A total of 35 centres spread across metropolitan France and la Reunion will participate. FCCSS (French Childhood Cancer Survivor Study), LEA and central registry will be interrogated to identify eligible patients. To participate, centers agreed to perform a complete "long-term follow-up consultations" according to good clinical practice and the guidelines of the SFCE (French Society of Children Cancers). DISCUSSION: As survival has greatly improved in childhood cancers, detection of therapy-related malignancies has become a priority even if new radiation techniques will lead to better protection for organs at risk. International guidelines have been put in place because of the evidence for increased lifetime risk of breast and thyroid cancer. DeNaCaPST is based on these international recommendations but it is important to recognize that they are based on expert consensus opinion and are supported by neither nonrandomized observational studies nor prospective randomized trials in this specific population. Over-diagnosis is a phenomenon inherent in any screening program and therefore such programs must be evaluated.

Denis, B., Broc, G., Sauleau, E. A., et al. (2017). "Tailored telephone counselling to increase participation of underusers in a population-based colorectal cancer-screening programme with faecal occult blood test: A randomized controlled trial." Rev Epidemiol Sante Publique **65**(1): 17-28.

BACKGROUND: Despite the involvement of general practitioners, the mailing of several recall letters and of the faecal occult blood test (FOBT) kit, the uptake remains insufficient in the French colorectal cancer-screening programme. Some studies have demonstrated a greater efficacy of tailored telephone counselling over usual care, untailored invitation mailing and FOBT kit mailing. We evaluated the feasibility and the effectiveness of telephone counselling on participation in the population-based FOBT colorectal cancer-screening programme implemented in Alsace (France). METHODS: Underusers were randomized into a control group with untailored invitation and FOBT kit mailing (n=19,756) and two intervention groups for either a computer-assisted telephone interview (n=9367), system for tailored promotion of colorectal cancer screening, or a telephone-based motivational interview (n=9374). RESULTS: Only 5691 (19.9%) people were actually counseled, so that there was no difference in participation between the intervention groups taken together (13.9%, 95% confidence interval [CI] [13.5-14.4]) and the control group (13.9%, 95% CI [13.4-14.4]) (P=1.0) in intent-to-treat analysis. However, in per-protocol analysis, participation was significantly higher in the two intervention groups than in the control group (12.9%, 95% CI [12.6-13.2]) (P<0.01), with no difference between computer-assisted telephone interview (24.6%, 95% CI [22.7-26.4]) and motivational interview (23.6%, 95% CI [21.8-25.4]) (P=0.44). CONCLUSION: There was no difference of effectiveness between tailored telephone counselling and untailored invitation and FOBT kit mailing on participation of underusers in an organized population-based colorectal cancer screening programme. A greater efficacy of telephone counselling, around twice that of invitation and FOBT kit mailing, was observed only in people who could actually be counseled, without difference between computer-assisted telephone interview and motivational interview. However, technical failures hampered telephone counselling, so that there was no difference in intent-to-treat analysis. The rate of technical success of telephone interviews should be evaluated, and enhanced if insufficient, before implementation of telephone counselling in population-based cancer screening programmes.

Gendarme, S., Perrot, É., Reskot, F., et al. (2017). "[Economic impact of lung cancer screening in France: A modeling study]." Rev Mal Respir **34**(7): 717-728.

INTRODUCTION: The National Lung Screening Trial found that, in a selected population with a high risk of lung cancer, an annual low-dose CT-scan decreased lung cancer mortality by 20% and overall mortality by 7% compared to annual chest X-Ray. In France, a work group stated that individual screening should be considered in this setting. However, the economic impact of an organized and generalized (to all eligible individuals) screening in France was never reported. METHODS: This is a modeling study using French population demographic data and published data from randomized screening trials. We used the same selection criteria as NLST: 55-74-year-old smokers for at least 30 pack-years, current smoker or quit less than 15 years. We computed a second model including also 50-54-year-old individuals. Then, we used different participation rates: 65%, 45%, and 32%. RESULTS: According to the considered model, there would be 1,650,588 to 2,283,993 subjects eligible to screening in France. According to the model and participation rate, lung cancer screening would diagnose 3600 to 10,118 stages 1/2 lung cancer each year. There would be 5991 to 16,839 false-positives, of whom 1416 to 3981 would undergo unnecessary surgery. Screening policy would cost 105 to 215 € million per year. However, increasing the price of a cigarette pack by 0.05 to 0.10 € would fully cover the screening costs. CONCLUSION: Participation rate is a key point for screening impact. Screening could be easily funded by a small increase in cigarette prices.

Goldzahl, L. (2017). "Contributions of risk preference, time orientation and perceptions to breast cancer screening regularity." Soc Sci Med **185**: 147-157.

Disparities in breast cancer screening are often explained by socioeconomic factors, although a growing body of papers show that risk preference, time orientation and perceptions may explain mammography use. The aim of this paper is to estimate the relative contribution of socioeconomic factors, risk preference, time orientation and perceptions to disparities in breast cancer screening regularity. These determinants are elicited in an experimental laboratory from 178 women aged between 50 and 75 years in France in 2013. The results reveal that risk aversion accounts for 30% of the variance in screening regularity, which is greater than that attributable to socioeconomic determinants (20%), perceptions (11.5%) or time orientation (2%). These results suggest that further investigation on the relationship between risk aversion and screening behaviors is needed to design more comprehensive public health interventions.

Haguenoer, K., Boyard, J., Sengchanh, S., et al. (2017). "L'auto-prélèvement vaginal est une méthode efficace pour augmenter la participation au dépistage du cancer du col de l'utérus : un essai randomisé en Indre-et-Loire." Bull Epidemiol Hebd(2-3): 59-65.

[BDSP. Notice produite par InVS omC88R0x. Diffusion soumise à autorisation]. Contexte : la participation au dépistage du cancer du col de l'utérus (CCU) reste insuffisante dans la plupart des pays. Notre objectif était d'évaluer la performance, en termes de participation, et le rapport coût-efficacité de l'envoi, au domicile de femmes non dépistées, d'un kit pour auto-prélèvement vaginal (APV) en vue de la recherche de papillomavirus humains à haut risque (HPV-HR). Méthodes : en mars 2012,6 000 femmes de 30-65 ans non dépistées, vivant en Indre-et-Loire (département couvert par un dépistage organisé du CCU) et n'ayant pas répondu à une invitation à réaliser un frottis cervico-utérin (FCU) ont été randomisées dans trois groupes : "Sans d'intervention" ; "Relance" : envoi d'une lettre incitant à réaliser un FCU ; et "Auto-prélèvement" : envoi d'un kit d'APV à renvoyer au laboratoire pour test HPV. Résultats : la participation était plus élevée dans le groupe "auto-prélèvement" que dans les groupes "sans intervention" (22,5% vs 9,9%, p<0,0001) et "relance" (11,7%, p<0,0001). Dans le groupe "auto-prélèvement", 320 femmes ont réalisé un APV ; 40 femmes parmi les 44 ayant un test HPV-HR positif ont réalisé le FCU de triage recommandé (16,0%). Les ratios différentiels coût-résultat par femme dépistée supplémentaire étaient 77,8 EUR et 63,2 EUR pour les groupes "relance" et "auto-prélèvement", par rapport au groupe "sans intervention". Conclusion : l'envoi à domicile d'un un kit d'APV est plus efficace et coût-efficace qu'une lettre de relance pour augmenter la participation au dépistage du CCU parmi des femmes non dépistées.

Kelly, D. M., Estaquio, C., Léon, C., et al. (2017). "Temporal trend in socioeconomic inequalities in the uptake of cancer screening programmes in France between 2005 and 2010: results from the Cancer Barometer surveys." BMJ Open **7**(12): e016941.

OBJECTIVES: Cancer screening is a form of secondary prevention for a disease which is now the leading cause of death in France. Various socioeconomic indicators have been identified as potential factors for disparities in breast, cervical and colorectal cancer screening uptake. We aimed to identify the socioeconomic inequalities, which persisted in screening uptake for these cancers, and to quantify these disparities over a 5-year period. SETTING: The Cancer Barometer was a population-based-survey carried out in 2005 and 2010 in France. PARTICIPANTS: A randomly selected sample of participants aged 15-85 years (n=3820 in 2005 and n=3727 in 2010) were interviewed on their participation in breast, cervical and colorectal cancer screening-programmes and their socioeconomic profile. PRIMARY AND SECONDARY OUTCOME MEASURES: For each type of screening programme, we calculated participation rates, OR and relative inequality indices (RII) for participation, derived from logistic regression of the following socioeconomic variables: income, education, occupation, employment and health insurance. Changes in participation between 2005 and 2010 were then analysed. RESULTS: Participation rates for breast and colorectal screening increased significantly among the majority of socioeconomic categories, whereas for cervical cancer screening there were no significant changes between 2005 and 2010. RIIs for income remained significant for cervical smear in 2005 (RII=0.25, 95% CI 0.13 to 0.48) and in 2010 (RII=0.31, 95% CI 0.15 to 0.64). RIIs for education in mammography (RII=0.43, 95% CI 0.19 to 0.98) and cervical smear (RII=0.36, 95% CI 0.21 to 0.64) were significant in 2005 and remained significant for cervical smear (RII=0.40, 95% CI 0.22 to 0.74) in 2010. CONCLUSIONS: There was a persistence of socioeconomic inequalities in the uptake of opportunistic cervical cancer screening. Conversely, organised screening programmes for breast and colorectal cancer saw a reduction in relative socioeconomic inequalities, even though the results were not statistically significant. The findings suggest that organised cancer screening programmes may have the potential to reduce socioeconomic disparities in participation.

Lechopier, N. et Hamant, C. (2017). "Accompagner et prévenir. Tensions éthiques dans le dépistage du cancer colorectal." Sciences sociales et santé **35**(4): 5-28, rés.

[BDSP. Notice produite par ORSMIP R0xpo8DH. Diffusion soumise à autorisation]. Cet article présente les résultats d'une enquête concernant l'éthique de la prévention. Elle a été réalisée au sein d'une recherche interventionnelle en santé des populations, mobilisant des médiateurs (navigateurs) pour corriger les inégalités de participation au dépistage organisé du cancer colorectal dans 5 départements français. Quatre tensions éthiques émergent sur le terrain : à propos de l'incertitude du test, de l'organisation des campagnes, de l'intrusion dans la vie privée et de l'universalisme proportionné. Ces tensions sont décrites à partir d'une enquête ancrée dans une approche pragmatiste, attentive aux épreuves que vivent les acteurs de la prévention, intégrant dans un même mouvement l'investigation sur les faits et la réflexion sur les valeurs. (R.A.).

Maura, G., Heard, I., Alla, F., et al. (2017). "Dépistage du cancer du col de l'utérus et actes associés chez les femmes de moins de 25 ans entre 2007 et 2013 en France : une étude sur les bases de données médico-administratives françaises." Bull Epidemiol Hebd(2-3): 32-38.
http://invs.santepubliquefrance.fr/beh/2017/2-3/index.html

[BDSP. Notice produite par InVS rlsHR0xn. Diffusion soumise à autorisation]. Introduction : les recommandations françaises fixent l'âge de début de dépistage du cancer du col de l'utérus par frottis cervico-utérin (FCU) à 25 ans. La régression spontanée fréquente des lésions consécutives à l'infection par le papillomavirus humain (HPV) chez les femmes plus jeunes diminue l'intérêt de ce dépistage, qui peut être à l'origine d'actes chirurgicaux sans bénéfice et potentiellement délétères. Aucune donnée nationale n'existe sur ce dépistage et la proportion d'actes diagnostiques et chirurgicaux qui en découlent. Méthodes : en utilisant les bases de données médico-administratives françaises (Sniiram-PMSI), la part du dépistage par FCU réalisé avant l'âge recommandé, ainsi que la proportion de femmes âgées de 15 à 24 ans ayant eu au moins un FCU dans l'année et dans les trois dernières années, sur la période 2007-2013, ont été calculées à partir des données du régime général, puis extrapolées à la population résidant en France. Les actes diagnostiques et chirurgicaux remboursés dans les 15 mois suivant un FCU chez les femmes de 20 à 24 ans ont été décrits en 2007 et 2012. Résultats : pour chacune des années d'étude, environ 10% des femmes ayant eu au moins un frottis remboursé dans l'année étaient âgées de moins de 25 ans, principalement de 20 à 24 ans. En 2013, chez les femmes âgées de 20 à 24 ans, 16,2% avaient eu au moins un frottis dans l'année et 35,5% au moins un dans les trois ans. Dans cette population, le recours au test HPV après un frottis a fortement augmenté sur la période d'étude (+105%). La prise en charge chirurgicale semble plus agressive, comme le souligne une augmentation de la proportion de femmes dépistées ayant eu une conisation (+16,5%) ou d'autres types d'exérèse (+74,5%) dans l'année qui suivait un premier FCU. Néanmoins, avec la diminution globale du dépistage par FCU, le nombre annuel absolu de femmes conisées a diminué, passant de 1 974 à 1 766 entre 2007 et 2012. Conclusions : une meilleure adhésion aux recommandations est nécessaire pour réduire le dépistage du cancer du col chez les jeunes femmes et ses potentielles conséquences en termes de morbidité obstétricale.

Robert, V., Doubovetzky, J., Lexa, A., et al. (2017). "Le dépistage organisé permet-il réellement d'alléger le traitement chirurgical des cancers du sein ?" Medecine : De La Medecine Factuelle a Nos Pratiques **13**(8): 367-371.

Le dépistage organisé des cancers du sein est toujours l'objet de controverses. Un des arguments mis en avant par ses partisans serait une diminution des traitements lourds, rendue possible par des diagnostics plus précoces. Ce postulat n'a pas été évalué en France. Avec le Programme de Médicalisation des Systèmes d'Information (PMSI), on dispose d'un recensement exhaustif des actes chirurgicaux réalisés en France. Toute évolution du nombre de mastectomies pour cancer du sein devrait donc s'y retrouver. Cet article basé sur l'interrogation des bases de données du PMSI constate qu'aucune diminution des mastectomies, totales ou partielles, ne pouvait être mise en évidence après la généralisation du dépistage organisé.

Rochoy, M., Raginel, T., Favre, J., et al. (2017). "Factors associated with the achievement of cervical smears by general practitioners." BMC Res Notes **10**(1): 723.

OBJECTIVE: Reliable data about general practitioners performing pap-tests are insufficient. A claim code for the achievement of pap-smears exists in France, but its use by general practitioners is not known. The main purpose of this study was to highlight independent factors associated with the achievement of pap-smears by the general practitioner (GP). We carried out a descriptive and analytic epidemiologic study in 347 GPs and their 244,889 patients, registered at the Health Care Insurance Fund of Flanders. The European Deprivation Index (EDI) in the area of GP's surgeries was specified. All GPs were questioned by telephone about their performance of pap-tests. The claim database of the insurance fund was analyzed to describe characteristics of GPs. RESULTS: The answer rate among questioned GPs was 98.8%. Pap-smears were performed in their surgeries by 182 GPs (53.1%). Among males, 45.7% performed pap-smears versus 78.4% of the female (adjusted odds-ratio = 4.5, p < 0.001). The mean rate of screened women in the target population was 44% when GPs were performing smears versus 42% when they were not (adjusted odds-ratio = 1.04, p = 0.03). Only 19.5% of GPs used the claim code. The number of patients, and the EDI were not associated with pap-smears. Trial registration ClinicalTrials.gov NCT02749110 (April 22, 2016).

Sicsic, J. et Franc, C. (2017). "Impact assessment of a pay-for-performance program on breast cancer screening in France using micro data." Eur J Health Econ **18**(5): 609-621.

BACKGROUND: A voluntary-based pay-for-performance (P4P) program (the CAPI) aimed at general practitioners (GPs) was implemented in France in 2009. The program targeted prevention practices, including breast cancer screening, by offering a maximal amount of euro245 for achieving a target screening rate among eligible women enrolled with the GP. OBJECTIVE: Our objective was to evaluate the impact of the French P4P program (CAPI) on the early detection of breast cancer among women between 50 and 74 years old. METHODS: Based on an administrative database of 50,752 women aged 50-74 years followed between 2007 and 2011, we estimated a difference-in-difference model of breast cancer screening uptake as a function of visit to a CAPI signatory referral GP, while controlling for both supply-side and demand-side determinants (e.g., sociodemographics, health and healthcare use). RESULTS: Breast cancer screening rates have not changed significantly since the P4P program implementation. Overall, visiting a CAPI signatory referral GP at least once in the pre-CAPI period increased the probability of undergoing breast cancer screening by 1.38 % [95 % CI (0.41-2.35 %)], but the effect was not significantly different following the implementation of the contract. CONCLUSION: The French P4P program had a nonsignificant impact on breast cancer screening uptake. This result may reflect the fact that the low-powered incentives implemented in France through the CAPI might not provide sufficient leverage to generate better practices, thus inviting regulators to seek additional tools beyond P4P in the field of prevention and screening.

The Lancet Gastroenterology, H. (2017). "Improving uptake of colorectal cancer screening." Lancet Gastroenterol Hepatol **2**(11): 767.

Thiery, A., Akladios, C., Fender, M., et al. (2017). "Excess cervical cancer screening smears: Any benefit? A retrospective cohort in Alsace, France." J Med Screen **24**(2): 92-97.

Objectives Although cervical cancer screening guidelines in France recommend a smear test every three years, many physicians order more regular screening. We aimed to assess the benefits or harms of shorter intervals between screenings, both for women and public health. Methods For a retrospective cohort of women aged 25-65 who had two normal smears and at least one additional smear, data were sourced from a regionally organized cervical cancer screening programme in France, with follow-up for nine years. Based on the interval between the second and third smear, two groups were formed; the first comprised overscreened women (interval <24 months), and the second of 'correctly' screened women (interval between 24 and 42 months). The primary outcome was cervical intraepithelial neoplasia 2 or worse (CIN2+); secondary outcomes were cervical cancers and CIN1 lesions. Results Among 63,821 women, CIN2+ incidence rate per 10,000 women per year was 14.5 for 40,350 overscreened women, and 11.5 for 23,471 correctly screened women. Age-adjusted relative risk was 1.22[1.02; 1.46]. We found no significant difference for cancer (RR = 1.39; 95%CI = [0.60; 3.61]), but did find additional CIN1 in the overscreened group (RR = 2.09; 95%CI = [1.76; 2.51]). Conclusions A shorter interval between smears has a low benefit for CIN2+ lesion detection, which may not help avoid cancer. The excess number of CIN1 detected by overscreening may cause needless risk and excess costs due to overtreatment.

2016

Allary, C., Bourmaud, A., Tinquaut, F., et al. (2016). "ColoNav: patient navigation for colorectal cancer screening in deprived areas - Study protocol." BMC Cancer **16**: 416.

BACKGROUND: The mass colorectal cancer screening program was implemented in 2008 in France, targeting 16 million French people aged between 50 and 74. The current adhesion is insufficient and the participation rate is even lower among the underserved population, increasing health inequalities within our health care system. Patient Navigation programs have proved their efficiency to promote the access to cancer screening and diagnosis. METHODS/DESIGN: The purpose of the study is to assess the implementation of a patient navigation intervention that has been described in another cultural environment and another health care system. The main objective of the program is to increase the colorectal cancer screening participation rate among the deprived population through the intervention of a navigator to promote the Fecal Occult Blood Test (FOBT) and complementary exams. We performed a multisite cluster randomized controlled trial, with three groups (one experimental group and two control groups) for 18 months. DISCUSSION: The study attempts to give a better understanding of the adhesion barriers to colorectal cancer screening among underserved populations. If this project is cost-effective, it could create a dynamic based on peer approaches that could be developed for other cancer screening programs and other chronic diseases. TRIAL REGISTRATION: NCT02369757.

Aubin-Auger, I., Laouénan, C., Le Bel, J., et al. (2016). "Efficacy of communication skills training on colorectal cancer screening by GPs: a cluster randomised controlled trial." Eur J Cancer Care (Engl) **25**(1): 18-26.

Colorectal cancer (CRC) mass screening has been implemented in France since 2008. Participation rates remain too low. The objective of this study was to test if the implementation of a training course focused on communication skills among general practitioners (GP) would increase the delivery of gaiac faecal occult blood test and CRC screening participation among the target population of each participating GP. A cluster randomised controlled trial was conducted with GP's practice as a cluster unit. GPs from practices in the control group were asked to continue their usual care. GPs of the intervention group received a 4-h educational training, built with previous qualitative data on CRC screening focusing on doctor-patient communication with a follow-up of 7 months for both groups. The primary outcome measure was the patients' participation rate in the target population for each GP. Seventeen GPs (16 practices) in intervention group and 28 GPs (19 practices) in control group participated. The patients' participation rate in the intervention group were 36.7% vs. 24.5% in the control group (P = 0.03). Doctor-patient communication should be developed and appear to be one of the possible targets of improvement patients adherence and participation rate in the target population for CRC mass screening.

Chauvin, P., Vallee, J. et Traore, M. (2016). "Mobilité quotidienne et déterminants territoriaux du recours au frottis du col de l'utérus dans le Grand Paris." Bull Epidemiol Hebd(16-17): 282-288.
http://www.invs.sante.fr/beh/2016/16-17/index.html

[BDSP. Notice produite par InVS kl8R0xn8. Diffusion soumise à autorisation]. Environ 6 millions de frottis de dépistage du cancer du col utérin (FCU) sont réalisés annuellement en France, mais seulement 10% des femmes en bénéficieraient dans l'intervalle recommandé. Les inégalités socio-territoriales de ce dépistage sont donc importantes à étudier, pour elles-mêmes et pour le modèle qu'elles peuvent représenter en matière de recours à un dépistage médicalisé opportuniste. À partir des données de 2010 de la cohorte SIRS (Santé, inégalités et ruptures sociales) conduite dans les quatre départements centraux franciliens, nous avons étudié les déterminants territoriaux du recours au FCU en prenant en compte certaines caractéristiques individuelles des femmes (âge, niveau d'éducation, couverture maladie, vie de couple, espace d'activité) et en accordant une attention particulière aux différents quartiers qu'elles pouvaient être amenées à fréquenter quotidiennement. Une analyse stratifiée sur leur espace d'activité montre que le fait d'habiter dans un quartier faiblement doté en médecins généralistes et gynécologues n'était associé à un risque significativement plus élevé de retard de dépistage que chez les femmes dont l'espace d'activité était restreint à leur quartier de résidence. Chez les femmes actives et mobiles, la densité médicale d'aucun des trois quartiers fréquentés étudiés n'était associée à leur recours au FCU, mais résider et se rendre régulièrement dans des quartiers aux faibles revenus était associé à un risque plus élevé de retard. La prise en compte des effets de contexte pour mieux comprendre les inégalités infra-urbaines de santé est un enjeu de recherche qui, bien que mobilisant des concepts et des méthodes en pleine évolution, apporte déjà des enseignements pour la santé publique. Nos résultats mettent ainsi en lumière la situation particulière des femmes les plus défavorisées et les moins mobiles, pour lesquelles l'offre de soins de proximité est importante, et montrent, pour les autres, la limite de ne s'intéresser qu'aux seuls quartiers de résidence dans l'analyse des facteurs contextuels liés aux recours aux soins.

Chicoulaa, B., Balardy, L., Stillmunkes, A., et al. (2016). "French general practitioners’ sense of isolation in the management of elderly cancer patients." Family Practice **33**(5): 551-556.
http://fampra.oxfordjournals.org/content/33/5/551.abstract

Background. Cancer care in people over 75 years of age is particularly complex and requires collaboration between oncologists, geriatricians, GPs and other professional and family carers. To improve the care pathways for elderly people living with cancer, the French health authorities have created a network of oncologists and geriatricians; however, GPs experience difficulties in establishing their place in this network.Objective. This study aimed to analyse the impressions of French GPs involved in the care of elderly patients with cancer, including their feelings regarding their relationships with their oncologist and geriatrician colleagues.Methods. A qualitative approach using focus groups was employed. The proceedings of these focus groups were recorded, retranscribed and subjected to thematic analysis.Results. Although heavily involved in the care of their elderly patients living with cancer, the GPs who participated reported feeling isolated in their role at each step during the course of the disease. The principal themes addressed were screening and diagnosis, therapeutic decisions, multidisciplinary consultation meetings, the announcement of the diagnosis and monitoring at home. Their relationships with their oncologist colleagues showed much room for improvement, and they were unaware of the oncogeriatric network.Conclusions. Improving the communication between GPs, oncologists and geriatric medicine seems to be one response to the isolation that GPs feel when caring for older people with cancer. At the primary care level, integration of GPs into the oncogeriatric network and the creation of a cancer care communication system in collaboration with the relevant hospital teams may be effective solutions.

Gautier, C.-P., Tournoux, C. et Rymzhanova, R. (2016). "Facteurs comportementaux, radiologiques et histopronostiques des cancers du sein de plus de 20 mm détectés dans le programme français de dépistage organisé." Sante Publique **28**(4): 481-486.

[BDSP. Notice produite par EHESP 7ElR0xrn. Diffusion soumise à autorisation]. Grâce à la collaboration de l'ensemble des médecins coordinateurs chargés du dépistage en France, les auteurs ont étudié des facteurs relatifs à l'histoire personnelle, les caractéristiques des mammographies précédant le diagnostic et des tumeurs de femmes présentant un cancer du sein de plus de 20 mm. Cette étude rétrospective a concerné 7 407 cancers diagnostiqués dans le cadre du dépistage organisé et mesurant plus de 20 mm. Si les critères d'agressivité de la tumeur sont plus marqués ou des facteurs technologiques plus souvent rencontrés, il apparaît que la fidélité au dépistage organisé soit un élément déterminant dans la découverte de ces "grosses tumeurs". Il est impératif que les citoyens s'emparent de ces programmes de dépistage organisé si l'on espère jouer un rôle décisif dans le pronostic du cancer du sein.

Jusot, F. et Goldzahl, L. (2016). "Les déterminants du recours régulier au dépistage du cancer du sein en France." Revue Francaise D'economie **31**(4): 109-152, tab., graph., fig.
http://www.cairn.info/revue-francaise-d-economie-2016-4-page-109.htm

Le dépistage du cancer du sein ne diminue sa mortalité que si le dépistage est effectué régulièrement. Nous étudions les effets des caractéristiques socio-économiques et de santé ainsi que la façon dont le système français de dépistage influence la régularité du dépistage. Nous examinons particulièrement si la modalité de dépistage choisie (dépistage organisé ou individuel) influence la régularité du dépistage. Nos résultats suggèrent que le dépistage organisé augmente la probabilité de recourir régulièrement au dépistage. En outre, les femmes ayant un faible revenu ou ayant vécu des épisodes de précarité ont moins régulièrement recours au dépistage que les femmes plus aisées.

Orsini, M., Trétarre, B., Daurès, J. P., et al. (2016). "Individual socioeconomic status and breast cancer diagnostic stages: a French case–control study." The European Journal of Public Health **26**(3): 445-450.
http://eurpub.oxfordjournals.org/content/eurpub/26/3/445.full.pdf

Background:Health inequalities have increased over the last 30 years. Our goal was to investigate the relationship between low individual socioeconomic status and poor breast cancer prognosis. Our hypothesis was: low socioeconomic status patients have a higher risk of being diagnosed with late stage breast cancer than high socioeconomic status ones due to delayed diagnosis.Methods:We conducted a matched case–control study on 619 women with breast cancer, living in the Hérault, a French administrative area. Both Cases and Controls were recruited among invasive cases diagnosed in 2011 and 2012 and treated in Hérault care centers. Cases were defined as patients with advanced stages. Controls were composed of early stage patients. Individual socioeconomic status was assessed using a validated individual score adapted to the French population and health care system.Results:We observed that low socioeconomic status patients have a 2-fold risk of having late stage breast cancer regardless of cancer characteristics and detection mode (screening vs. clinical signs).Conclusion:One reason explaining those results could be that low socioeconomic status patients have less regular follow-up which can lead to later and poorer diagnosis. Follow-up is improved for women with a better awareness of breast cancer. Health policy makers could reduce health inequalities by reducing the delay in breast cancer diagnosis for low socioeconomic status women.

Pichetti, S., Penneau, A., Lengagne, P., et al. (2016). "Accès aux soins et à la prévention des personnes en

situation de handicap en France : une exploitation de l'enquête Handicap-Santé-Ménages." Revue d'Épidémiologie et de Santé Publique **64**(2): 79-94.
http://www.em-consulte.com/article/1045094/article/acces-aux-soins-et-a-la-prevention-des-personnes-e

L'objectif de cette étude est d'analyser, à partir de données françaises de l'enquête Handicap-Santé-Ménages (HSM) de 2008, l'accès des personnes en situation de handicap à trois soins (soins dentaires, soins ophtalmologiques, soins gynécologiques) et à quatre actes de prévention (frottis, mammographie, dépistage du cancer du côlon et vaccination contre l'hépatite B), et de le comparer à celui des personnes sans handicap, en fonction de deux marqueurs de handicap : les limitations fonctionnelles et la reconnaissance administrative de handicap.

Pichetti, S., Penneau, A., Lengagne, P., et al. (2016). "Access to care and prevention for people with disabilities in France: Analysis based on data from the 2008 French health and disabilities households surveys (Handicap-Sante-Menages)." Rev Epidemiol Sante Publique **64**(S2): 79-94.

BACKGROUND: Using data from the 2008 French health and disabilities households surveys, this study examines the use of three types of routine medical care (dental, ophthalmological and gynecological care) and four preventive services (cervical cancer screening, breast cancer screening, colon cancer screening and vaccination against hepatitis B) both for people with disabilities and for those without. Two definitions of disability were retained: (1) functional limitations (motor, cognitive, visual or hearing limitations) and (2) administrative recognition of disability. METHODS: For each type of care, binary logistic regression was used to test whether access to care is influenced by any of the disability indicators as well as by other explanatory variables. Two set of explanatory variables were included successively: (1) sociodemographic variables such as age, gender as well as a proxy variable representing medical needs and (2) socioeconomic variables such as level of education, household income per consumption unit, supplementary health insurance coverage, co-payment exemption and geographic variables. RESULTS: Persons reporting functional limitations are less likely to access to all types of care, in a proportion that varies between 5 to 27 points, compared to persons without functional limitations, except for eye care for which no gap is observed. The same results are obtained for persons reporting an administrative recognition of disability, and more precisely for those who benefit from the Disability allowance for adults (Allocation adulte handicape [AAH]). After adding the social variables to the model, problems of access to health care decrease significantly, showing that disabled persons' social situation tends to reduce their access to care. CONCLUSION: This study reveals, for a broad range of care, a negative differential access to care for persons reporting functional limitations compared to those without limitations which is confirmed when identifying disability through administrative recognition. Furthermore, it also discusses factors explaining these differentials. It highlights the role of the social situation of disabled people as an additional barrier to already limited access to healthcare.

Ramone-Louis, J. et Buthion, V. (2016). "Réduire les disparités de participation au dépistage du cancer colorectal par une organisation à la frontière du dispositif de prévention : quand analyse de terrain et théorie se rejoignent." Journal De Gestion Et D'economie Medicales **34**(4): 215-238, tabl., graph.

[BDSP. Notice produite par ORSRA JR0xB87I. Diffusion soumise à autorisation]. Les inégalités sociales de santé sont un thème récurrent dans la littérature en santé de ces dernières années. Le cancer colorectal touche environ 40 000 personnes par an, 17 526 en sont décédées en 2011. Son dépistage contribue significativement à la baisse de la mortalité, en favorisant une prise en charge précoce. Depuis 2001, les autorités sanitaires françaises ont organisé une incitation systématique de la population des personnes âgées de 50 à 74 ans, dépistage auquel les populations de catégories socio-économiques les moins favorisées sont moins susceptibles de bénéficier. De 2012 à 2014, nous avons participé à l'étude interventionnelle française COLONAV, reproduisant une expérience née aux États Unis appelée "navigation program". Le dispositif de navigation est une fonction intermédiaire permettant d'accéder à une population que le système de santé lui-même n'arrive pas à atteindre. Le design de ces programmes est décrit de façon sommaire et peu explicité dans ses fondements. Il n'est jamais étudié sur le plan théorique. L'étude approfondie du recrutement des navigateurs exposé dans

la littérature américaine et l'expérience COLONAV permet de révéler les éléments qui contingentent le design de ce dispositif, ainsi que les fondements qui en assurent l'efficacité. Dans ce papier, nous étudions cette organisation par le prisme du profil de recrutement de celui qui porte le dispositif de navigation. Ce travail interroge sur la place dans le design du dispositif de cet intervenant supplémentaire. Est-il destiné à servir d'intermédiaire entre un système dont les dysfonctionnements sont nombreux et des personnes peu aptes à les surmonter ? Interroge-t-il sur la capacité de ce système à esquisser un modeste, mais nouveau design du dispositif de dépistage du cancer ? Ayant travaillé selon la perspective de la théorie ancrée (Grounded Theory), nous avons travaillé par abduction à partir des résultats de nos analyses pour identifier des pistes théoriques. Nous montrons comment le dispositif de navigation s'apparente à l'approche des organisations frontières développées à partir des travaux de Peton. Cette analyse théorique permet d'esquisser des pistes de réflexion quant à la manière d'organiser un dépistage accessible aux populations les plus éloignées actuellement des préoccupations qui l'ont fondé. Le dispositif de navigation, et donc par extension les navigateurs, sont une organisation frontière permettant de faire le lien et la traduction des attentes entre les différents organismes qui le composent et la population cible. Ils servent souvent d'intermédiaires entre un système dont les dysfonctionnements sont nombreux et des personnes peu aptes à les surmonter, mais dans le cadre du dépistage, leur fonction la plus intéressante est en amont de la levée des barrières logistiques, dans leur capacité à faire le lien de sens entre des objectifs divergents.

Sicsic, J., Krucien, N. et Franc, C. (2016). "What are GPs' preferences for financial and non-financial incentives in cancer screening? Evidence for breast, cervical, and colorectal cancers." Soc Sci Med **167**: 116-127.

General practitioners (GPs) play a key role in the delivery of preventive and screening services for breast, cervical, and colorectal cancers. In practice, GPs' involvement varies considerably across types of cancer and among GPs, raising important questions about the determinants of GPs' implication in screening activities: what is the relative impact of financial and non-financial incentives? Are GPs' preferences for financial and non-financial incentives cancer-specific? Is there preference heterogeneity and how much does it differ according to the screening context? This study investigates the determinants of GPs' involvement in cancer screening activities using the discrete choice experiment (DCE) methodology. A representative sample of 402 GPs' was recruited in France between March and April 2014. Marginal rates of substitution were used to compare GPs' preferences for being involved in screening activities across three types of cancers: breast, cervical, and colorectal. Variability of preferences was investigated using Hierarchical Bayes mixed logit models. The results indicate that GPs are sensitive to both financial and non-financial incentives, such as a compensated training and systematic transmission of information about screened patients, aimed to facilitate communication between doctors and patients. There is also evidence that the level and variability of preferences differ across screening contexts, although the variations are not statistically significant on average. GPs appear to be relatively more sensitive to financial incentives for being involved in colorectal cancer screening, whereas they have higher and more heterogeneous preferences for non-financial incentives in breast and cervical cancers. Our study provides new findings for policymakers interested in prioritizing levers to increase the supply of cancer screening services in general practice.

Soler-Michel, P., Laureau-Fini, C., Perrin, L., et al. (2016). "Identifier les facteurs d'adhésion des médecins généralistes au dépistage organisé du cancer colorectal. Enquête dans le Rhône." Revue d'Épidémiologie et de Santé Publique **64**(5): 351-358.

[BDSP. Notice produite par ORSRA krrpsR0x. Diffusion soumise à autorisation]. Position du problème : En 2011-2012, le taux de participation au dépistage organisé du cancer colorectal (DO CCR) était de 31,7% en France et 28,5% dans le Rhône. Le médecin généraliste est le relais le plus efficace pour convaincre la population de réaliser le test Hémoccult II® : 85% des patients le réalisent lorsqu'il est remis par lui. Ce travail vise à identifier les facteurs d'adhésion et de rejet du dépistage par les médecins généralistes du Rhône. Méthodes : Cette étude déclarative, prospective, observationnelle consistait en l'envoi de questionnaire aux 1386 médecins équipés du matériel du DO CCR. Le questionnaire portait sur le comportement du médecin vis-à-vis du DO CCR, sur le ressenti des

patients, sur les habitudes de prévention pour le CCR et sur les caractéristiques professionnelles. Les médecins étaient regroupés en quatre classes selon les quartiles du nombre de tests effectués par leurs patients, façon de juger leur adhésion. L'analyse univariée a repéré les variables présentant une différence significative entre les quartiles. Une régression logistique binaire a comparé les deux quartiles de plus forte adhésion aux deux autres quartiles. Résultats : Le taux de réponse à cette étude de 54,9% des MG était satisfaisant. L'adhésion du MG au DO CCR est meilleure s'il est un homme (OR=1,6), exerçant en dehors de Lyon (OR=3) avec plus de 26 patients par jour (OR=5). Les autres facteurs d'adhésion sont : ne pas vraiment penser que "le patient attend que son médecin initie la discussion au DO" (OR=2,3), "initier la discussion" (OR=1,8), "avoir confiance dans le rythme bisannuel du dépistage" (OR=2,3) et "dans la fiabilité de l'Hémoccult II®" (OR=1,8). Le fait de relier les réponses des médecins au nombre de tests effectués par leur patients a permis une analyse en soustrayant le biais inhérent aux études déclaratives. Conclusion : Avec une participation satisfaisante, l'enquête donne une meilleure connaissance des facteurs d'adhésion et de rejet des médecins généralistes au DO CCR et permet de préparer la transition vers le nouveau dépistage par le test immunologique.

Tron, L., Dray Spira,
R., Spire, B., et al. (2016). "Recours au dépistage systématique des cancers parmi les personnes vivant avec le VIH suivies à l'hôpital en France métropolitaine. Résultats de l'enquête ANRS-Vespa2,2011." Bull Epidemiol Hebd(5-6): 80-88.

[BDSP. Notice produite par InVS kR0xnEqp. Diffusion soumise à autorisation]. Objectifs : un dépistage annuel du cancer du col est recommandé aux femmes séropositives pour le VIH, et tous les trois ans entre 25 et 64 ans en population générale. Pour le cancer du sein et le cancer colorectal, un dépistage tous les deux ans entre 50 et 74 ans est recommandé dans les deux populations. L'objectif était de décrire le recours au dépistage de ces cancers parmi les personnes vivant avec le VIH (PVVIH) en France, par rapport à la population générale. Méthodes : les niveaux de recours au dépistage déclarés pour les cancers du sein, du col et colorectal ont été estimés parmi les PVVIH suivies à l'hôpital dans l'enquête ANRS-Vespa2 (2011) et comparés à ceux de la population générale de même sexe, à l'aide de taux standardisés sur l'âge et par des régressions de Poisson ajustées sur l'âge, en utilisant les données du Baromètre cancer 2010 comme référence. Résultats : le taux de mammographie dans les deux ans standardisé sur l'âge rapporté par les femmes VIH+était de 82,2% contre 88,0% en population générale (rapport de prévalence (RP) : 0,96, intervalle de confiance à 95% : [0,89-1,03]). Le taux de frottis dans les trois ans standardisé sur l'âge rapporté par les femmes VIH+était de 88,2% contre 82,8% en population générale (RP : 1,06 [1,01-1,10]). Seules 76,0% des femmes VIH+rapportaient un frottis dans l'année. Le taux de recherche de sang dans les selles (type Hemoccult®) dans les deux ans standardisé sur l'âge, rapporté par les femmes VIH+était de 39,4% contre 43,3% en population générale (RP : 0,93 [0,75-1,15]), et de 44,5% chez les hommes VIH+contre 45,6% en population générale (RP : 0,98 [0,85-1,14]). Conclusions : le recours au dépistage des cancers des PVVIH n'est pas plus faible qu'en population générale. Cependant, parmi les femmes VIH+le dépistage du cancer du col est insuffisant eu égard aux recommandations spécifiques.

Vallee, A. (2016). "Le "Mammobile" : une méthode pertinente en France ?" Sante Publique **28**(5): 599-602.
https://www.cairn.info/revue-sante-publique-2016-5.htm

[BDSP. Notice produite par EHESP CR0xDt87. Diffusion soumise à autorisation]. Depuis 2004, le dépistage organisé du cancer du sein est généralisé en France. Selon l'Institut National du Cancer, en dix ans d'existence le programme de dépistage organisé a permis de réaliser plus de 22 millions de mammographies, soit environ 2,45 millions de dépistage par mammographie par an. En 2012, le taux de participation au dépistage organisé s'élevait à 52,7%, loin de l'objectif européen qui est de 70%. Des solutions doivent être trouvées pour permettre d'augmenter ce chiffre et ainsi atteindre ces recommandations. En France, trois départements ont développé des programmes de dépistages mobiles appelés "mammobiles". Malgré tout, leurs taux de participation ne sont pas supérieurs aux moyennes nationales et de nombreux obstacles apparaissent, financiers et techniques notamment. Le nombre de perdues de vue s'en ressent allant jusque 11,4% alors que celui-ci est de seulement 2,7% pour les sites fixes. Face à ce constat, il apparaît nécessaire d'étudier les nombreux freins probables, notamment financiers et organisationnels, avant de mettre en place de tels programmes.

Vallée, A. (2016). "[Is “mobile mammography” a Relevant Method in France?]." Sante Publique **28**(5): 599-602.

Organized breast cancer screening has become available throughout France since 2004. According to the French National Cancer Institute, more than 22 million mammograms have been performed during the first ten years of the screening programme, or about 2.45 million mammographies each year. In 2012, the organized screening participation rate was 52.7%, well below the European target of 70%. Solutions must be found to increase this rate to recommended target levels. Three French departments have developed mobile mammography screening programmes, but their participation rates are not higher than the national average and they are associated with a number of obstacles, notably financial and technical. The number of subjects lost to follow-up is 11.4% with mobile screening versus only 2.7% for fixed sites. It is therefore essential to study the many obstacles, including financial and organizational, before setting up this type of mobile mammography programme.

2015 (15)

Barthe, J., Perrodeau, E., Gilberg, S., et al. (2015). "Impact of a Doctor's Invitation on Participation in Colorectal Cancer Screening: A Cluster Randomized Trial." Am J Med **128**(9): 1024.e1021-1027.

BACKGROUND: There is a need to improve participation in colorectal cancer screening. Our objective was to assess the impact of a signature from the patient's general practitioner on a letter inviting patients to participate in a colorectal cancer screening. METHOD: We conducted a cluster randomized controlled trial with 57 general practitioners established in Paris for more than 5 years, randomized to intervention or usual-care arms. There were 3422 patients included, ages 50-74 years, from general practitioner patient files, and eligible for an invitation letter or a reminder letter to participate in the national population-based screening program. In the intervention arm, patients received a standard letter signed by their general practitioner inviting them to visit the general practitioner's office for a fecal occult blood test if they were eligible. Control patients received the standard invitation letter or the standard reminder. All letters were sent by the district screening organization. The main outcome was the proportion of patients who took the fecal occult blood test within 6 months after the invitation. RESULTS: Among patients eligible for the study, 508 (14.8%) took a fecal occult blood test after being invited; 285 (15%; 95% confidence interval [CI], 13.5-16.7) in the intervention group and 223 (14.6%; 95% CI, 12.9-16.5) in the control group, with no statistical difference between the 2 groups (odds ratio 1.04; 95% CI, 0.83-1.31; P = .731). CONCLUSIONS: The addition of a general practitioner's signature to a standard letter inviting patients to take a fecal occult blood test had no impact on the frequency of patients taking the fecal occult blood test in the Paris program of colorectal cancer screening.

Bussiere, C., Le Vaillant, M. et Pelletier-Fleury, N. (2015). "Screening for cervical cancer: What are the determinants among adults with disabilities living in institutions? Findings from a National Survey in France." Health Policy.
http://www.healthpolicyjrnl.com/article/S0168-8510(15)00038-X/abstract

OBJECTIVES: To explore the rate and determinants of the likelihood of cervical cancer screening participation among disabled women living in institutions in France. METHODS: The data source was the French national Health and Disability Survey-Institutions Section, 2009. Disability severity was assessed by scoring mobility and cognitive limitations. Chi-square tests revealed the significant factors associated with the screening rates; these factors were used in a multivariate logistic regression of Pap-test use within the 3 years prior to the interview (n=1052, women aged 20-65 years living in institutions for disabled adults). RESULTS: The cervical cancer screening rate was particularly low in this population. After adjusting for all other covariates, women with more severe degrees of mobility or cognitive limitations had a lower likelihood of receiving a Pap test. Our findings also showed that being socially isolated, illiterate or underweight significantly decreased screening participation. CONCLUSION: Even in institutions, disability severity remains a barrier to cancer screening. Given the increasing prevalence of disabling conditions and cancers, and the lack of previous studies on this specific topic, our findings are highly important from a policy point of view. These findings should alert health authorities to increase their efforts to provide medical care for institutionalized people with disabilities.

Bussiere, C., Le, V. A. I. L. L. A. N. T. M. et Pelletier-Fleury, N. (2015). "Screening for cervical cancer: What are the determinants among adults with disabilities living in institutions? Findings from a National Survey in France." Health Policy **19**(6): 791-801.

To explore the rate and determinants of the likelihood of cervical cancer screening participation among disabled women living in institutions in France. METHODS: The data source was the French national Health and Disability Survey-Institutions Section, 2009. Disability severity was assessed by scoring mobility and cognitive limitations. Chi-square tests revealed the significant factors associated with the screening rates; these factors were used in a multivariate logistic regression of Pap-test use within the 3 years prior to the interview (n=1052, women aged 20-65 years living in institutions for disabled adults). RESULTS: The cervical cancer screening rate was particularly low in this population. After adjusting for all other covariates, women with more severe degrees of mobility or cognitive limitations had a lower likelihood of receiving a Pap test. Our findings also showed that being socially isolated, illiterate or underweight significantly decreased screening participation. CONCLUSION: Even in institutions, disability severity remains a barrier to cancer screening. Given the increasing prevalence of disabling conditions and cancers, and the lack of previous studies on this specific topic, our findings are highly important from a policy point of view. These findings should alert health authorities to increase their efforts to provide medical care for institutionalized people with disabilities.

Chiu, H. M. et Chen, H. H. (2015). "Reply to Screening for colorectal cancer in Taiwan and France: Does the fecal immunochemical test (FIT) fit?" Cancer **121**(24): 4442-4443.

Eisinger, F., Morère, J. F., Touboul, C., et al. (2015). "Prostate cancer screening: contrasting trends." Cancer Causes Control **26**(6): 949-952.

PURPOSE: Our previously published data showed rapidly increasing rates of prostate cancer screening in men aged 50-74, which rose from 36% in 2005 to 48% in 2008. Based on men's reported intentions at that time, this was expected to rise to 70% in 2011. Here we report the actual rate of prostate cancer screening. METHOD: Three nationwide observational telephone surveys (EDIFICE opinion polls) were conducted in 2005, 2008, and 2011. The overall target was a representative sample of > 1,500 individuals living in France and aged 40-75 years, including 481 men aged 50-74 years. RESULTS: Within this male population, the rate of screening reported remained stable between 2008 and 2011 (48 and 49%, respectively). However, comparison of privileged versus disadvantaged populations showed significant differences, with a relative decrease in screening among those of higher socioprofessional status ($p = 0.03$) and from higher-income groups ($p = 0.02$). For households with a monthly income above 2,500€, the screening rate decreased from 61% in 2008 to 51% in 2011 ($p = 0.05$), while for those with an income below 2,500€, it increased from 36% in 2008 to 44 % in 2011 ($p = 0.18$). CONCLUSION: A plateau or even a reduction in prostate cancer screening is currently being observed; this is possibly due to progressive recognition among the population at large of the controversy surrounding prostate cancer screening, whereas this speculation was formerly limited to health-care professionals. After previously being more likely to undergo prostate cancer screening, it is the younger, wealthier populations that are currently showing the most noteworthy step backwards.

Elfström, K. M., Arnheim-Dahlström, L., von Karsa, L., et al. (2015). "Cervical cancer screening in Europe: Quality assurance and organisation of programmes." Eur J Cancer **51**(8): 950-968.

BACKGROUND: Cervical screening programmes have reduced cervical cancer incidence and mortality but the level of success is highly variable between countries. Organisation of programmes is essential for equity and cost-effectiveness. However, there are differences in effectiveness, also among organised programmes. In order to identify the key organisational components that determine effectiveness, we performed a Europe-wide survey on the current status of organisation and organised quality assurance (QA) measures in cervical cancer prevention programmes, as well as organisation-associated costs. METHODS: A comprehensive questionnaire was developed through systematic review of literature and existing guidelines. The survey was sent to programme organisers, Ministries of Health and experts in 34 European Union (EU) and European Free Trade Agreement (EFTA) countries. Detailed aspects of programme organisation, quality assurance, monitoring, evaluation and corresponding line-item costs were recorded. Documentation of programme guidelines, protocols and publications was requested. RESULTS: Twenty-nine of 34 countries responded. The results showed that organised efforts for QA, monitoring and evaluation were carried out to a differing extent and were not standardised, making it difficult to compare the cost-effectiveness of organisation and QA strategies. Most countries found it hard to estimate the costs associated with launching and operating the organised programme. CONCLUSIONS: To our knowledge, this is the first questionnaire to request detailed information on the actual organisation and QA of programmes. The results of this survey can be used as a basis for further development of standardised guidelines on organisation and QA of cervical cancer screening programmes in Europe.

Guthmann, J. P., Celant, N., Parent, d. C. H. A. T. E. L. E. T. I., et al. (2015). Déterminants socio-économiques de vaccination et de dépistage du cancer du col par frottis cervico-utérin (FCU). Analyse de l'Enquête santé et protection sociale (ESPS), 2012, Saint-Maurice : Institut de veille sanitaire
http://www.invs.sante.fr/Publications-et-outils/Rapports-et-syntheses/Maladies-infectieuses/2016/Determinants-socio-economiques-de-vaccination-et-de-depistage-du-cancer-du-col-par-frottis-cervico-uterin-FCU

Les couvertures vaccinales (CV) du rappel diphtérie, tétanos, poliomyélite (DTP) de l'adulte et de la vaccination contre les infections à papillomavirus humain (HPV) de la jeune fille sont insuffisantes en France. L'Institut de veille sanitaire (InVS) a analysé les données de l'Enquête santé et protection sociale (ESPS) conduite en 2012 afin d'explorer les déterminants socio-économiques de ces vaccinations, ainsi que ceux du dépistage du cancer du col utérin par le frottis cervico-utérin (FCU). L'enquête a porté sur un échantillon aléatoire représentatif des bénéficiaires de l'Assurance maladie. Les informations ont été recueillies par interview téléphonique et autoquestionnaire.

Kalecinski, J., Régnier-Denois, V., Ouédraogo, S., et al. (2015). "[Organized or individual breast cancer screening: what motivates women?]." Sante Publique **27**(2): 213-220.

OBJECTIVE: The breast cancer screening programme, proposed to all women between 50 and 69 years, consisting of two-view mammography screening every two years, has been generalized in France since 2004. The programme coexists with opportunistic mammography screening, provided outside official frameworks. This qualitative study was designed to identify the pros and cons of these two screening modes. METHODS: Three hundred and forty-five women were randomly selected from women who had participated in a previous quantitative study and who were invited to attend for breast cancer screening in 13 French departments between 2010 and 2011. These women were asked to participate in a face-to-face semistructured interview conducted by a sociologist. RESULTS: 48 women (17 from deprived areas) were interviewed. All chose to be screened for breast cancer either because they feared cancer, or because they wanted to control their own health. Twenty-seven women chose the organized screening programme, which they considered to be trustworthy, as negative mammograms are double checked by a second radiologist. Twenty-one women preferred individual screening, which they considered to be more reliable, less anonymous and providing them with more liberty to take control of their own health. CONCLUSION: Gynaecologists play an important role in women's decision to undergo individual breast cancer screening. They also have an important role to play in the promotion of organized breast cancer screening programme with this public.

Kalecinski, J., Regnier-Denois, V., Ouedraogo, S., et al. (2015). "Dépistage organisé ou individuel du cancer du sein ? Attitudes et représentations des femmes." Sante Publique **27**(2): 213-220, tabl., fig.
http://www.cairn.info/revue-sante-publique-2015-2-page-213.htm

[BDSP. Notice produite par EHESP R0xFJFFA. Diffusion soumise à autorisation]. Objectif : Cette étude qualitative avait pour objectif d'identifier les freins et les moteurs à la participation des femmes au dépistage organisé ou individuel du cancer du sein. Méthodes : Étude qualitative menée sous forme d'entretiens semi-directifs par une sociologue. 345 femmes ont été tirées au sort parmi des femmes ayant participé à une précédente étude quantitative. Ces femmes avaient été invitées à participer au dépistage organisé du cancer du sein entre 2010 et 2011 dans 13 départements français. Résultats : Au total, 48 femmes ont été interviewées sur leur expérience du dépistage individuel ou organisé. Le principal moteur des femmes pour se faire dépister était la peur de la maladie ou la volonté de contrôler leur santé. 27 femmes ont opté pour le système organisé dans lequel elles ont confiance en raison de la double lecture des résultats. 21 femmes ont opté pour le dépistage individuel qu'elles considèrent comme plus fiable que le dépistage organisé, moins anonyme et qui leur permet d'être plus libres de gérer leur santé. Conclusion : Le gynécologue joue un rôle important dans le choix des femmes qui participent au dépistage individuel. Il pourrait être un acteur décisif dans la promotion du dépistage organisé auprès de ce public.

Luquain, A., Belglaiaa, E., Guenat, D., et al. (2015). "High prevalence of abnormal cervical smears in a hospital cohort of French women beyond the upper age limit screening program." Prev Med **81**: 157-162.

OBJECTIVE: To determine the prevalence of cytological abnormalities and high risk Human PapillomaVirus (hrHPV) in cervical smears from French women aged over 65 years who attended the referent Gynecology Clinic of the Besançon University Hospital. METHODS: Between 2002 and 2012, 796 French women aged 66-99 years were cotested for cytology and hrHPV by Hybrid Capture 2 (hc2). hc2-positive cases were subjected to real time PCR for specific HPV 16/18/45 genotyping. Women with normal Pap smears and positive for hrHPV were followed-up every 12 months. RESULTS: Cytological abnormalities were detected in more than 30% of women and cervical cancers (CC) in 2.9% of women. Benign lesions were more frequent in women aged 66-75 years while (pre)-malignant lesions were preferentially found in women over 76. The prevalence of hrHPV was 22.7%. HPV 16 was the most frequent (23.8%), followed by HPV 45 (7.7%) and HPV 18 (3.9%). The rate of hrHPV increased with the lesion severity and HPV 16 was identified in 50% of CC. Among the followed-up women, those who developed CIN3 were HPV16 positive at study entry. CONCLUSION: The study provides important estimates of the prevalence of cervical abnormalities and hrHPV positivity in a French hospital based-population over 65. Findings suggest to consider this high risk population in regards to cervical cancer.

Mead, L., Porteous, L., Tait, M., et al. (2015). "The prevalence of medical reasons for non-participation in the Scottish breast and bowel cancer screening programmes." J Med Screen **22**(2): 106-108.

OBJECTIVE: Increasing uptake of cancer screening is a priority for health systems internationally, however, some patients may not attend because they are undergoing active treatment for the cancer of interest or have other medical reasons that mean participation would be inappropriate. This study aims to quantify the proportion of non-participants who have a medical reason for not attending cancer screening. METHODS: Medical reasons for not participating in breast and bowel screening were defined a priori on the basis of a literature review and expert opinion. The notes of 700 patients at two GP practices in Scotland were reviewed, to ascertain the prevalence of medical reasons amongst non-participants. Simple proportions and confidence intervals were calculated. RESULTS: 17.4% of breast and 2.3% of bowel screening non-participants had a medical reason to not participate. The two most common reasons were previous breast cancer follow up (8.86%) and recent mammogram (6.57%). CONCLUSION: These patients may not benefit from screening while also being distressed by receiving an invitation. This issue also makes accurate monitoring and target-setting for improving uptake difficult. Further work is needed to estimate robustly the extent to which medical reasons account for screening non-participation in a larger population.

Penneau, A., Pichetti, S. et Sermet, C. (2015). "Les personnes en situation de handicap vivant à domicile ont un moindre accès aux soins de prévention que celles sans handicap. Une exploitation de l'enquête Handicap-Santé volet Ménages (2008)." Questions D'economie De La Sante (Irdes)(208): 1-8.
http://www.irdes.fr/recherche/questions-d-economie-de-la-sante/208-les-personnes-en-situation-de-

handicap-vivant-a-domicile-ont-un-moindre-acces-aux-soins-de-prevention-que-celles-sans-handicap.pdf
Avec une espérance de vie qui a progressé, les personnes en situation de handicap sont confrontées aux mêmes pathologies du vieillissement que le reste de la population. L'accès à la prévention et au dépistage doit ainsi permettre d'éviter une dégradation prématurée de leur état de santé. Or la littérature montre qu'elles rencontrent de nombreux obstacles pour accéder à la prévention et aux soins courants : une expression des besoins parfois difficile, une situation socio-économique plus défavorisée ayant pour conséquence un moindre recours aux soins, une accessibilité physique aux cabinets médicaux ou aux matériels de consultation inadaptée, une méconnaissance du handicap par le personnel soignant… Cette étude sur le recours aux soins et à la prévention des personnes en situation de handicap résidant à domicile explore avec les données de l'enquête Handicap-Santé Ménages (HSM), réalisée par la Drees et l'Insee en 2008, quatre actes de dépistage ou de prévention : les dépistages des cancers du col de l'utérus, du sein, du côlon et la vaccination contre l'hépatite B. L'objectif est d'évaluer les écarts de recours à ces actes selon la situation de ces personnes face au handicap. Deux indicateurs de handicap ont été retenus pour l'analyse, les limitations fonctionnelles (limitations motrices, cognitives, visuelles ou auditives) et la reconnaissance administrative du handicap.

Solmi, F., Von Wagner, C., Kobayashi, L. C., et al. (2015). "Decomposing socio-economic inequality in colorectal cancer screening uptake in England." Soc Sci Med **134**: 76-86.

Colorectal cancer (CRC) is the second largest cause of cancer death in the UK. Since 2010, CRC screening based on Faecal Occult Blood testing has been offered by the NHS in England biennially to all persons age 60-69 years. Several studies have demonstrated a gradient in uptake using area-level markers of socio-economic status (SES), but few have examined the individual-level contributors to the gradient. We aimed to quantify the extent of SES inequality in CRC screening uptake in England using individual-level data, and to identify individual factors associated with this inequality. We used data from 1833 participants (aged 61-69) in Wave 5 (collected in years 2010/11) of the English Longitudinal Study of Ageing (ELSA) eligible for having been sent at least one CRC screening invitation. Uptake was defined by self-report of ever having been screened as part of the National Screening Programme. We assessed socio-economic inequality using the corrected concentration index of uptake against SES rank, which was derived by regressing a range of SES markers against net non-pension household wealth. Other demographic and health-related variables were included in the analysis. Factors associated with inequality were measured using concentration index decomposition. There was a significant pro-rich gradient in screening uptake (concentration index: 0.16, 95% CI:0.11-0.22), mostly explained within our model by differences in non-pension wealth (38.7%), partner screening status (15.9%), sickness/disability (13.5%), and health literacy (8.5%). Interventions aimed at reducing inequalities in CRC screening uptake should focus on improving acceptability of screening in populations with low levels of education and literacy barriers.

Tran, V. T., Kisseleva-Romanova, E., Rigal, L., et al. (2015). "Impact of a printed decision aid on patients' intention to undergo prostate cancer screening: a multicentre, pragmatic randomised controlled trial in primary care." Br J Gen Pract **65**(634): e295-304.

BACKGROUND: Despite recommendations against systematic screening for prostate cancer, 70% of patients still request prostate-specific antigen testing. AIM: To assess the impact of a decision aid on patients' intention to undergo prostate cancer screening. DESIGN AND SETTING: Randomised controlled trial with two-arm parallel groups in 86 general practices in urban and rural areas in France. METHOD: Males aged 50-75 years were randomised to receive either the decision aid (intervention group) or usual care (control group). The primary outcome was the proportion of patients' intending to undergo prostate cancer screening, assessed immediately after reading the decision aid. The reasons underlying their choice were elicited and the proportion of patients citing each reason to undergo, or not undergo, prostate cancer screening were compared between the two arms. RESULTS: A total of 1170 patients were randomised (588 in the intervention arm) from November 2012 to February 2013. The proportion of patients who intended to be tested for prostate cancer in the intervention arm (123 patients [20.9%]) was significantly reduced compared with the control arm (57 patients [9.8%]) (difference 11.1%, 95% confidence interval [CI] = 7.0 to 15.2, P<0.0001). In the intervention group, a lower proportion of individuals expressed that cancer screening would protect them from the disease, compared with the control group (P<0.0001), while a greater proportion of individuals stated that prostate cancer screening would not benefit their health (P<0.0001) and may involve procedures with harmful side effects (P = 0.0005). CONCLUSION: The decision aid improved participants' informed decision making and reduced their intent to undergo prostate cancer screening.

Zappa, M., Carozzi, F. M., Giordano, L., et al. (2015). "The diffusion of screening programmes in Italy, years 2011-2012." Epidemiol Prev **39**(3 Suppl 1): 5-8.

In this report, we present the results of cancer screening programmes in Italy for the years 2011-2012. This report is produced by the National centre for screening monitoring (ONS), together with the Italian professional multidisciplinary screening groups: GISMa (Italian group for mammographic screening), GISCor (Italian group for colorectal screening), and GISCi (Italian group for cervical screening). Since 2004, ONS has been monitoring and supporting Italian screening programmes, in accordance with a decree issued by the Ministry of Health. Multidisciplinary groups work with ONS and provide the know-how required to promote the quality of public health programmes. The following is a brief outline of the Italian screening programme setting: screening programmes (cervical, mammographic, colorectal) have been a Basic Healthcare Parameter (livello essenziale di assistenza, LEA) since 2001; guidelines are provided by the Ministry of Health's Department of Prevention in agreement with regional governments; regional governments are responsible for the organization, management, and quality assurance of screening programmes; since 2004, ONS has been responsible for monitoring and promoting screening programmes nationwide; the results of the screening programmes of each region are evaluated annually by the Ministry of Health in terms of coverage and impact.

2014 (14)

Duport, N., Gremy, I. et Salines, E. (2014). "Premiers résultats de l'évaluation du programme expérimental de dépistage organisé du cancer du col de l'utérus, France, 2010-2012." Bull Epidemiol Hebd(13-14-15): 228-234.
http://www.invs.sante.fr/beh/2014/13-14-15/2014_13-14-15_3.html

[BDSP. Notice produite par InVS 9999R0xB. Diffusion soumise à autorisation]. Objectifs : cet article présente les premiers résultats de l'évaluation des 13 départements expérimentant en France, selon le même protocole, l'organisation du dépistage du cancer du col utérin sur la période 2010-2012. Méthodes : les données présentées sont issues des structures de gestion locales (départementales ou régionales) qui transmettent les données sous forme agrégée à l'Institut de veille sanitaire. Résultats : le dépistage organisé concerne en France 13 départements, couvrant 13,4% de la population-cible des femmes de 25-65 ans. Sur la période 2010-2012, un total de 1,33 millions de femmes n'ayant pas réalisé de frottis sur prescription individuelle au cours des trois dernières années a reçu une incitation à se faire dépister. Suite aux incitations et relances (envoyées dans les 9 à 12 mois suivant une incitation en l'absence de dépistage), le taux de couverture de dépistage sur trois ans (2010-2012) a augmenté de 13,2 points. Douze mois après avoir reçu une incitation ou une relance, près de 280 000 femmes ont réalisé un dépistage qu'elles n'auraient probablement pas fait. Conclusion : ces premiers résultats témoignent d'ores et déjà d'un impact positif du programme, avec notamment un gain significatif de couverture de dépistage par sollicitation de femmes peu ou pas dépistées. Ce programme constitue ainsi un dispositif supplémentaire dans la lutte contre les inégalités sociales de santé. (R.A.).

Garnier, A. et Brindel, P. (2014). "Les programmes de dépistage organisé du cancer du col de l'utérus en Europe : état des lieux en 2013." Bull Epidemiol Hebd(13-14-15): 222-227.
http://www.invs.sante.fr/beh/2014/13-14-15/2014_13-14-15_2.html

[BDSP. Notice produite par InVS R0xkI9pA. Diffusion soumise à autorisation]. Introduction : le dépistage organisé (DO) des cancers est soutenu depuis 2003 par une recommandation du conseil de l'Union européenne (UE) et par la publication de préconisations pour l'assurance qualité des dépistages. L'objectif de l'article est d'identifier les programmes de DO du cancer du col utérin en Europe et de situer la France parmi eux. Matériel et méthodes : il n'existe pas de recensement des programmes de DO du cancer du col utérin sur le continent européen. À partir d'une revue de la littérature, un état des lieux a pu être réalisé. Résultats : en Europe, 14 pays ont un programme national de DO du cancer du col utérin, dont 8 depuis plus de 20 ans. Sept pays, dont la France, développent des programmes régionaux, qui touchent entre 4 et 72% des femmes potentiellement concernées (13% en France). Enfin, 11 pays disposent uniquement d'un dépistage spontané d'initiative individuelle. Les modalités de dépistage sont hétérogènes. Le seul test utilisé à ce jour est le frottis cervical à visée cytologique. Deux pays envisagent d'utiliser la recherche des HPV oncogènes, mais ne l'ont pas encore mise en place. Les taux de couverture observés dans les pays où des programmes nationaux existent depuis plus de 20 ans atteignent 70%. En France, ce taux est dépassé en Alsace, pour les femmes de 25 à 65 ans. Discussion conclusion : on observe une tendance à la généralisation du DO du cancer du col de l'utérus dans les pays d'Europe. Les disparités organisationnelles rendent difficile la comparaison entre pays. On peut souhaiter un réseau plus actif des pays avec un programme existant ou projeté, de façon à mutualiser les expériences acquises. (R.A.).

Haguenoer, K., Goudeau, A., Marret, H., et al. (2014). "Performance de l'auto-prélèvement vaginal sec pour la détection des infections à papillomavirus à haut risque oncogène dans le cadre du dépistage du cancer du col de l'utérus : une étude transversale." Bull Epidemiol Hebd(13-14-15): 248-254.
http://www.invs.sante.fr/beh/2014/13-14-15/2014_13-14-15_6.html

[BDSP. Notice produite par InVS DJF88R0x. Diffusion soumise à autorisation]. La participation au dépistage du cancer du col de l'utérus reste insuffisante dans de nombreux pays. La recherche de papillomavirus humains à haut risque (HPV-HR) sur des auto-prélèvements pourrait être une alternative au frottis cervico-utérin (FCU). Notre objectif était de comparer la performance diagnostique de deux méthodes d'auto-prélèvement vaginal (APV), un écouvillon sec (APV-Sec) ou un écouvillon avec milieu de transport liquide (APV-Liq), pour la détection d'infections cervicales à HPV-HR, en comparaison avec un prélèvement cervical en milieu liquide réalisé par un clinicien (PCC-Liq). Des femmes de 20 à 65 ans ont été recrutées en consultation hospitalière de gynécologie, d'orthogénie ou en centre d'examens de santé entre septembre 2009 et mars 2011. Une recherche d'HPV était réalisée sur chaque prélèvement (3 par femme). Sur les 734 femmes incluses, le résultat des 3 tests HPV était disponible pour 722. La sensibilité et la spécificité de détection des HPV-HR dans les APV-Sec étaient estimées à 88,7% et 92,5%, respectivement ; elles étaient de 87,4% et 90,9% pour les APV-Liq. Parmi les 27 lésions cytologiques de bas grade, 25 étaient HPV-HR+pour les 3 prélèvements. Parmi 6 lésions de haut grade, toutes étaient HPV-HR+pour les APV-Sec et 1 était HPV-HR-sur APV-Liq et sur PCC-Liq. L'APV sec est une méthode performante pour la détection d'infections cervicales à HPV-HR. Son efficacité et son rapport coût-efficacité pour atteindre les femmes ne réalisant pas de FCU dans un programme de dépistage organisé doivent être évalués avant que ce test ne puisse être utilisé à grande échelle. (R.A.).

Lejeune, C., Le Gleut, K., Cottet, V., et al. (2014). "The cost-effectiveness of immunochemical tests for colorectal cancer screening." Dig Liver Dis **46**(1): 76-81.

BACKGROUND: The optimal immunochemical test to use for generalised mass screening is still under debate in France. AIM: To compare the cost and effectiveness in biennial screening for colorectal cancer of fifteen strategies consisting of the three-stool sample un-rehydrated guaiac faecal occult blood test and three immunochemical tests: Magstream, FOB-Gold and OC-Sensor, at different positivity cut-off levels and stool-sample collection. METHODS: A Markov model was used to compare these strategies in a general population of 100,000 individuals aged 50-74 over a 20-year period. RESULTS: Immunochemical tests were efficient strategies compared with guaiac faecal occult blood test. When all 15 strategies were compared with each other, only five of them remained efficient: the one- and two-stool sample Magstream, the one- and two-stool sample FOB-Gold with the 176 ng/mL cut-off, and the two-stool sample OC-Sensor with the 150 ng/mL cut-off. Sensitivity analyses showed that, at an identical price, the one-stool sample OC-Sensor was the most efficient strategy, and outperformed FOB-Gold. CONCLUSION: One-stool immunochemical testing can be considered a promising alternative to the guaiac faecal occult blood test for colorectal cancer mass screening in the general population. Competition between manufacturers should now be introduced to reduce purchase price differences.

Menvielle, G., Richard, J. B., Ringa, V., et al. (2014). "To what extent is women's economic situation associated with cancer screening uptake when nationwide screening exists? A study of breast and cervical cancer screening in France in 2010." Cancer Causes Control **25**(8): 977-983.

PURPOSE: In France, larger social inequalities are reported for cervical cancer screening, based on individual practice, than for breast cancer screening for which organized screening exists. Our aim was to investigate the association between women's economic situation and breast and cervical cancer screening. METHODS: We used data from a large French national health survey conducted in 2010. The economic situation was assessed using the number of adverse economic conditions respondents were facing, based on three variables (low income, lacking food, and perceived financial difficulties). Logistic regressions were adjusted for socioeconomic and sociodemographic characteristics, healthcare use and insurance, and health behaviors. RESULTS: Mammography was less frequent among women experiencing two or more adverse economic conditions, whereas Pap smear was less frequent among women experiencing at least one adverse economic condition. For both screenings, higher rates were observed among women who lived in the Paris region. Sociodemographic indicators and health behaviors were associated with Pap smear, whereas healthcare use and insurance characteristics were associated with mammography. CONCLUSIONS: The women's economic situation is an important determinant of breast and cervical cancer screening in France in 2010. Alleviating economic barriers to female cancers screening should be a priority in future programs implementation.

Moutel, G., Duchange, N., Darquy, S., et al. (2014). "Women's participation in breast cancer screening in France--an ethical approach." BMC Med Ethics **15**: 64.

BACKGROUND: Breast cancer is a major public health challenge. Organized mammography screening (OS) is considered one way to reduce breast cancer mortality. EU recommendations prone mass deployment of OS, and back in 2004, France introduced a national OS programme for women aged 50-74 years. However, in 2012, participation rate was still just 52.7%, well short of the targeted 70% objective. In an effort to re-address the (in) efficiency of the programme, the French National Cancer Institute has drafted an expert-group review of the ethical issues surrounding breast cancer mammography screening. DISCUSSION: Prompted by emerging debate over the efficiency of the screening scheme and its allied public information provision, we keynote the experts' report based on analysis of epidemiological data and participation rate from the public health authorities. The low coverage of the OS scheme may be partly explained by the fact that a significant number of women undergo mammography outside OS and thus outside OS criteria. These findings call for further thinking on (i) the ethical principles of beneficence and non-malfeasance underpinning this public health initiative, (ii) the reasons behind women's and professionals' behavior, and (iii) the need to analyze how information provision to women and the doctor-patient relationship need to evolve in response to scientific controversy over the risks and benefits of conducting mammographic screening. SUMMARY: This work calls for a reappraisal of the provision of screening programme information. We advocate a move to integrate the points sparking debate over the efficiency of the screening scheme to guarantee full transparency. The perspective is to strengthen the respect for autonomy allowing women to make an informed choice in their decision on whether or not to participate.

Ouédraogo, S., Dabakuyo-Yonli, T. S., Roussot, A., et al. (2014). "European transnational ecological deprivation index and participation in population-based breast cancer screening programmes in France." Prev Med **63**: 103-108.

BACKGROUND: We investigated factors explaining low breast cancer screening programme (BCSP) attendance taking into account a European transnational ecological Deprivation Index. PATIENTS AND

METHODS: Data of 13,565 women aged 51-74years old invited to attend an organised mammography screening session between 2010 and 2011 in thirteen French departments were randomly selected. Information on the women's participation in BCSP, their individual characteristics and the characteristics of their area of residence were recorded and analysed in a multilevel model. RESULTS: Between 2010 and 2012, 7121 (52.5%) women of the studied population had their mammography examination after they received the invitation. Women living in the most deprived neighbourhood were less likely than those living in the most affluent neighbourhood to participate in BCSP (OR 95%CI=0.84[0.78-0.92]) as were those living in rural areas compared with those living in urban areas (OR 95%CI=0.87[0.80-0.95]). Being self-employed (p<0.0001) or living more than 15min away from an accredited screening centre (p=0.02) was also a barrier to participation in BCSP. CONCLUSION: Despite the classless delivery of BCSP, inequalities in uptake remain. To take advantage of prevention and to avoid exacerbating disparities in cancer mortality, BCSP should be adapted to women's personal and contextual characteristics.

Papin-Lefebvre, F., Moutel, G., Duchange, N., et al. (2014). "[Breast cancer screening program in France: for optimization of the information]." Rev Epidemiol Sante Publique **62**(2): 109-117.

BACKGROUND: Based on international and national recommendations, organized breast cancer screening in France raises questions of medical ethics built around the key concepts of individual autonomy and public health policy. Because of the evolving knowledge, professionals and institutions involved in the program must review the ethical values associated with this medical practice. METHODS: The ethical aspects of organized breast cancer screening were studied. In response to newly acquired knowledge highlighted by a review of texts governing this practice in France, proposals for changes resulting from reflections of a working group coordinated by the National Cancer Institute are presented. RESULTS: Ethical issues raised by screening must find expression in the general principles of the program's organization: acceptability of screening, efficiency, adverse effects, equity of access, free care…, but also at different stages of the procedure: information delivery, first and second invitations, refusal of further diagnostic investigation… CONCLUSION: A better match between breast cancer screening and recently developed knowledge requires optimal information delivery to women targeted by the program as well as a stronger role for the referring healthcare professional.

Papin-Lefebvre, F., Moutel, G., Duchange, N., et al. (2014). "Dépistage organisé du cancer du sein en France : pour une optimisation de l'information." Revue d'Épidémiologie et de Santé Publique **62**(2): 109-117, tabl.

[BDSP. Notice produite par CREAIORSLR R0x87mDA. Diffusion soumise à autorisation]. Fondé sur des recommandations internationales et nationales, le dépistage organisé du cancer du sein en France suscite des questionnements d'éthique médicale s'articulant autour des concepts-clés d'autonomie de la personne et de politique de santé publique. L'évolution des connaissances oblige les professionnels et les institutions engagés dans ce programme à réexaminer les valeurs éthiques liées à cette pratique médicale. Les aspects éthiques du dépistage organisé du cancer du sein sont étudiés. Après un rappel des textes encadrant cette pratique en France, des propositions d'évolution issues des réflexions d'un groupe de travail coordonné par l'Institut national du cancer, en réponse aux nouveaux acquis des connaissances, sont présentées. Les questions éthiques soulevées par ce dépistage doivent se décliner au niveau des principes généraux d'organisation du programme : acceptabilité du dépistage, efficacité, effets négatifs, égalité d'accès, gratuité. ; mais aussi au niveau des différentes étapes de la procédure : information, invitation, relance, refus de la démarche diagnostique. L'optimisation de l'information délivrée aux femmes ciblées par le dépistage et le renforcement de la place et du rôle d'un professionnel de santé référent apparaissent comme des perspectives d'évolution nécessaires dans le but d'une meilleure adéquation du dispositif aux évolutions récentes des connaissances. (Résumé auteur).

Rouëssé, J. et Sancho-Garnier, H. (2014). "[Organized breast cancer screening]." Bull Acad Natl Med **198**(2): 369-386.

Breast screening programs are increasingly controversial, especially regarding two points: the number of breast cancer deaths they avoid, and the problem of over-diagnosis and over-treatment. The French national breast cancer screening program was extended to cover the whole country in 2004. Ten years later it is time to examine the risk/benefit ratio of this program and to discuss the need for change. Like all forms of cancer management, screening must be regularly updated, taking into account the state of the art, new evidence, and uncertainties. All screening providers should keep themselves informed of the latest findings. In the French program, women aged 50-74 with no major individual or familial risk factors for breast cancer are offered screening mammography and clinical breast examination every two years. Images considered non suspicious of malignancy by a first reader are re-examined by a second reader. The devices and procedures are subjected to quality controls. Participating radiologists (both public and private) are required to read at least 500 mammographies per year. The program's national participation rate was 52.7 % in 2012. When individual screening outside of the national program is taken into account (nearly 15 % of women), coverage appears close to the European recommendation of 65 %. Breast cancer mortality has been falling in France by 0.6 % per year for over 30 years, starting before mass screening was implemented, and by 1.5 % since 2005. This decline can be attributed in part to earlier diagnosis and better treatment, so that the specific impact of screening cannot easily be measured. Over-treatment, defined as the detection and treatment of low-malignancy tumors that would otherwise not have been detected in a person's lifetime, is a major negative effect of screening, but its frequency is not precisely known (reported to range from 1 % to 30 %). In view of these uncertainties, it would be advisable to modify the program in order to increase its efficiency, by targeting populations at a higher risk than the women currently included, and to reduce the number of mammograms done outside the program, as they are not subject to the same quality controls. Risks could be reduced by increasing the sensitivity of mammography and the specificity of the readings. Moreover, it is mandatory to inform women of both the benefits and risks of screening, in compliance with the principle of enabling patients to make a free and informed choice.

Séradour, B., Heid, P. et Estève, J. (2014). "Comparison of direct digital mammography, computed radiography, and film-screen in the French national breast cancer screening program." AJR Am J Roentgenol **202**(1): 229-236.

OBJECTIVE: The purpose of this article was to compare the performance of digital mammography using hardcopy image reading against film-screen mammography in a French national routine population-based screening program with a decentralized organization. The French context offered the opportunity to examine separately computed radiography and direct digital mammography performances in a large cohort. MATERIALS AND METHODS: The study includes 23,423 direct digital mammography, 73,320 computed radiography, and 65,514 film-screen mammography examinations performed by 123 facilities in Bouches du Rhône, France, for women 50-74 years old between 2008 and 2010. We compared abnormal mammography findings rate, cancer detection rate, and tumor characteristics among the technologies. RESULTS: Abnormal finding rates were higher for direct digital mammography (7.78% vs 6.11% for film-screen mammography and 5.34% for computed radiography), particularly in younger women and in denser breasts. Cancer detection rates were also higher for direct digital mammography (0.71% vs 0.66% for film-screen mammography and 0.55% for computed radiography). The contrast between detection rates was stronger for ductal carcinoma in situ. Breast density was the main factor explaining the differences in detection rates. For direct digital mammography only, the detection rate was clearly higher in dense breasts whatever the age (odds ratio, 2.20). Except for grade, no differences were recorded concerning tumor characteristics in which the proportion of high-grade tumors was larger for direct digital mammography for invasive and in situ tumors. CONCLUSION: Direct digital mammography has a higher detection rate than film-screen mammography in dense breasts and for tumors of high grade. This latter association warrants further study to measure the impact of technology on efficacy of screening. The data indicate that computed radiography detects fewer tumors than film-screen mammography in most instances.

Sicsic, J. et Franc, C. (2014). "Obstacles to the uptake of breast, cervical, and colorectal cancer screenings: what remains to be achieved by French national programmes?" BMC Health Serv Res **14**: 465.

BACKGROUND: In France, equality in access to screening has been one of the main thrusts of public policies implemented between 2009 and 2013 (the national cancer plan). Our aim in this study was to analyse the obstacles to and levers for breast, cervical, and colorectal cancer screening uptake and their trends over time. METHODS: Based on representative data from the French Health Care and Health Insurance Survey (three independent, cross-sectional surveys: 2006, 2008, and 2010), multivariate logistic regressions were used to model the association between the nonuse of screening for the three cancers and various independent variables. Then, interactions with survey year dummies allowed the changes in the determinants of these cancer screenings over time to be estimated. RESULTS: Whereas the incentives for screening were strengthened during the period considered, cervical and breast cancer screenings decreased, and colorectal cancer screenings increased sharply (from 18.2% (95% CI = [17.0-19.4]) in 2006 to 38.9% (95% CI = [37.4-40.5] in 2010. Under-users of the three cancer screenings were primarily unskilled workers (ORcervix = 1.64 [1.38-1.95]), individuals without complementary health insurance (ORbreast = 2.05 [1.68-2.51]), or individuals with free complementary health insurance who more rarely use outpatient care. Moreover, individuals reporting either risky behaviours, namely heavy smokers (ORcolorectal = 1.70) and high-risk drinkers (ORcervix = 1.42) or very safe behaviours, namely neither smoking nor drinking, underused screenings. Despite the implementation of national programmes for breast and colorectal cancer screenings, the disparities and inequalities in screening uptake did not decrease over the study period. CONCLUSIONS: These results demonstrate the need for additional primary prevention efforts targeting the identified under-users by focusing on, for instance, individuals with a very healthy lifestyle. Health authorities could also intensify their efforts to promote increased access to screening for the most disadvantaged individuals.

2013

Autier, P. (2013). "[Screening for breast cancer: worries about its effectiveness]." Rev Prat **63**(10): 1369-1377.

Breast cancer screening in France is done though two parallel systems: individualized screening and a national programme of organized screening. The latter is free of charge and manages a double-reading of mammography films. Since 2004, a steadily greater proportion of French women 50 to 74 years of age participate to the national programme. Justification of screening in France is based on Swedish randomised trials that documented the ability of mammography screening to reduce the risk to die from breast cancer. However, since 3 years, a growing number of studies indicate that screening seems not to have much influence on the incidence of advanced breast cancer and on mortality from breast cancer Moreover, numerous breast cancers are detected that would have never clinically surfaced and would have never been life threatening (overdiagnosis). In view of current doubts, it is better to inform women on health benefits, limitations and possible side effects of mammography screening. For women willing to be screened, it is recommended to invite them to participate to the national programme.

Bernard, E., Saint-Lary, O., Haroubi, L., et al. (2013). "Dépistage du cancer du col de l'utérus : connaissances et participation des femmes." Sante Publique **25**(3): 255-262, tabl.

[BDSP. Notice produite par EHESP JR0xGsl8. Diffusion soumise à autorisation]. L'objectif de cette étude était d'évaluer les connaissances des femmes vis-à-vis des modalités pratiques du dépistage du cancer du col de l'utérus, de rechercher un lien entre leur niveau de connaissance et leur participation, et d'évaluer leur perception de l'implication des médecins généralistes (MG) dans la mise en oeuvre de ce dépistage. L'étude a permit de conclure qu'une meilleure connaissance des femmes vis-à-vis des modalités du dépistage du cancer du col de l'utérus pourrait améliorer leur participation. Les MG réalisent peu de frottis et l'information qu'ils délivrent aux patientes devrait être renforcée.

El Kakr, K., Abda, N., Najdi, A., et al. (2013). "Pratiques des médecins généralistes des centres de santé de la Préfecture de Fès vis-à-vis du dépistage du cancer." Sante Publique **25**(5): 685-691.

[BDSP. Notice produite par EHESP R0xDGH7D. Diffusion soumise à autorisation]. Le médecin généraliste apparaît comme un acteur important de la prévention des cancers. Le but de cette enquête était de décrire les attitudes des médecins face aux facteurs de risque majeurs que sont le tabac, l'alcool et l'alimentation et face aux dépistages les plus courants (cancer du sein, du col de l'utérus, du côlon-rectum et de la prostate). Méthodes : un auto-questionnaire portant sur la prévention primaire et le dépistage des cancers par le médecin généraliste a été adressé à l'ensemble des médecins de la préfecture de Fès. Résultats : le taux de participation a été de 75,8%. L'âge moyen des médecins était de 45,6+/-6,8 ans et 53,8% étaient de sexe féminin. Le suivi des formations sur la prévention des cancers était rapporté par 25,6% des médecins. Une grande diversité de comportement est observée en ce qui concerne les dépistages, et cela même pour les cancers qui font l'objet de recommandations claires comme le cancer du sein ou du col de l'utérus. (.) Conclusion : cette étude souligne la nécessité de renforcer les connaissances des praticiens sur les tests de dépistage. (R.A.).

Ferrat, E., Le Breton, J., Djassibel, M., et al. (2013). "Understanding barriers to organized breast cancer screening in France: women's perceptions, attitudes, and knowledge." Family Practice **30**(4): 445-451.
http://fampra.oxfordjournals.org/content/30/4/445.abstract

Background. The participation rate in organized breast cancer screening in France is lower than recommended. Non-participants either use opportunistic screening or do not use either screening modality.Objective. To assess any differences in perceptions, attitudes and knowledge related to breast cancer screening between users of opportunistic screening and non-users of any screening mammograms and to identify potential barriers to participation in organized screening.Methods. Six focus groups were conducted in May 2010 with 34 French non-participants in organized screening, 15 who used opportunistic screening (OpS group) and 19 who used no screening (NoS group). The guide used for both groups explored perceptions and attitudes related to health, cancer and screening; perceptions of femininity; and knowledge about breast cancer screening. Thematic content analysis was performed.Results. Perceptions, attitudes and knowledge differed between the two groups. Women in the OpS group perceived a high susceptibility to breast cancer, visited their gynaecologist regularly, were unfamiliar with organized screening modalities and had doubts about its quality. NoS women had very high- or low-perceived susceptibility to breast cancer, knew about screening modalities, had doubts about its usefulness and expressed negative opinions of mammograms.Conclusions. Differences in perceptions and attitudes related to breast cancer screening partially explain why some women choose opportunistic screening or no screening. General practitioners and gynaecologists are in a unique position to provide individually tailored preventative messages to improve participation in organized screening

Fon Sing, M., Leuraud, K. et Duport, N. (2013). "Characteristics of French people using organised colorectal cancer screening. Analysis of the 2010 French Health, Healthcare and Insurance Survey." Prev Med **57**(1): 65-68.

To analyse relationships between socio-demographic characteristics, healthcare access, and behaviour with regard to participation in organised colorectal cancer (CRC) screening. We analysed a subset of 2,276 individuals from a cross-sectional population-based survey of French households in 2010. The outcome was participation in CRC screening using multiple logistic regression. The studied variables included socio-demographic characteristics, healthcare access-related variables, and health or perceived health. Age, living in a pilot district for CRC screening, and having a private additional insurance were associated with participation in CRC screening for both genders. In men, other characteristics were associated: not having 100% coverage for medical fees for a long-term disease, having consulted a medical specialist in the last 12 months, and not smoking. In women, other cancer screening behaviours were associated with participation in CRC screening. Results also showed that 81.4% of individuals, who did not have a Hemoccult® test, consulted a GP in the last 12 months. Despite efforts made, results confirmed that CRC screening differed among socioeconomic groups. GPs should be encouraged to systematically recommend CRC screening to their patients fitting the criteria of the organised CRC screening programme and further investigation is required to optimise information strategies targeting GPs.

Jezewski Serra, D. et Salines, E. (2013). Évaluation épidémiologique du programme de dépistage organisé du cancer colorectal en France. Résultats 2009-2010, Saint-Maurice : Institut de veille sanitaire

[BDSP. Notice produite par InVS G9EBIR0x. Diffusion soumise à autorisation]. Depuis 2008, le programme national de dépistage organisé du cancer colorectal a été généralisé à l'ensemble du territoire français. Il s'adresse aux hommes et aux femmes de 50 à 74 ans qui sont invités tous les deux ans à effectuer un test au gaïac de recherche de sang occulte dans les selles. En cas de test positif, une coloscopie doit être réalisée. Sur la période 2009-2010,95 départements ont réalisé une campagne de dépistage complète. Les résultats de l'évaluation du programme effectuée par l'Institut de veille sanitaire (InVS) sont présentés pour 93 de ces départements. La participation était de 33,8% avec près de cinq millions de personnes ayant réalisé un test de dépistage au cours de cette période. Le taux de tests positifs était de 2,7%, soit 3,2% chez les hommes et 2,3% chez les femmes. Le niveau de réalisation de coloscopies suite à un test positif était de 87,2%, avec une bonne qualité de ces examens puisque 93,2% étaient complètes. Chez les hommes, les explorations coliques réalisées suite à un test positif ont permis de diagnostiquer un adénome dans 39,3% des cas et un cancer dans 8,9% des cas, en se basant sur la lésion la plus péjorative, alors que 35,8% des examens étaient normaux. Chez les femmes, 25,3% des explorations coliques ont permis de diagnostiquer un adénome et 5,8% un cancer. Le résultat était normal pour 53,3% des explorations coliques. Au total, un cancer a été diagnostiqué pour 7,4% des personnes ayant réalisé une exploration colique suite à un test positif. Le taux de détection des adénomes avancés parmi les personnes dépistées était de 6,2 pour mille pour les hommes et 2,7 pour mille pour les femmes, avec des disparités départementales importantes. Le taux de détection des cancers colorectaux présentait également des disparités départementales marquées, avec une valeur moyenne de 1,7 pour mille comprise entre 0,7 et 4,4 pour mille pour les hommes et une valeur moyenne de 1,1 pour mille comprise entre 0,5 et 2,6 pour mille pour les femmes. La description des cancers colorectaux dépistés n'a pu être faite que pour 40 départements pour lesquels 2 613 cancers invasifs ont été diagnostiqués, dont 42,1% de stade I, 23,0% de stade II, 24,3% de stade III et 10,6% de stade IV. Cette évaluation du programme dresse un état des lieux du dépistage organisé du cancer colorectal sur la quasi-intégralité du territoire français. Elle pointe certaines insuffisances, notamment en termes de participation et de qualité des données. Les prochaines évaluations permettront de décliner les indicateurs au niveau régional et d'analyser leurs évolutions. (R.A.).

Oussaid, N., Lutringer Magnin, D., Barone, G., et al. (2013). "Factors associated with Pap smear screening among French women visiting a general practitioner in the Rhône-Alpes region." Revue d'Épidémiologie et de Santé Publique **61**(5): 437-445, rés., tabl.

[BDSP. Notice produite par ORSRA 7q7lR0xm. Diffusion soumise à autorisation]. En France, le frottis cervico-utérin est recommandé tous les trois ans chez les femmes entre 25 et 65 ans, en prévention du cancer du col de l'utérus. La fréquence du dépistage varie avec l'âge ou le niveau socio-économique. Nous avons recherché les facteurs associés à une pratique insuffisamment fréquente du frottis cervico-utérin chez des femmes ayant accès au système de soins. Méthode : Nous avons analysé les données de femmes entre 25 et 65 ans vivant en Rhône-Alpes qui, entre juin et août 2008, ont complété un auto-questionnaire remis par leur médecin généraliste. Le questionnaire concernait les connaissances sur le cancer du col de l'utérus et sa prévention, la pratique du frottis cervico-utérin et d'autres comportements en lien avec la santé. Un modèle de régression logistique a été utilisé pour identifier les facteurs associés à une pratique insuffisamment fréquente du frottis cervico-utérin, définie comme l'absence de frottis au cours des trois dernières années. Résultats : Parmi les 1 186 femmes incluses dans l'analyse n'ayant pas eu d'hystérectomie totale, 89,1% déclaraient avoir eu un frottis datant de moins de trois ans. La pratique insuffisamment fréquente du frottis cervico-utérin concernait 10,9% des femmes et en analyse multivariée était associée aux caractéristiques suivantes : vivre seule (1,76 [1,13-2,74]), ne pas avoir d'enfant (2,17 [1,31-3,62]), n'avoir jamais utilisé de contraception (5,35 [2,98-9,62]), moins bien connaître le frottis cervico-utérin (3,40 [1,55-7,49]) et ne pas être vaccinée contre l'hépatite B (0,55 [0,35-0,87]). Conclusion : Malgré une pratique élevée du frottis cervico-utérin rapportée chez les femmes qui consultent en médecine générale, plusieurs facteurs sont associés à une pratique insuffisamment fréquente du test. Ces résultats pourraient aider à cibler des actions de prévention du cancer du col de l'utérus. (résumé d'auteur).

Salmi, L.-R. et Mouthoulin-Pelissier, S. (2013). "Cancer : les limites du dépistage." Actualite Et Dossier En Sante Publique(83): 57-58.

Thu-Thon, E., Charles, R., Froger, P., et al. (2013). "Impact d'une formation pour les médecins généralistes sur la participation au dépistage du cancer colorectal." Sante Publique **25**(6): 775-783.

[BDSP. Notice produite par EHESP 87R0x98B. Diffusion soumise à autorisation]. La mortalité par cancer colorectal en 2011 en France s'élevait à 13,8/100 000 hommes et à 8,2/100 000 femmes. La participation au dépistage de masse restant insuffisante, une formation a été proposée à des généralistes des départements Drôme-Ardèche. L'objectif consistait à évaluer son impact à un an. Cette étude a comparé le groupe de médecins volontaires formés au reste des généralistes des deux départements. Il s'agissait premièrement de mesurer le taux de participation sur la patientèle âgée de 50 à 74 ans "vue en consultation" dans l'année suivant la formation, secondairement d'évaluer le taux de participation sur la patientèle "totale" des 50-74 ans par médecin, et d'évaluer la conviction (tests effectués/tests remis) et la pédagogie (tests interprétables/tests effectués) des médecins.

2012

Ancelle Park, R., Salines, E., Viguier, J., et al. (2012). "Spécificités et perspectives du programme français de dépistage organisé du cancer du sein." Bull Epidemiol Hebd(35-36-37): 391-394.

Basé sur les recommandations européennes, le programme de dépistage organisé (DO) du cancer du sein a été initié en France par la Direction générale de la santé en 1994, et généralisé à l'ensemble du territoire en 2004. Il a été largement modifié en 2001, conformément aux recommandations de la Haute Autorité de santé (HAS), en adoptant les modalités suivantes : deux clichés par sein tous les deux ans, un examen clinique, la possibilité d'un bilan diagnostique immédiat, la double lecture des clichés normaux et l'extension de la classe d'âge concernée de 50-69 ans à 50-74 ans. Ces modalités ont été affinées en 2006. Conformément aux recommandations européennes, ce programme comprend un système d'assurance qualité important qui inclut : la formation des radiologues et des manipulateurs, le contrôle de qualité semestriel de tous les mammographes, une double lecture des clichés normaux, une base de données inter-régime de l'assurance maladie utilisée pour les invitations et le rappel personnalisé des femmes, un recueil systématique des données et une évaluation locale, régionale et nationale. Des indicateurs de performance permettent des comparaisons au niveau international. Les installations numériques sont autorisées depuis 2008 avec une démarche qualité. Une réflexion est en cours au niveau national pour optimiser le dispositif de DO (résumé d'auteur).

Badet-Phan, A., Moreau, A., Colin, C., et al. (2012). "Obstacles au dépistage du cancer du col de l'utérus rencontrés par les médecins généralistes chez les femmes âgées de 50 à 65 ans." Pratiques Et Organisation Des Soins(4): 261-268.
[BDSP. Notice produite par CNAMTS FrR0xp77. Diffusion soumise à autorisation]. L'objectif de cet article était de déterminer les obstacles au dépistage du cancer du col chez les femmes de 50-65 ans en médecine générale, étape indispensable avant l'élaboration de mesures correctrices. Au-delà des freins au dépistage, cette étude qualitative permet de dégager des pistes intéressantes pour améliorer le taux de couverture par frottis : organisation du dépistage, meilleure information des patientes et des médecins, revalorisation des actions de prévention et implication d'autres professionnels de santé.

Duport, N. (2012). "Characteristics of women using organized or opportunistic breast cancer screening in France. Analysis of the 2006 French Health, Health Care and Insurance Survey." Rev Epidemiol Sante

Publique **60**(6): 421-430.

BACKGROUND: This study aimed at (i) estimating the 2-year self-reported breast cancer screening coverage rate; and (ii) analyzing the relationships between sociodemographic characteristics and healthcare access of women and breast cancer screening (opportunistic or organized) practices. METHODS: From a 2006 French health survey, 2056 women aged 50 to 74 years were selected and divided into three groups according to their breast cancer screening practices during the previous 2 years: organized screening, opportunistic screening, or no screening. The three groups were compared according to self-reported sociodemographic status, healthcare access, screening behaviors, and perceived health, using polytomic regression. RESULTS: The 2-year self-reported coverage rate was 75.8%. It was high among women aged 50 to 69 years and lower among older women. Questions relating to medical access (i.e. having consulted a GP in the last 12 months, having consulted a gynecologist in the last 12 months, and having had a Pap smear in the last 3 years) were the variables most commonly associated with a recent mammogram. Women having a regular follow-up by a gynecologist or having had cervical cancer screening within the last three years used organized breast cancer screening more often and used opportunistic breast cancer screening even more often than other women. CONCLUSION: The study confirmed the key role of gynecologists and general practitioners in encouraging women to have a mammogram. Awareness among healthcare professionals and women of the benefits of organized breast cancer screening compared to opportunistic screening should be sustained and strengthened.

Exbrayat, C., Barraud Krabe, M., Allioux, C., et al. (2012). "Sensibilité et spécificité du programme de dépistage organisé du cancer du sein à partir des données de cinq départements français, 2002-2006." Bull Epidemiol Hebd(35-36-37): 404-406.

[BDSP. Notice produite par InVS lmHDFR0x. Diffusion soumise à autorisation]. Introduction. Le programme de dépistage des cancers du sein s'est généralisé en France entre 2002 et 2004. L'évaluation nationale réalisée par l'Institut de veille sanitaire n'inclut pas les calculs de sensibilité et de spécificité, faute de données sur les cancers d'intervalle. Ces données ne sont disponibles que dans les départements avec enregistrement exhaustif des cancers en population, de type registre de cancers. Matériel et méthodes. L'étude porte sur le programme de dépistage des cancers français 2002-2005 (cahier des charges 2001) dans cinq départements. Résultats. La sensibilité (se) du programme est de 82,8% et la spécificité (sp) de 91,4%. Les résultats augmentent en fonction de l'âge au dépistage entre 50 et 74 ans (se : 76% - 88%, sp : 89% - 93%). La se à un an, en moyenne 94,2%, augmente avec l'âge : 91% - 97%. La se à un an est moins élevée en première participation (93,3%) que pour les mammographies suivantes (94,7%). Les cancers in situ sont plus fréquents parmi les cancers dépistés (16,5% contre 6,1% pour les intervalles). Les cancers dépistés sont plus petits que les cancers d'intervalle (40,9% inf ou égal 10 mm vs 21,7%). Ils sont plus souvent au stade pN0 (73,9% vs 63,1%). Conclusion. Les performances du programme français (cahier des charges 2001) sont au moins identiques à celles des programmes internationaux et supérieures à celles du programme expérimental (1989-2001). (R.A.).

Francois, G., Van Roosbroeck, S., Hoeck, S., et al. (2012). "A pivotal role for the general practitioner in a mixed mammographic screening model." Revue d'Épidémiologie et de Santé Publique **60**(2): 150-156, tabl.

[BDSP. Notice produite par CREAIORSLR GGoR0xC7. Diffusion soumise à autorisation]. Un modèle mixte de dépistage du cancer du sein place un pays ou une région devant un problème complexe. Promouvoir un changement important au sein de la population-cible du dépistage du cancer du sein opportuniste vers la participation à un programme de dépistage organisé offre de nombreux avantages. L'objectif était d'explorer le rôle des médecins généralistes comme des médiateurs en évaluant leurs connaissances, leurs attitudes et leur expérience sur le cancer du sein et la mammographie. Un questionnaire détaillé a été envoyé en 2007 à 1 500 médecins généralistes échantillonnés au hasard à partir de la population généraliste dans la province d'Anvers en Belgique. Le niveau des connaissances sur l'épidémiologie et le dépistage du cancer du sein, les opinions et les attitudes sur le dépistage systématique, et l'expérience avec le cancer du sein et la mammographie

ont été évalués. Nous avons reçu 317 questionnaires renseignés, soit un taux de réponse de 21,1 % du total des médecins généralistes contactés. Les connaissances générales sur les concepts de base du dépistage par mammographie sont moyennes, tandis que la réponse à une question ouverte sur les différences entre le dépistage opportuniste et le dépistage systématique était très limitée. Plus de la moitié des participants ont une attitude positive ou réaliste à l'égard de beaucoup d'aspects du dépistage systématique et ont une expérience satisfaisante avec le cancer du sein dans leur pratique quotidienne (environ 82 % voient un à quatre nouveaux cas par an). Beaucoup d'entre eux (72 %) sont favorables à un dépistage systématique organisé par le gouvernement. Les réponses des médecins généralistes révèlent un potentiel prometteur en ce qui concerne le programme de dépistage du cancer du sein officiel. Beaucoup de participants semblent être compétents à modifier l'équilibre du modèle mixte en faveur du système officiel. Un certain nombre de lacunes, cependant, doivent être comblées et il faut continuer à éduquer les médecins sur les principes et les risques et avantages d'un dépistage systématique de la population-cible. (R.A.).

Grillo, F., Chauvin, P. et Soler, M. (2012). "L'absence de dépistage du cancer du col de l'utérus en fonction des caractéristiques migratoires chez les femmes de l'agglomération parisienne en 2010." Bull Epidemiol Hebd(2-3-4): 45-47.

[BDSP. Notice produite par InVS R0xoAnmI. Diffusion soumise à autorisation]. Objectifs - L'objectif de cette étude était de comparer les pratiques de dépistage du cancer du col utérin par frottis (FCU) entre femmes françaises nées de deux parents français (FPF), françaises nées d'au moins un parent étranger (FPE), et étrangères dans l'agglomération parisienne. Méthodes - Il s'agit des données de la seconde vague d'enquête de la cohorte "Santé, inégalités, ruptures sociales" (SIRS), conduite en 2010 auprès d'un échantillon représentatif des adultes francophones de l'agglomération parisienne (1 724 femmes). Des modèles de régressions logistiques ont analysé les caractéristiques démographiques, socioéconomiques, d'insertion sociale et de santé associées à l'absence de FCU au cours de la vie. Résultats - Parmi les femmes âgées de 25 ans ou plus, 91,2% avaient déjà eu au moins un FCU au cours de leur vie. Une fois ajusté sur l'âge, les femmes FPE avaient 2 fois plus de risque de n'avoir jamais été dépistées que les femmes FPF (OR=2,46 ; IC95% [1,60-3,77]), et ce risque redoublait pour les femmes étrangères (OR=5,27 ; IC95% [3,41-8,15]). La proportion de vie passée en France métropolitaine diminuait le risque de non dépistage pour les femmes étrangères, mais les différences entre les FPF et les FPE ou les étrangères persistaient, même lorsque toutes les autres caractéristiques étaient prises en compte. Conclusion - Des actions spécifiques doivent être entreprises pour réduire les inégalités relatives à l'immigration dans le domaine du dépistage du cancer du col utérin. (R.A.).

Hirtzlin, I., Rudnichi, A. et Barre, S. (2012). "Dépistage individuel du cancer du sein des femmes de 50 à 74 ans en France en 2009." Bull Epidemiol Hebd(35-36-37): 410-412.

[BDSP. Notice produite par InVS 8k8AsR0x. Diffusion soumise à autorisation]. Le dépistage organisé du cancer du sein par mammographie a été généralisé en France en 2004. Les femmes conservent néanmoins la possibilité de pratiquer un dépistage sur prescription d'un professionnel de santé (appelé dépistage individuel). En comparant les données de l'Échantillon généraliste des bénéficiaires (EGB) avec celles de la base Sénolog de l'Observatoire de la sénologie, la part du dépistage individuel dans la population cible pourrait être de 10% en 2009, portant le taux global de participation des femmes au dépistage à 62% (dont 52% pour le dépistage organisé). Le suivi de pathologie ou repérage concernerait quant à lui 7 à 8% des femmes. L'analyse par classes d'âge à partir de l'EGB a montré que le taux de mammographie global augmentait fortement après 50 ans, suite à la première invitation, mais qu'il plafonnait ensuite, pour décroître après 70 ans (50,7% à 74 ans). Les bases de données utilisées ne permettent pas d'assurer la totale fiabilité de cette estimation. Pour l'améliorer, il conviendrait de modifier le codage des mammographies dans la Classification commune des actes médicaux, d'inclure tous les radiologues ayant une activité de sénologie dans la base Sénolog et de mettre en place un contrôle qualité sur la déclaration des circonstances de réalisation des mammographies. (R.A.).

Lancon, F., Viguier, J. et Sannino, N. (2012). "Connaissances, perceptions, attitudes et comportements des femmes et des médecins vis-à-vis du dépistage du cancer du sein, France, 2010." Bull Epidemiol Hebd(35-36-37): 417-420.

[BDSP. Notice produite par InVS HoE8sR0x. Diffusion soumise à autorisation]. Afin de mieux comprendre les freins, leviers et comportements des femmes et professionnels de santé vis-à-vis du dispositif de dépistage organisé du cancer du sein (DOCS), l'Institut national du cancer (INCa) a mené en 2010 une enquête quantitative auprès de 3 240 femmes et une série d'entretiens qualitatifs auprès de 96 médecins. Dans chacun des 44 cabinets de radiologie ayant participé à l'enquête, un questionnaire a été proposé aux femmes venant réaliser une mammographie de dépistage, quelle que soit sa modalité initiale, DOCS ou dépistage individuel (DI). Les entretiens qualitatifs ont été conduits auprès de radiologues, gynécologues et médecins généralistes. Pour les femmes interrogées, le conseil du professionnel de santé est le plus cité (67%) parmi les facteurs favorisant le dépistage. En outre, 55% de celles venues pour un DI pensent se situer, à tort, dans le cadre du DOCS. Bien que le DOCS ait une image de qualité et de simplicité, et en dehors de freins spécifiques à chaque spécialité, la valeur accordée à la seconde lecture dans le DOCS ne semble pas suffisante pour emporter l'adhésion absolue des professionnels. En conclusion, par la confiance que les femmes accordent aux praticiens, il est important de développer la mobilisation de ces professionnels autour du DOCS, d'autant que leur adhésion à ce dispositif n'est pas totale. (R.A.).

Pornet, C., Launoy, G., Bouvier, V., et al. (2012). "Influence de l'environnement socio-économique et de l'offre de soins sur la participation au programme de dépistage organisé du cancer du sein, Calvados (France), 2004-2006." Bull Epidemiol Hebd(35-36-37): 413-417.

[BDSP. Notice produite par InVS 9R0xJInk. Diffusion soumise à autorisation]. Contexte. Alors que la faible participation au dépistage du cancer du sein est liée à un faible niveau socio-économique individuel, les raisons de cette participation insuffisante ne sont pas totalement élucidées. Notre objectif était d'analyser l'influence de l'environnement socio-économique et de l'offre de soins sur la participation au dépistage organisé de ce cancer sur un échantillon représentatif de la population cible du département du Calvados. Méthodes. L'échantillon comprenait 4 865 femmes de 50 à 74 ans sélectionnées aléatoirement parmi la population cible du Calvados de 2004 à 2006 (n=98 822). Les données individuelles de participation et les données socio-économiques agrégées, issues respectivement de la structure responsable des dépistages organisés et du recensement de la population, ont été analysées simultanément par un modèle multiniveaux. Résultats. La participation était plus faible chez les plus jeunes (50-54 ans) et les plus âgées (70-74 ans) comparées aux femmes âgées de 55-69 ans, avec respectivement OR=0,73 [IC95% : 0,64-0,83] et OR=0,78 [IC95% : 0,67-0,91]. Dans les unités géographiques les plus défavorisées, la probabilité de participer était réduite de 29% par rapport aux zones favorisées (ORa=0,71 ; IC95% : 0,59-0,86). Aucune influence significative de la présence de médecin (s) généraliste (s) ou de radiologue (s) agréés n'a été retrouvée. Conclusion. Les inégalités sociales de dépistage pourraient être réduites par des actions ciblées sur les populations à risque de faible participation, identifiées par des analyses multiniveaux intégrant des variables individuelles et un indice écologique de défavorisation spécifique du contexte français. (R.A.).

Rogel, A., Salines, E. et Lastier, D. (2012). "Évaluation du Programme national de dépistage organisé du cancer du sein en France : période 2004-2009." Bull Epidemiol Hebd(35-36-37): 399-404.

[BDSP. Notice produite par InVS lHR0xF8n. Diffusion soumise à autorisation]. Objectif. Présenter les résultats de l'évaluation du Programme national de dépistage organisé du cancer du sein sur la période 2004-2009. Matériel et méthode. Les données analysées sont issues de la base nationale du dépistage organisé (DO) et concernent les femmes âgées de 50 à 75 ans résidant en métropole au moment de leur dépistage, de 2004 à 2009. Des indicateurs d'activité, de qualité et d'efficacité précoce sont calculés avec leur intervalle de confiance à 95%, et standardisés sur l'âge. Les résultats sont présentés suivant le rang de dépistage, en prenant en compte des antécédents de dépistage individuel (DI). Des tests de tendance linéaire en fonction du temps ont été calculés à partir d'un modèle de régression de Poisson ajusté sur l'âge et le département. Les données sur le cancer de l'année 2009 sont provisoires. Résultats. Le taux de dépistages positifs avant bilan diagnostique était de 9,2 pour cent femmes dépistées en 2009, et le taux de cancers finalement détectés était de 6,9 pour mille femmes dépistées en 2008. La deuxième lecture, effectuée uniquement sur les mammographies jugées normales ou bénignes, permet un taux de dépistages positifs avant bilan de 1,3 pour cent femmes dépistées, et un taux de cancers détectés de 0,44 pour mille femmes dépistées. Des baisses significatives de ces taux sont observées depuis 2004. Les taux de cancers de bon pronostic étaient de 1,06 cancer in situ, 1,95 cancer invasif de petite taille et 3,87 cancers invasifs sans envahissement ganglionnaire pour mille femmes dépistées en 2008. Ces taux montrent de légères baisses significatives depuis 2004, mais des évolutions stables en termes de proportion de cancers détectés. La valeur prédictive positive (VPP) des dépistages positifs avant bilan était de 7,3% en 2008, et augmente de façon significative depuis 2004. Ces résultats sont cependant différents suivant le rang du dépistage, avec des valeurs nettement plus élevées pour un premier dépistage dans le cadre du DO sans antécédent déclaré de DI. Discussion-conclusion. Les résultats montrent globalement des valeurs conformes aux niveaux recommandés par les guides européens. Ils montrent de faibles évolutions, plutôt en faveur d'une amélioration de la procédure de dépistage, mais sur une courte période de temps où les procédures et techniques de dépistage sont restées stables. Cette évaluation devra être reproduite, notamment pour évaluer l'introduction de la mammographie numérique dans ce programme. (R.A.).

Vallee, J. et Chauvin, P. (2012). "Investigating the effects of medical density on health-seeking behaviours using a multiscale approach to residential and activity spaces. Results from a prospective cohort study in the Paris metropolitan area, France." International Journal of Health Geographics **11**(1): 54.
http://www.ij-healthgeographics.com/content/11/1/54

BACKGROUND:When measuring neighbourhood effects on health, it is both incorrect to treat individuals as if they were static and tied to their residential neighbourhood and to consider neighbourhoods rigid places whose geographical scales can be delineated a priori. We propose here to investigate the effects of residential medical density on health-seeking behaviours, taking into account the mono/polycentric structure of individual activity space (i.e., the space within which people move in the course of their daily activities) and exploring various neighbourhood units based on administrative delineations and regular grids.METHODS:We used data collected in the SIRS cohort study, which was carried out over a 5-year period (2005--2010) among a representative population living in 50 census blocks in the Paris metropolitan area. In the 662 women who lived in the same census blocks during the follow-up period and who had reported a recent cervical screening at baseline, we studied the association between residential medical density and individual activity space and the incidence of delayed cervical screening (> 3 years) in multilevel logistic regression models after adjustment for potential confounders.RESULTS:Among the 662 women studied, there were 94 instances of delayed cervical screening in 2010 (14%). The women who indicated that their activity space was concentrated within their neighbourhood of residence were significantly more at risk for an incident delayed cervical screening. No significant association was found between residential medical density and the incidence of delayed cervical screening. However, we observed a significant interaction between individual activity space and residential practitioner density. Indeed, women living in neighbourhoods with a low medical density had a significantly higher risk of delayed screening, but only if they reported that their daily activities were centred within their neighbourhood of residence. Lastly, a sensitivity analysis exploring various neighbourhood spatial units revealed that the incidence of delayed screening was better modelled when residential medical densities were calculated from a 1400 x 1400 metre grid or from adjacent census blocks.CONCLUSION:This analysis underscores the view that people and neighbourhoods should be considered dynamic, interacting entities. Using unsuitable neighbourhood units or neglecting the structure of individual activity space would result in downplaying the importance of access to local health resources when addressing inequalities in health-seeking behaviours

Viel, J. F. et Rymzhanova, R. (2012). "Mammographic density and urbanization: a population-based screening study." J Med Screen **19**(1): 20-25.

OBJECTIVES: The high incidence of female breast cancer that has been consistently reported in urban areas could be mediated by breast density, which is considered to reflect the cumulative exposure of breast tissues to hormones. The aim of this study was to assess how mammographic density varies by the degree of urbanization. SETTING: The population consisted of 55,597 cancer-free women, aged 50-59 years, who participated in a French breast cancer screening programme (Franche-Comté region) between 2005 and 2009. METHODS: Ordered logistic regression was run with mammographic density as the outcome, and degree of urbanization as the independent variable, while adjusting for some known confounding factors. Multiple imputation was used to deal with missing data. RESULTS: A significant positive linear trend with urbanization was found in a univariate approach (P trend <10(-3)), and after adjusting for risk factors (P trend = 10(-3)). A negative and highly significant association with mammographic density was highlighted both for age at the time of mammography (odds ratio (OR) 0.41, 95% confidence interval (CI) 0.39-0.43, per 10 years), and for low socioeconomic status (OR 0.71, 95% CI 0.67-0.75). The OR for hormone replacement therapy use was 1.51 (95% CI 1.43-1.58). CONCLUSIONS: Knowledge of this urbanization gradient in density (whatever its mechanism) may help to identify women who may require full-field digital mammography for the early detection of breast cancer, and could assist primary care providers in recommending the best screening strategy in a risk factor-based approach.

2011

Couepel, L., Bourgarel, S. et Piteau-Delord, M. (2011). "Dépistage du cancer chez les personnes handicapées : pratiques et difficultés spécifiques en établissement médico-social." Pratiques Et Organisation Des Soins(4): 245-253.

[BDSP. Notice produite par CNAMTS jR0x89DG. Diffusion soumise à autorisation]. L'objectif de cette étude visait à identifier les pratiques des structures d'hébergement pour personnes handicapées situées en région PACA en matière de dépistage systématique du cancer, de repérer les difficultés rencontrées pour le réaliser, et de faire émerger d'éventuels besoins en formation de personnel-relais.

Taïeb, S., Rocourt, N., Narducci, F., et al. (2011). "[Screening pelvic tumours for hereditary risk of ovarian neoplasms, a cancer center experience]." Bull Cancer **98**(2): 113-119.

As part of a study in the North of France for screening pelvic tumours with plasma proteomic analysis, we included 82 women with hereditary risk of ovarian cancer. We report here the consequences of organized screening with usual tests. CA 125 sampling and a transvaginal pelvic ultrasound by a radiologist were systematically conducted every 6 months. Seventy-two patients were eventually evaluable. Two incident cases of peritoneal carcinomatosis (FIGO IIIB, malignant epithelial serous high-grade tumors) were discovered in two asymptomatic women with a deleterous BRCA1 mutation (2.7%). We did not observe any other primary cancer cases but an ovarian metastasis of a breast cancer. Forty women went off the study: 32 had a prophylactic bilateral salpingo-oophorectomy. Consistent with the literature, biannual screening tests combining CA125 and pelvis ultrasound is ineffective for early detection of a pelvic tumor of tubal or ovarian origin. Testing for BRCA1 or BRCA2 deleterious mutations is then crucial for suspected family syndromes of breast and ovarian cancer. For women carrying a deleterous mutation on BRCA1/2 a salpingo-oophorectomy is the only way, only the time of this surgery is debatable.

Vallee, J. P. (2011). "Dépistages des cancers du sein, du côlon, du col utérin et de la prostate. Deuxième partie : les éléments d'information disponibles en 2011." Medecine : Revue De L'unaformec **7**(7): 316-321, fig.

La première partie de cet article (numéro précédent) montre que les quatre dépistages envisagés sont l'objet d'un même débat sur les concepts, les acteurs et la politique publique de santé sous-jacente. Il a été souligné que le cancer est un processus dynamique, une cascade d'événements où existe la possibilité d'enrayer une évolution qui n'a rien d'inéluctable, mais où il est difficile de savoir si les interventions les plus précoces sont aussi les plus « aidantes » : le raisonnement probabiliste du dépistage du cancer suppose, pour une minorité, une chance de « gain » et pour la majorité un « prix à payer ». Cette seconde partie a pour but de préciser aussi « objectivement » que possible, cancer par cancer, les données à partager avec nos patients pour qu'ils puissent décider, sur la meilleure information disponible, de leur choix de dépistage ou non. (résumé de l'éditeur).

2010

Dechamp Le Roux, C. (2010). L'importance des enjeux de l'information scientifique et médicale à travers le cas du dépistage du cancer du sein. contextualisation comparative de la prévention sanitaire : France, Royaume-Uni et USA. RT6 Working Paper; 2010-7. Paris AFS**:** 19.
http://www.rt6-afs.org/IMG/pdf_WPLeRoux.pdf

Internet est un nouveau support de l'information médicale en accès libre qui ignore les frontières de temps et d'espace. Le contenu est, par contre, produit dans un contexte spécifique à identifier. Nous avons pensé que ce support pouvait être utilisé par les institutions de santé pour afficher une politique et convaincre les patients du bien-fondé d'une stratégie thérapeutique ou préventive comme le dépistage du cancer du sein. D?autre part, la numérisation des archives des institutions, des lois et des débats publics nous a permis d?accéder aux documents sur lesquels l'approche comparative des politiques de prévention aux Etats-Unis, en France et au Royaume-Uni a été réalisée. Notre objectif est de montrer que les campagnes de prévention sont la traduction de valeurs spécifiques des systèmes de santé qui s'inscrivent dans un contexte idéologique, social et économique spécifique. Les variables de comparaison sont : le type de système de santé et de protection sociale, la place de la prévention, la responsabilisation de l'individu, le recours à la technologie et le soutien au dépistage des maladies génétiques

Pornet, C., Dejardin, O., Morlais, F., et al. (2010). "Déterminants socio-économiques de la participation au dépistage organisé du cancer colorectal, Calvados (France), 2004-2006." Bull Epidemiol Hebd(12): 109-112.

[BDSP. Notice produite par InVS nR0xp8m8. Diffusion soumise à autorisation]. Plusieurs études ont montré que le niveau socio-économique individuel influençait la participation au dépistage du cancer. Cependant, ces études procédaient majoritairement par questionnaire et se heurtaient systématiquement au biais de participation. L'objectif de cette étude était d'analyser l'influence des caractéristiques socio-économiques sur la participation à un programme de dépistage organisé du cancer colorectal sur un échantillon non biaisé de la population cible du département du Calvados (n=180 045). Les données individuelles de participation et les données socioéconomiques agrégées, issues respectivement de la structure responsable du dépistage organisé et du recensement de la population, étaient analysées simultanément par un modèle multiniveaux. Les femmes participaient plus que les hommes (OR=1,33 ; IC95% [1,21-1,45]). Les participants étaient plus âgés (âge moyen : 61,2 ans) que les non participants (60,5) (p-value<0,01). La participation diminuait avec le niveau de précarité, il existait une différence significative de la probabilité de participer entre les zones les plus aisées et les plus précaires (OR=0,68 ; [0,59-0,79]). Aucune influence significative de la densité de médecins généralistes n'a été retrouvée. Ces analyses suggèrent que les inégalités de dépistage seraient réduites par des actions ciblées sur les populations à risque de faible participation identifiées socialement et géographiquement (résumé des auteurs).

ÉTUDES ETRANGERES

2021

Antynian, A., Bellio, S., Bertoni, M., et al. (2021). Digital Access to Healthcare Services and Healthcare Utilization: A Quasi-Experiment. Iza Discussion Paper Series ; 14916. Bonn Iza**:** 32 , tabl., graph.
https://docs.iza.org/dp14916.pdf

An Italian region introduced a web portal allowing women to manage online their appointment in the public cervical cancer screening program, besides the standard possibility of doing it via phone. We report quasi-experimental evidence on how access to the portal changes screening behaviour. We find that eligible women do manage their appointment online. The introduction of the portal also reduces attendance of the screening program. Two factors contribute to explain this finding. First, by encouraging women not to take a screening test if they performed an analogous one in the previous three years, the portal reduces overly-frequent screening. Second, the portal induces procrastination in rescheduling the appointment. We also find that, when they cancel their appointment online, women are more likely to share information about their screening episodes in the private health sector, that is useful to schedule future screening appointments.

Benazzato, L., Zorzi, M., Antonelli, G., et al. (2021). "Colonoscopy-related adverse events and mortality in an Italian organized colorectal cancer screening program." Endoscopy **53**(5): 501-508.

BACKGROUND: Post-colonoscopy adverse events are a key quality indicator in population-based colorectal cancer screening programs, and affect safety and costs. This study aimed to assess colonoscopy-related adverse events and mortality in a screening setting. METHODS: We retrieved data from patients undergoing colonoscopy within a screening program (fecal immunochemical test every 2 years, 50-69-year-olds, or post-polypectomy surveillance) in Italy between 2002 and 2014, to assess the rate of post-colonoscopy adverse events and mortality. Any admission within 30 days of screening colonoscopy was reviewed to capture possible events. Mortality registries were also matched with endoscopy databases to investigate 30-day post-colonoscopy mortality. Association of each outcome with patient-/procedure-related variables was assessed using multivariable analysis. RESULTS: Overall, 117 881 screening colonoscopies (66 584, 56.5 %, with polypectomy) were included. Overall, 497 (0.42 %) post-colonoscopy adverse events occurred: 281 (0.24 %) bleedings (3.69‰/0.68‰, operative/diagnostic procedures) and 65 (0.06 %) perforations (0.75‰/0.29‰, respectively). At multivariable analysis, bleeding was associated with polyp size (≥ 20 mm: odds ratio [OR] 16.29, 95 % confidence interval [CI] 9.38-28.29), proximal location (OR 1.46, 95 %CI 1.14-1.87), and histology severity (high risk adenoma: OR 5.6, 95 %CI 2.43-12.91), while perforation was associated with endoscopic resection (OR 2.91, 95 %CI 1.62-5.22), polyp size (OR 4.34, 95 %CI 1.46-12.92), and proximal location (OR 1.94, 95 %CI 1.12-3.37). Post-colonoscopy mortality occurred in 15 /117 881 cases (1.27/10 000 colonoscopies). CONCLUSIONS: In an organized screening program, post-colonoscopy adverse events were rare but not negligible. The most frequent event was post-polypectomy bleeding, especially after resection of large (≥ 20 mm) and proximal lesions.

Cardoso, R., Guo, F., Heisser, T., et al. (2021). "Colorectal cancer incidence, mortality, and stage distribution in European countries in the colorectal cancer screening era: an international population-based study." The Lancet Oncology **22**(7): 1002-1013.
https://doi.org/10.1016/S1470-2045(21)00199-6

BackgroundColorectal cancer screening programmes and uptake vary substantially across Europe. We aimed to compare changes over time in colorectal cancer incidence, mortality, and stage distribution in relation to colorectal cancer screening implementation in European countries.

Csanádi, M., Gini, A., Koning, H., et al. (2021). "Modeling costs and benefits of the organized colorectal cancer screening programme and its potential future improvements in Hungary." J Med Screen **28**(3): 268-276.

OBJECTIVE: The national population-based colorectal cancer screening programme in Hungary was initiated in December 2018. We aimed to evaluate the current programme and investigate the costs and benefits of potential future changes to overcome the low coverage of the target population. METHODS: We performed an economic evaluation from a healthcare payer perspective using an established micro-simulation model (Microsimulation Screening Analysis-Colon). We simulated costs and benefits of screening with fecal immunochemical test in the Hungarian population aged 50-100, investigating also the impact of potential future scenarios which were assumed to increase invitation coverage: improvement of the IT platform currently used by GPs or distributing the tests through pharmacies instead of GPs. RESULTS: The model predicted that the current screening programme could lead to 6.2% colorectal cancer mortality reduction between 2018 and 2050 compared to no screening. Even higher reductions, up to 16.6%, were estimated when tests were distributed through pharmacies and higher coverage was assumed. This change in the programme was estimated to require up to 26 million performed fecal immunochemical tests and 1 million colonoscopies for the simulated period. These future scenarios have acceptable cost-benefit ratios of €8000-€8700 per life-years gained depending on the assumed adherence of invited individuals. CONCLUSIONS: With its limitations, the current colorectal cancer screening programme in Hungary will have a modest impact on colorectal cancer mortality. Significant improvements in mortality reduction could be made at acceptable costs, if the tests were to be distributed by pharmacies allowing the entire target population to be invited.

Cubiella, J., González, A., Almazán, R., et al. (2021). "Overtreatment in nonmalignant lesions detected in a colorectal cancer screening program: a retrospective cohort study." BMC Cancer **21**(1): 869.

BACKGROUND: Although colorectal cancer (CRC) screening programs reduce CRC incidence and mortality, they are associated with risks in healthy subjects. However, the risk of overtreatment and overdiagnosis has not been determined yet. The aim of this study was to report the surgery rates in patients with nonmalignant lesions detected within the first round of a fecal immunochemical test (FIT) based CRC screening program and the factors associated with it. METHODS: We included in this analysis all patients with nonmalignant lesions detected between May 2013 and June 2019 in the Galician (Spain) CRC screening program. We calculated surgery rate according to demographic variables, the risk classification according to the colonoscopy findings (European guidelines for quality assurance), the endoscopist's adenoma detection rate (ADR) classified into quartiles and the hospital's complexity level. We determined which variables were independently associated with surgery rate and expressed the association as Odds Ratio and its 95% confidence interval (CI). RESULTS: We included 15,707 patients in the analysis with high (19.9%), intermediate (26.9%) low risk (23.3%) adenomas and normal colonoscopy (29.9%) detected in the analyzed period. Colorectal surgery was performed in 162 patients (1.03, 95% CI 0.87-1.19), due to colonoscopy complications (0.02, 95% CI 0.00-0.05) and resection of colorectal benign lesions (1.00, 95% CI 0.85-1.16). Median hospital stay was 6 days with 17.3% patients developing minor complications, 7.4% major complications and one death. After discharge, complications developed in 18.4% patients. In benign lesions, an endoscopic resection was performed in 25.4% and a residual premalignant lesion was detected in 89.9%. The variables independently associated with surgery in the multivariable analysis were age (≥60 years = 1.57, 95% CI 1.11-2.23), sex (female = 2.10, 95% CI 1.52-2.91), the European guidelines classification (high risk = 67.94, 95% CI 24.87-185.59; intermediate risk = 5.63, 95% CI 1.89-16.80; low risk = 1.43; 95% CI 0.36-5.75), the endoscopist's ADR (Q4 = 0.44, 95% CI 0.28-0.68; Q3 = 0.44, 95% CI 0.27-0.71; Q2 = 0.71, 95% CI 0.44-1.14) and the hospital (tertiary = 0.54, 95% CI 0.38-0.79). CONCLUSIONS: In a CRC screening program, the surgery rate and the associated complications in patients with nonmalignant lesions are low, and related to age, sex, endoscopic findings, endoscopist's ADR and the hospital's complexity.

Díaz, O., Rodríguez-Ruiz, A., Gubern-Mérida, A., et al. (2021). "Are artificial intelligence systems useful in breast cancer screening programs?" Radiologia (Engl Ed) **63**(3): 236-244.

Population-based breast cancer screening programs are efficacious in reducing the mortality due to breast cancer. These programs use mammography to screen the women who are invited to participate. Digital mammography makes it possible to develop computer-assisted diagnosis (CAD) systems that promise to reduce the workload of radiologists participating in screening programs. However, various studies have shown that CAD results in a high rate of false positive diagnoses. Systems based on artificial intelligence are being more widely implemented, and studies have shown that these systems have better diagnostic performance than traditional CAD systems. This article explains the fundamentals of artificial intelligence systems and an overview of possible applications of these systems within the framework of breast cancer screening programs.

D'Ovidio, V., Lucidi, C., Bruno, G., et al. (2021). "Impact of COVID-19 Pandemic on Colorectal Cancer Screening Program." Clin Colorectal Cancer **20**(1): e5-e11.

INTRODUCTION: One of the main clusters of coronavirus disease-2019 (COVID-19) has been identified in Italy. Following European and local guidelines, Italian endoscopy units modulated their activity. We aimed at analyzing the need and safety to continue selective colorectal cancer screening (CRCS) colonoscopies during the COVID-19 pandemic. PATIENTS AND METHODS: We carried out a retrospective controlled cohort study in our "COVID-free" hospital to compare data of the CRCS colonoscopies of the lockdown period (March 9 to May 4, 2020) with those of the same period of 2019 (control group). A pre/post endoscopic sanitary surveillance for COVID-19 infection was organized for patients and sanitary staff. RESULTS: In the lockdown group, 60 of 137 invited patients underwent endoscopy, whereas in the control group, 238 CRCS colonoscopies (3.9-fold) were performed. In the lower number of examinations during the lockdown, we found more colorectal cancers (5 cases; 8% vs. 3 cases; 1%; P = .002). The "high-risk" adenomas detection rate was also significantly higher in the "lockdown group" than in controls (47% vs. 25%; P = .001). A multiple regression analysis selected relevant symptoms (hazard ratio [HR], 3.1), familiarity (HR, 1.99), and lockdown period (HR, 2.2) as independent predictors of high-risk lesions (high-risk adenomas and colorectal cancer). No COVID-19 infections were reported among staff and patients. CONCLUSIONS: The overall adherence to CRCS decreased during the pandemic, but the continuation of CRCS colonoscopies was efficacious and safe.

Dulskas, A., Poskus, T., Kildusiene, I., et al. (2021). "National Colorectal Cancer Screening Program in Lithuania: Description of the 5-Year Performance on Population Level." Cancers (Basel) **13**(5).

We aimed to report the results of the implementation of the National Colorectal Cancer (CRC) Screening Program covering all the country. The National Health Insurance Fund (NHIF) reimburses the institutions for performing each service; each procedure within the program has its own administrative code. Information about services provided within the program was retrieved from the database of NHIF starting from the 1 January 2014 to the 31 December 2018. Exact date and type of all provided services, test results, date and results of biopsy and histopathological examination were extracted together with the vital status at the end of follow-up, date of death and date of emigration when applicable for all men and women born between 1935 and 1968. Results were compared with the guidelines of the European Union for quality assurance in CRC screening and diagnosis. The screening uptake was 49.5% (754,061 patients) during study period. Participation rate varied from 16% to 18.1% per year and was higher among women than among men. Proportion of test-positive and test-negative results was similar during all the study period-8.7% and 91.3% annually. Between 9.2% and 13.5% of test-positive patients received a biopsy of which 52.3-61.8% were positive for colorectal adenoma and 4.6-7.3% for colorectal carcinoma. CRC detection rate among test-positive individuals varied between 0.93% and 1.28%. The colorectal cancer screening program in Lithuania coverage must be improved. A screening database is needed to systematically evaluate the impact and performance of the national CRC screening program and quality assurance within the program.

Eijkelboom, A. H., de Munck, L., Lobbes, M. B. I., et al. (2021). "Impact of the suspension and restart of the Dutch breast cancer screening program on breast cancer incidence and stage during the COVID-19 pandemic." Prev Med **151**: 106602.

The COVID-19 pandemic forced the Dutch national breast screening program to a halt in week 12, 2020. In week 26, the breast program was resumed at 40% capacity, which increased to 60% in week 34. We examined the impact of the suspension and restart of the screening program on the incidence of screen-detected and non-screen-detected breast cancer. We selected women aged 50-74, diagnosed during weeks 2-35 of 2018 (n = 7250), 2019 (n = 7302), or 2020 (n = 5306), from the Netherlands Cancer Registry. Weeks 2-35 were divided in seven periods, based on events occurring at the start of the COVID-19 pandemic. Incidence of screen-detected and non-screen-detected tumors was calculated overall and by age group, cT-stage, and cTNM-stage for each period in 2020, and compared to the incidence in the same period of 2018/2019 (averaged). The incidence of screen-detected tumors decreased during weeks 12-13, reached almost zero during weeks 14-25, and increased during weeks 26-35. Incidence of non-screen-detected tumors decreased to a lesser extent during weeks 12-16. The decrease in incidence was seen in all age groups and mainly occurred for cTis, cT1(,) DCIS, and stage I tumors. Due to the suspension of the breast cancer screening program, and the restart at reduced capacity, the incidence of screen-detected breast tumors decreased by 67% during weeks 9-35 2020, which equates to about 2000 potentially delayed breast cancer diagnoses. Up to August 2020 there was no indication of a shift towards higher stage breast cancers after restart of the screening.

Jäntti, M., Heinävaara, S., Malila, N., et al. (2021). "Sociodemographic features and patterns of non-participation in colorectal cancer screening in Finland." European Journal of Public Health.
https://doi.org/10.1093/eurpub/ckab074

Colorectal cancer (CRC) screening was run as a randomized health services programme in Finland between 2004 and 2016. This study evaluates sociodemographic features and patterns of non-participation among men and women invited to be screened.The study population in this register-based study includes 233 211 men and women invited to guaiac faecal occult blood test screening on consecutive screening rounds (n = 708 621 invitations). A generalized estimating equation (GEE) was used to estimate incidence rate ratios (IRR) between sociodemographic features and non-participation.The overall proportion of non-participation was 31.6% and was higher in men (38.8%) than in women (24.6%). Birth cohort, education, marital status and country of birth were associated with non-participation. The birth cohort of 1950–54 was less likely to participate than the birth cohort of 1940–44. Men and women with primary education were more likely non-participants (IRR 1.26, CI 1.23–1.29 and IRR 1.22, CI 1.18–1.26, respectively) than men or women with tertiary education. Further, unmarried persons and immigrants had an increased risk of non-participation. Initial non-participation predicted subsequent behaviour, since, e.g. ∼80% of first-round non-participants also remained non-participants in the second round.Education, gender and marital status had a significant effect on non-participation in the CRC screening programme. As high and comprehensive participation is essential for a successful screening programme, attention should be paid in ensuring participation of all sociodemographic groups. Special efforts should be invested in those not participating in the first invitational round, since initial non-participation predicts non-participation to subsequent invitations.

Jolidon, V., Bracke, P. et Burton-Jeangros, C. (2021). "Macro-contextual determinants of cancer screening participation and inequalities: A multilevel analysis of 29 European countries." SSM - Population Health **15**: 100830.
https://www.sciencedirect.com/science/article/pii/S2352827321001051

Background Little attention has been devoted to the role of macro-level determinants in preventive health inequalities, particularly in cancer screening participation. Research has evidenced inequalities in cancer screening uptake yet has mainly focused on the screening programmes' moderating role at the macro-level. To address this gap, this study examines how welfare provision and healthcare system features modify cancer screening uptake and inequalities across European countries. Methods Data from 99 715 (Pap smear) and 54 557 (mammography) women in 29 countries from the European Health Interview Survey (EHIS) 2014 wave and Swiss Health Interview Survey (SHIS) 2012 wave was analysed. We estimated multilevel logistic regression models, including cross-level interactions, to examine whether social protection expenditure in particular policy areas and healthcare system characteristics explained cross-country differences in Pap smear and mammography uptake and inequalities. Results Main findings revealed that GP gatekeeping systems were associated with reduced screening uptake likelihood in both Pap smear and mammography, and so were stronger primary care systems in Pap smear, while higher expenditures on old age and survivors were associated with increased mammography uptake. Cross-level interactions showed that in countries with higher expenditures on sickness/healthcare, disability, social exclusion and public health, and a higher number of GPs, educational inequalities in both Pap smear and mammography uptake were smaller, while higher out-of-pocket payments had the opposite effect of increasing inequalities. Conclusions Overall, our results show that social protection policies and healthcare system features affect cancer screening participation. We conclude that institutional and policy arrangements interact with individuals' (educational) resources and, through the (re)distribution of valued goods and resources at the macro level, these arrangements may contribute to enhancing preventive healthcare use and mitigating screening uptake inequalities.

Kortlever, T. L., de Jonge, L., Wisse, P. H. A., et al. (2021). "The national FIT-based colorectal cancer screening program in the Netherlands during the COVID-19 pandemic." Prev Med **151**: 106643.

The COVID-19 pandemic has affected many healthcare services worldwide. Like many other nations, the Netherlands experienced large numbers of individuals affected by COVID-19 in 2020, leading to increased demands on hospitals and intensive care units. The Dutch Ministry of Health decided to suspend the Dutch biennial fecal immunochemical test (FIT) based colorectal cancer (CRC) screening program from March 16, 2020. FIT invitations were resumed on June 3. In this study, we describe the short-term effects of this suspension on a myriad of relevant screening outcomes. As a result of the suspension, a quarter of the individuals due for screening between March and November 2020 had not received their invitation for FIT screening by November 30, 2020. Furthermore, 57.8% of those who received a consecutive FIT between the restart and November 30, 2020, received it outside the upper limit of the standard screening interval (26 months). Median time between positive FIT and colonoscopy did not change as a result of the pandemic. Participation rates of FIT screening and follow-up colonoscopy in the months just before and during the suspension were significantly lower than expected, but returned to normal levels after the suspension. Based on the anticipated 2020 cohort size, we estimate that the number of individuals with advanced neoplasia currently detected up until November 2020 was 31.2% lower compared to what would have been expected without a pandemic. Future studies should monitor the impact on long-term screening outcomes as a result of the pandemic.

Murphy, K. A., Stone, E. M., Presskreischer, R., et al. (2021). "Cancer Screening Among Adults With and Without Serious Mental Illness: A Mixed Methods Study." Medical Care **59**(4): 327-333.
https://journals.lww.com/lww-medicalcare/Fulltext/2021/04000/Cancer_Screening_Among_Adults_With_and_Without.9.aspx

Background: Persons with serious mental illness (SMI) die 10–20 years earlier than the general population; cancer is the second leading cause of death. Differences in cancer screening between SMI and the general population are not well understood. Objectives: To describe receipt of cancer screening among individuals with versus without SMI and to explore clinicians' perceptions around cancer screening for people with SMI. Methods: Mixed-methods study using 2010–2017 MarketScan commercial insurance administrative claims data and semi-structured clinician interviews. In the quantitative analyses, we used multivariate logistic regression analyses to calculate the likelihood of receiving cervical, breast, colorectal, or prostate cancer screening among people with versus without SMI, defined as schizophrenia or bipolar disorder. We conducted semi-structured interviews with 17 primary care physicians and 15 psychiatrists. Interview transcripts were coded using a hybrid deductive/inductive approach. Results: Relative to those without SMI, individuals with SMI were less likely to receive screening for cervical cancer [adjusted odds ratio (aOR): 0.80; 95% confidence interval (CI): 0.80–0.81], breast cancer (aOR: 0.79; 95% CI: 0.78–0.80), colorectal cancer (aOR: 0.90; 95% CI: 0.89–0.91), and prostate cancer (aOR: 0.85; 95% CI: 0.84–0.87). Clinicians identified 5 themes that may help explain the lower rates of cancer screening in persons with SMI: access to care, available support, prioritization of other issues, communication, and patient concerns. Conclusions: People with SMI were less likely to receive 4 common types of cancer screening. Improving cancer screening rates in the SMI population will likely require a multidisciplinary approach to overcome barriers to screening.

Pancheri, S., Pertile, R., Armelao, F., et al. (2021). "A comprehensive assessment of the impact of a colorectal cancer screening program in a northern Italian area." Dig Liver Dis.

BACKGROUND: The impact of a faecal immunochemical test-based colorectal cancer (CRC) screening program in terms of patient prognosis could be affected by lead-time bias, which artificially increases the survival of screen-detected patients due to the early diagnosis. AIMS: To provide a description of the impact of the CRC screening program in the Trentino Region (Italy), including the Cure Fraction (CF), a prognostic indicator not affected by lead-time bias. METHODS: The program started in 2008, inviting the resident population aged 50-69 years. In this retrospective cohort study, 1,697 CRC diagnosed between 2003 and 2014 in patients aged 50-69 years were classified as pre-screening (PS), screen-detected (SD), interval cancers (IC) and not-screen-detected (NSD). We compared groups by stage at diagnosis and CF. Trends in CRC mortality were reported. RESULTS: The proportion of stage I among SD cases was 51%, higher than PS (19%; OR 4.66, 95%CI 3.50-6.20), NSD (20.6%; OR 3.96, 95%CI 2.95-5.32) and IC (33.3%; OR 2.11, 95%CI 1.10-4.04). The CF of PS, NSD and SD cases was respectively 57% (95%CI 54-60%), 60% (95%CI 58-63%) and 93% (95%CI 89-96%). CRC mortality dropped from 40.7 to 25.6\100,000. CONCLUSION: The program significantly improved the prognosis of patients, decreasing CRC mortality and incidence of advanced CRCs.

Puigpinós-Riera, R. et Serral, G. (2021). "[Satisfaction with the breast cancer screening program in Barcelona: a comparison between 2006 and 2016.]." Rev Esp Salud Publica **95**.

OBJECTIVE: Satisfaction represents the subjective experience derived from the fulfillment or non-fulfillment of the expectations that the subject has regarding assistance. The debate generated by the screening programs requires studying satisfaction as one more element in the evaluation. In 2006, a study was carried out in Barcelona on the satisfaction and expectations generated around screening. Ten years later another was carried out in order to study evolution during this time. The objective of the current study is to investigate the satisfaction with the Breast Cancer Screening Program (BCSP) in Barcelona and to compare with the results obtained in a previous study carried out 10 years ago. METHODS: This was a cross-sectional study, whose study population was women participating in the BCSM. We conducted random sampling. The questionnaire asked for opinion about the informative materials and the information sessions, their level of participation (regular or irregular) and their overall satisfaction with the program. Women who had been referred for further examinations were asked specific questions about their satisfaction with the follow-up process. We conducted a descriptive analysis and compare the results to those obtained in the 2006 survey. We assessed the correlation between satisfaction and importance using the Pearson's correlation coefficient, and we also performed logistic regression analyses. All statistical analyses were conducted using SPSS. RESULTS: Participants were generally satisfied with the program, the professionalism and treatment received from the medical professionals. There was a significant positive correlation with the importance given to each of these dimensions. Women who stated that they did not feel nervous while waiting for the results of the mammography reported that they felt very satisfied with the information received [OR=1.86 (95% CI 1.03-3.36)] and with the equipment used [OR=1.97 (1.02-3.85)]. Non-working women were more satisfied with the information obtained [OR=1.86 (CI 1.06-2.9)]. Most of the results showed improvement with respect to those of the 2006 survey. CONCLUSIONS: It's necessary to continue working towards providing the best possible information, and paying special attention to the most vulnerable groups.

Salciccioli, I., Zhou, C. D., Okonji, E. C., et al. (2021). "European trends in cervical cancer mortality in relation to national screening programs, 1985–2014." Cancer Epidemiol **74**: 102002.
https://doi.org/10.1016/j.canep.2021.102002

Background Cervical cancer is the fourth leading oncological cause of death in women. Variable trends in cervical cancer mortality have been observed across Europe, despite the widespread adoption of screening programs. This variability has previously been attributed to heterogeneity in the quality of screening programs. Methods Age-standardized cervical cancer death rates for European countries between 1985 and 2014 were analyzed using Joinpoint regression. Countries were dichotomized based on year of implementation and population invitational coverage of national population-based cervical cancer screening programs. National cervical cancer mortality trends during the study period were compared based on this classification. Results Decreasing trends in mortality were observed in all European countries with the specific exceptions of Bulgaria, Greece and Latvia. The highest rates of cervical cancer mortality throughout the study period were in Romania (16.0-14.9/100,000) and the lowest rates in Italy (1.4-1.2/100,000). The greatest percentage decline in mortality was observed in the United Kingdom and the greatest absolute reduction in mortality was seen in Hungary. European countries which implemented a national population-based cervical cancer screening program prior to 2009 demonstrated greater improvements in cervical cancer mortality outcomes compared to those that did not (p = 0.016). Conclusion Cervical cancer mortality is improving in most European countries; however, substantial variation remains. Trends in mortality were associated with the time of implementation of national population-based cervical screening programs.

Scott, S. E., Rauf, B. et Waller, J. (2021). ""Whilst you are here…" Acceptability of providing advice about screening and early detection of other cancers as part of the breast cancer screening programme." Health Expect.

OBJECTIVES: This research aimed to assess women's willingness to receive advice about cervical and bowel cancer screening participation and advice on cancer symptom awareness when attending breast cancer screening. METHODS: Women (n = 322) aged 60-64 years, living in the United Kingdom, who had previously taken part in breast cancer screening were recruited via a market research panel. They completed an online survey assessing willingness to receive advice, the potential impact of advice on breast screening participation, prospective acceptability and preferences for mode and timing of advice. RESULTS: Most women would be willing to receive information about cervical (86%) and bowel cancer screening (90%) and early symptoms of other cancers (92%) at a breast cancer screening appointment. Those who were not up to date with cervical cancer screening were less willing. Prospective acceptability was high for all three forms of advice and was associated with willingness to receive advice. Women would prefer to receive advice through a leaflet (41%) or discussion with the mammographer (30%) either before the appointment (27%), at the appointment (44%) or with their results (22%). CONCLUSIONS: While there is high willingness and high acceptability towards using breast cancer screening as a teachable moment for advice about prevention and early detection of other cancers, some women find it unacceptable and this may reduce their likelihood of attending a breast screening appointment. PATIENT OR PUBLIC CONTRIBUTION: This study focused on gaining women's insights into potential future initiatives to encourage screening and early diagnosis of cancer. Members of the public were also involved in piloting the questionnaire.

Stoffel, S., Kioupi, S., Ioannou, D., et al. (2021). "Testing messages from behavioral economics to improve participation in a population-based colorectal cancer screening program in Cyprus: Results from two randomized controlled trials." Prev Med Rep **24**: 101499.

•Behavioral economic-based interventions have been suggested to increase uptake in CRC screening programmes.•This study tested the effectiveness of six behavioral economic-based messages in two field trials.•None of the messages increased screening participation.

Stoffel, S. T., Bombagi, M., Kerrison, R. S., et al. (2021). "Testing Enhanced Active Choice to Optimize Acceptance and Participation in a Population-Based Colorectal Cancer Screening Program in Malta." Behav Med: 1-6.

Opt-out strategies have been shown to improve participation in cancer screening; however, there are ethical concerns regarding the presumed consent. In this study, we tested an alternative opt-in strategy, called: "enhanced active choice," in which the response options summarize the consequences of the decision. The study was conducted as part of the Maltese colorectal cancer screening program, which offers men and women, aged 60-64, a "one-off" fecal immunochemical test (FIT). A total of 8349 individuals were randomly assigned to receive either an invitation letter that featured a standard opt-in strategy (control condition), or an alternative letter with a modified opt-in strategy (enhanced active choice condition). Our primary outcome was participation three months after the invitation was delivered. Additionally, we also compared the proportion who said they wanted to take part in screening. We used multivariable logistic regression for the analysis. Overall, 48.4% (N = 4042) accepted the invitation and 42.4% (N = 3542) did the screening test. While there were no statistically significant differences between the two conditions in terms of acceptance and participation, enhanced active choice did increase acceptance among men by 4.6 percentage points, which translated to a significant increase in participation of 3.4 percentage points. We conclude that enhanced active choice can improve male screening participation. Given the higher risk of CRC in men, as well as their lower participation screening, we believe this to be an important finding.

Tepeš, B., Mlakar, D. N., Stefanovič, M., et al. (2021). "The impact of 6 years of the National Colorectal Cancer Screening Program on colorectal cancer incidence and 5-year survival." Eur J Cancer Prev **30**(4): 304-310.

We aimed to assess the impact of the first three rounds of the National Colorectal Cancer Screening Program (NCCSP) on CRC incidence and mortality in Slovenia. In NCCSP, we use two fecal immune tests (FITs) and if test is positive patient is referred to colonoscopy. From 2009, we invite Slovenian residents aged 50-69 years, one screening round takes 2 years. The response rate was from 56.9 to 59.9%. FIT was positive in 6.0-6.2% (more in older patients and in men; P < 0.05). The adenoma detection rate was >51.3% (more in men; P < 0.01). In NCCSP, 70.3% of all cancers diagnosed were in stages I and II, while 20.7% of all CRC were found in polyps resected during colonoscopies. Patients with positive first FIT have odds ratio 2.19 [95% confidence interval (CI), 2.06-2.32] for advanced neoplasia and cancer compared to patients with two negative FITs. The incidence rate for CRC has dropped significantly after 6 years in population and in men (P < 0.01) but not in women. Five-year CRC survival was 31.3% higher if cancer was diagnosed in NCCSP (P < 0.05). After 6 years of NCCSP, the incidence rate for CRC has dropped significantly (P < 0.01). Hazard ratio for death from CRC was 3.84 higher (95% CI, 3.36-4.40; P < 0.001) in patients with cancer detected outside the program.

Unanue-Arza, S., Arana-Arri, E., Portillo, I., et al. (2021). "[Involvement of the Primary Healthcare professionals in the Colorectal Cancer Screening Programme of the Basque Country.]." Rev Esp Salud Publica **95**.

OBJECTIVE: The Basque Government (Spain) approved a population based Colorectal Cancer Screening Programme in 2008 with its base on Primary Healthcare. Since then, a coverage of 100% of the population and an average participation rate of 68.4% have been achieved. General Practitioners and nurses play a central role on its implementation. The aim of this work was to describe the characteristics, involvement and attitudes of the health professionals that implement the programme. METHODS: A cross-sectional descriptive study was conducted in Primary Healthcare to general practitioners and nurses between May and June of 2016. An ad-hoc online questionnaire was designed. The data included socio-demographic information and questions regarding their involvement on the programme. RESULTS: 1,216 health professionals answered the questionnaire, 50.7% were general practitioners and 49.3% nurses. 78% of the responders were women. The 75.8% considered the programme very important although differences were found between general practitioners and nurses. The 89% of the professionals attended training and 34% scientific workshops about screening at least once. There were differences between general practitioners and nurses on the attendance to the training and importance they give to the programme, and on their participation on workshops. CONCLUSIONS: There is a high level of involvement of Primary Healthcare professionals in the programme as they consider it very important; this could be one of the keys for its success. The differences between professionals on their opinion and experience should be taken into account on its design, as they are the ones with a closer contact with the population.

Unanue-Arza, S., Portillo, I., Idígoras, I., et al. (2021). "Facilitators and barriers to participation in population-based colorectal cancer screening programme from the perspective of healthcare professionals: Qualitative research study." Eur J Cancer Care (Engl): e13507.

OBJECTIVE: High participation determines the success of colorectal cancer screening programmes in reducing incidence and mortality. The factors that determine participation must be studied from the perspective of professionals that implement the programme. The aim was to identify factors that facilitate or hinder the participation of the invited people in the bowel cancer screening programme of the Basque Country (Spain) from professional's perspective. METHODS: Qualitative design based on individual interviews and focus groups. Thirty-eight primary care professionals who implement the programme participated (administrative staff, nurses and general practitioners). Thematic analysis was performed. RESULTS: Professionals show high satisfaction with the programme, and they believe firmly in its benefits. Facilitators for participation include professionals' commitment to the programme, their previous positive experiences, their optimistic attitude towards the prognosis of cancer and their trust in the health system and accessibility. Barriers include invitees' lack of independence to make decisions, fear of a positive test result and patient vulnerability and labour mobility of the health professionals. CONCLUSIONS: Professionals show a high degree of involvement and identify primary care is an appropriate place to carry out disease prevention. They identify the closeness to patients, the personal attitude and the characteristics of the health system as key factors that influence participation.

Vives, N., Milà, N., Binefa, G., et al. (2021). "Role of community pharmacies in a population-based colorectal cancer screening program." Prev Med **145**: 106420.

In Catalonia (Spain), population-based colorectal cancer (CRC) screening offers biennial fecal occult blood testing to men and women aged 50-69 years old. The program is organized in screening hubs, most of which use a pharmacy-based model to distribute and collect fecal immunochemical test (FIT) kits The comprehensive evaluation of CRC screening programs, which include the role and implications of pharmacy involvement, is essential to ensure program quality and identify areas for further improvement. The present study aimed to assess the adherence of community pharmacies to the CRC screening program and to analyze data on FIT kit distribution and collection in the Metropolitan area of Barcelona (Catalonia, Spain). Time to FIT completion was assessed by Kaplan-Meier estimation, and with the log-rank test. A Cox regression model was used to adjust for other variables associated with the completion of FIT such as sex, age, deprivation score index and previous screening behavior. Overall, 82.4% of pharmacies adhered with CRC screening program. Out of 82,902 FIT kits distributed to screening invitees 77,524 completed FIT kits were returned to pharmacies (93.5%) with a participation of 39.8% among the 193,766 invitees. From those who completed a FIT, the median time to return the kit was 3 days. FIT completion time was significantly lower among women, older age, high deprivation score index and previous CRC screening ($p < 0.005$). Our findings highlight the large involvement of community pharmacists with CRC screening program as well as a high quality in the process of FIT distribution and collection.

Williams, J., Rakovac, I., Victoria, J., et al. (2021). "Cervical cancer testing among women aged 30–49 years in the WHO European Region." European Journal of Public Health **31**(4): 884-889.
https://doi.org/10.1093/eurpub/ckab100

Screening programs play an important role in a comprehensive strategy to prevent cervical cancer, a leading cause of death among women of reproductive age. Unfortunately, there is a dearth of information about rates of cervical cancer testing, particularly in Eastern Europe and Central Asia where levels of cervical cancer are among the highest in the WHO European Region. The purpose of this article is to report on the lifetime prevalence of cervical cancer testing among females aged 30–49 years from across the WHO European region, and to describe high-level geographic and socioeconomic differences.We used data from the European Health Information Survey and the WHO STEPwise approach to Surveillance survey to calculate the proportions of women who were tested for cervical cancer.The percentage of tested women ranged from 11.7% in Azerbaijan to 98.4% in Finland, with the lowest percentages observed in Azerbaijan, Tajikistan and Uzbekistan. Testing was lower in Eastern Europe (compared to Western Europe), among low-income countries and among women with lower levels of education.Effective cervical cancer screening programs are one part of a larger strategy, which must also include national scale-up of human papilloma virus vaccination, screening and treatment.

2020

Armaroli, P., Riggi, E., Basu, P., et al. (2020). "Performance indicators in breast cancer screening in the European Union: A comparison across countries of screen positivity and detection rates." Int J Cancer **147**(7): 1855-1863.

https://onlinelibrary.wiley.com/doi/abs/10.1002/ijc.32968

Comparable performance indicators for breast cancer screening in the European Union (EU) have not been previously reported. We estimated adjusted breast cancer screening positivity rate (PR) and detection rates (DR) to investigate variation across EU countries. For the age 50–69 years, the adjusted EU-pooled PR for initial screening was 8.9% (cross-programme variation range 3.2–19.5%) while DR of invasive cancers was 5.3/1,000 (range 3.8–7.4/1,000) and DR of ductal carcinoma in situ (DCIS) was 1.3/1,000 (range 0.7–2.7/1,000). For subsequent screening, the adjusted EU-pooled PR was 3.6% (range 1.4–8.4%), the DR was 4.0/1,000 (range 2.2–5.8/1,000) and 0.8/1,000 (range 0.5–1.3/1,000) for invasive and DCIS, respectively. Adjusted performance indicators showed remarkable heterogeneity, likely due to different background breast cancer risk and awareness between target populations, and also different screening protocols and organisation. Periodic reporting of the screening indicators permits comparison and evaluation of the screening activities between and within countries aiming to improve the quality and the outcomes of screening programmes. Cancer Screening Registries would be a milestone in this direction and EU Screening Reports provide a fundamental contribution to building them.

Backmann, H. A., Larsen, M., Danielsen, A. S., et al. (2020). "Time of day and mammographic reader performance in a population-based breast cancer screening programme." J Med Screen: 969141320953206.

OBJECTIVES: To analyse how reader performance varied by time during the day in a population-based breast cancer screening programme. METHODS: A total of 2,937,312 readings from 148 radiologists and 1,468,656 women were included in this study from Norway. Number and percentages of mammographic readings, positive scores, true and false positive readings, true and false negative readings, sensitivity and specificity were presented for categories of time of day and for each day of the week. Multilevel mixed effect logistic regression models with restricted cubic splines were fitted to the data, and used to predict the odds ratio of the different performance measures. RESULTS: The following distribution was found for the performance measures during the study period: true positive: 12,463 (0.4%); false positive: 128,419 (4.4%); true negative: 2,794,636 (95.1%); and false negative: 1794 (0.06%). The percentage of positive readings (true positive and false positive) was highest before lunch and in the early afternoon (4.9%): false positive was highest in both periods (4.5%) and true positive was highest in the early afternoon (0.5%). The percentage of true negative was highest in the evening (95.6%), and of false negative was highest at lunchtime (0.07%). This corresponds to a gradually decreasing predicted sensitivity throughout the day. The opposite was observed for specificity. CONCLUSIONS: Screen-reading early versus late during the day resulted in higher sensitivity, although at the cost of specificity. Despite small differences in the performance measures during the day, the results may be important in the discussion of optimal management of screening programmes.

Braga, R., Costa, A. R., Pina, F., et al. (2020). "Prostate cancer screening in Portugal: prevalence and perception of potential benefits and adverse effects." Eur J Cancer Prev **29**(3): 248-251.

INTRODUCTION: Opportunistic screening for prostate cancer has been widely used, though organized programs are not recommended. We aimed to estimate the prevalence of prostate cancer screening and the perception of potential benefits and harms of screening, among the Portuguese general population. METHODS: A representative sample of Portuguese-speaking inhabitants in mainland Portugal was selected, using a stratified probabilistic sampling procedure; men above 40 were considered for analysis (n = 414). Data on sociodemographic characteristics, lifetime use and usual frequency of prostate cancer screening (prostate-specific antigen test or digital rectal examination) and perception of potential benefits and adverse effects of cancer screening were assessed using face-to-face interviews, by structured questionnaire. RESULTS: The proportion of participants who reported having been submitted to prostate cancer screening at least once in their lifetime was 44.2% (95% confidence interval: 37.5-51.0; 13.8% only digital rectal examination, 12.2% only prostate-specific antigen test, and 18.2% digital rectal examination and prostate-specific antigen test). As potential benefits of cancer screening, the options "knowledge of not having the disease", "earlier detection" and "more effective treatment" were selected by 55.8%, 12.9% and 31.3% of the participants, respectively. Regarding potential adverse effects, the most and least frequently identified were 'anxiety while waiting for the results' (55.1%) and 'false negatives' (38.0%), respectively. CONCLUSIONS: Almost half of the men between 40 and 79 years old declared that they have been screened for prostate cancer. Nearly one-third of the participants considered that reassurance of a negative result was the main potential benefit of screening, whereas most failed to identify the most frequent adverse effects.

Cereda, D., Federici, A., Guarino, A., et al. (2020). "Development and first application of an audit system for screening programs based on the PRECEDE-PROCEED model: an experience with breast cancer screening in the region of Lombardy (Italy)." BMC Public Health **20**(1): 1778.

BACKGROUND: High participation and performance are necessary conditions for the effectiveness of breast cancer screening programs. Here we describe the process to define and test a planning software application and an audit cycle based on the PRECEDE-PROCEED model applied to improving breast cancer screening. We developed a planning software application following the phases of the PRECEDE-PROCEED model. The application was co-designed by local cancer screening program coordinators. An audit model was also developed. The revised application and the audit model were tested by all the coordinators of 15 breast cancer screening programs in the region of Lombardy in a 3-day workshop. The project plans produced using the application were compared with those produced in the previous year for clarity and completeness. RESULTS: The 9 phases of the PRECEDE-PROCEED model were adapted to screening as follows: 1) identification of program goals (i.e., participation, sensitivity, false positive); 2) epidemiological issues; 3) best practices analysis; 4) evidence-based actions to be implemented in the screening center and the relationships with partners and stakeholders; 5) priority setting and identification of solutions for each issue; 6) definition of indicators; 7) monitoring; 8) evaluation; 9) impact assessment. The application automatically generated reports for each phase. During the audit cycle, the regional health authority negotiated the targets to be reached with local authorities and collected the improvement plans generated by the application. The plans produced after the application was adopted were more standardized and had clearer indicators for monitoring and evaluation compared to those produced in the previous year. CONCLUSIONS: The software application helps standardize criteria for planning interventions to improve screening programs and facilitates the implementation of the audit cycle.

Clarke, R. B., Therkildsen, C., Gram, M. A., et al. (2020). "Use of primary health care and participation in colorectal cancer screening - a Danish national register-based study." Acta Oncol **59**(8): 1002-1006.

Coretti, S., Ruggeri, M., Dibidino, R., et al. (2020). "Economic evaluation of colorectal cancer screening programs: Affordability for the health service." J Med Screen **27**(4): 186-193.

OBJECTIVES: To estimate the cost-effectiveness of the public colorectal cancer screening program in the Abruzzo region, Italy. METHODS: Cost-effectiveness was analysed using a two-armed Markov model comparing: (1) Abruzzo screening program based on biennial faecal immunochemical occult blood testing, with colonoscopy as second level test for individuals with positive results, with (2) Treatment of symptomatic patients according to the stage of the neoplasm. Transition probabilities were adjusted for accuracy of tests and incidence of colorectal cancer. Diagnosis-related groups' charges and field collected data were used to estimate costs. Costs and benefits were discounted by 3.5%. Monte Carlo simulation confirmed the robustness of the model results. RESULTS: Assuming a compliance rate of 64.7%, the incremental cost-effectiveness ratio for the current colorectal screening program was €433.06/quality adjusted life year gained, considerably lower than conventional thresholds (around €30,000). CONCLUSION: Early detection and intervention programs help to avoid a large number of highly debilitating and expensive cancer treatments. These results show that the screening program currently implemented in Abruzzo should be considered as a good investment in health.

Dawidowicz, S., Le Breton, J., Moscova, L., et al. (2020). "Predictive factors for non-participation or partial participation in breast, cervical and colorectal cancer screening programmes†." Fam Pract **37**(1): 15-24.

BACKGROUND: No study has investigated factors associated with non-participation or partial participation in the different combination patterns of screening programmes for all three cancers, that is, breast, colorectal and cervical cancer. METHODS: In a retrospective cohort study, we sought to describe combinations of cancer screening participation rates among women in the Val-de-Marne area of France and to identify individual and contextual factors associated with non-participation or partial participation. RESULTS: Women aged between 50 and 65 and who were eligible for all three screening programmes (n = 102 219) were analysed in multilevel logistic models, with the individual as the Level 1 variable and the place of residence as the Level 2 variable. The women who did not participate in any of the screening programmes were 34.4%, whereas 30.1%, 24% and 11.5% participated in one, two or all three screening programmes, respectively. Age below 55, a previous false-positive mammography, prior opportunistic mammography only, no previous mammography, membership of certain health insurance schemes (all P < 0.05) and residence in a deprived area (P < 0.001) were independently associated with non-participation or partial participation. We observed a stronger effect of deprivation on non-participation in all three cancers than in combinations of screening programmes. CONCLUSION: Our findings suggest that the health authorities should focus on improving cancer screenings in general rather than screenings for specific types of cancer, especially among younger women and those living in the most socially deprived areas.

Dinmohamed, A. G., Cellamare, M., Visser, O., et al. (2020). "The impact of the temporary suspension of national cancer screening programmes due to the COVID-19 epidemic on the diagnosis of breast and colorectal cancer in the Netherlands." J Hematol Oncol **13**(1): 147.

Oncological care was largely derailed due to the reprioritisation of health care services to handle the initial surge of COVID-19 patients adequately. Cancer screening programmes were no exception in this reprioritisation. They were temporarily halted in the Netherlands (1) to alleviate the pressure on health care services overwhelmed by the upsurge of COVID-19 patients, (2) to reallocate staff and personal protective equipment to support critical COVID-19 care, and (3) to mitigate the spread of COVID-19. Utilising data from the Netherlands Cancer Registry on provisional cancer diagnoses between 6 January 2020 and 4 October 2020, we assessed the impact of the temporary halt of national population screening programmes on the diagnosis of breast and colorectal cancer in the Netherlands. A dynamic harmonic regression model with ARIMA error components was applied to assess the observed versus expected number of cancer diagnoses per calendar week. Fewer diagnoses of breast and colorectal cancer were objectified amid the early stages of the initial COVID-19 outbreak in the Netherlands. This effect was most pronounced among the age groups eligible for cancer screening programmes, especially in breast cancer (age group 50-74 years). Encouragingly enough, the observed number of diagnoses ultimately reached and virtually remained at the level of the expected values. This finding, which emerged earlier in age groups not invited for cancer screening programmes, comes on account of the decreased demand for critical COVID-19 care since early April 2020, which, in turn, paved the way forward to resume screening programmes and a broad range of non-critical health care services, albeit with limited operating and workforce capacity. Collectively, transient changes in health-seeking behaviour, referral practices, and cancer screening programmes amid the early stages of the initial COVID-19 epidemic in the Netherlands conjointly acted as an accelerant for fewer breast and colorectal cancer diagnoses in age groups eligible for cancer screening programmes. Forthcoming research is warranted to assess whether the decreased diagnostic scrutiny of cancer during the COVID-19 pandemic resulted in stage migration and altered clinical management, as well as poorer outcomes.

Duffy, S. W., Tabár, L., Yen, A. M., et al. (2020). "Mammography screening reduces rates of advanced and fatal breast cancers: Results in 549,091 women." Cancer **126**(13): 2971-2979.

BACKGROUND: It is of paramount importance to evaluate the impact of participation in organized mammography service screening independently from changes in breast cancer treatment. This can be done by measuring the incidence of fatal breast cancer, which is based on the date of diagnosis and not on the date of death. METHODS: Among 549,091 women, covering approximately 30% of the Swedish screening-eligible population, the authors calculated the incidence rates of 2473 breast cancers that were fatal within 10 years after diagnosis and the incidence rates of 9737 advanced breast cancers. Data regarding each breast cancer diagnosis and the cause and date of death of each breast cancer case were gathered from national Swedish registries. Tumor characteristics were collected from regional cancer centers. Aggregated data concerning invitation and participation were provided by Sectra Medical Systems AB. Incidence rates were analyzed using Poisson regression. RESULTS: Women who participated in mammography screening had a statistically significant 41% reduction in their risk of dying of breast cancer within 10 years (relative risk, 0.59; 95% CI, 0.51-0.68 [P < .001]) and a 25% reduction in the rate of advanced breast cancers (relative risk, 0.75; 95% CI, 0.66-0.84 [P < .001]). CONCLUSIONS: Substantial reductions in the incidence rate of breast cancers that were fatal within 10 years after diagnosis and in the advanced breast cancer rate were found in this contemporaneous comparison of women participating versus those not participating in screening. These benefits appeared to be independent of recent changes in treatment regimens.

Eibich, P. et Goldzahl, L. (2020). Does retirement affect secondary preventive care use? Evidence from breast cancer screening. MPIDR Working Paper WP 2020-011. Rostock Max Planck Institute for Demographic Research**:** 49 , tabl., fig.
https://www.demogr.mpg.de/papers/working/wp-2020-011.pdf

Population ageing is expected to increase the burden of non-communicable diseases, e.g., cardiovascular diseases and cancer. These diseases are amenable to prevention, such as lifestyle changes (primary prevention) and early detection (secondary prevention), and thus prevention is considered to be one of the keys to maintaining the health of an ageing population. This paper examines the causal impact of retirement on secondary preventive care use. While we focus on breast cancer screening, we also provide evidence for other types of screening such as cervical cancer screening. We use five waves of data from the Eurobarometer surveys conducted between 1996 and 2006, covering 25 different European countries. We address the endogeneity of retirement by using age thresholds for pension eligibility as instrumental variables. We find that retirement reduces secondary preventive care use. This effect is not driven by changes in health or income. Instead, our evidence suggests that generosity of the social health insurance system and women’s beliefs concerning cancer prevention and treatment are important mechanisms.

González-Marrón, A., Martín-Sánchez, J. C., Garcia-Alemany, F., et al. (2020). "Estimation of the Risk of Lung Cancer in Women Participating in a Population-Based Breast Cancer Screening Program." Arch Bronconeumol (Engl Ed) **56**(5): 277-281.

INTRODUCTION: Lung cancer mortality is increasing in women. In Spain, estimates suggest that lung cancer mortality may soon surpass breast cancer mortality, the main cause of cancer mortality among women. The aim of this study was to estimate the proportion of women at high risk of developing lung cancer in a group of participants in a population-based breast cancer screening program. METHODS: Cross-sectional study in a sample of women who participated in a population-based breast cancer screening program in 2016 in Hospitalet de Llobregat (n=1,601). High risk of lung cancer was defined according to the criteria of the National Lung Screening Trial (NLST) and the Dutch-Belgian randomized lung cancer screening trial (NELSON). RESULTS: Around 20% of smokers according to NLST criteria and 40% of smokers according to NELSON criteria, and around 20% of former smokers according to both criteria, are at high risk of developing lung cancer. A positive and statistically significant trend is observed between the proportion of women at high risk and nicotine dependence measured with the brief Fagerström test. CONCLUSIONS: A high proportion of participants in this breast cancer screening program have a high risk of developing lung cancer and would be eligible to participate in a lung cancer screening program. Population-based breast cancer screening programs may be useful to implement lung cancer primary prevention activities.

Healy, N. A., O'Brien, A., Knox, M., et al. (2020). "Consensus Review of Discordant Imaging Findings after the Introduction of Digital Screening Mammography: Irish National Breast Cancer Screening Program Experience." Radiology **295**(1): 35-41.

Background When there are discordant results between individual readers interpreting screening mammograms, consensus by independent readers may reduce unnecessary recalls for further work-up. Few studies have looked at consensus outcomes following the introduction of full-field digital mammography (FFDM). Purpose To determine outcomes of women discussed at consensus meetings during a 5-year period after introduction of FFDM, including recall rates, cancer detection, and interval cancers. Materials and Methods In this retrospective study from January 2010 to December 2014, the authors reviewed all screening mammograms from a single unit of a biennial Irish national breast screening program after the introduction of FFDM. Screening mammograms were double reported. Abnormalities detected at discordant screening mammography readings were discussed at biweekly consensus meetings. Outcomes of consensus meetings were reviewed in terms of referral for assessment, biopsy rates, cancer detection, and outcomes from later rounds of screening. Statistical analysis was performed by using a χ(2) test to compare recall rate and cancer detection rates between FFDM and screen-film mammography based on a previously published study from the authors' institution. Results A total of 2565 women (age range, 50-64 years) with discordant mammographic findings were discussed at consensus meetings. Of these 2565 women, 1037 (40%) were referred for further assessment; 108 cancers were detected in these women. Of the 1285 women who returned to biennial screening, malignancy was detected at the site of original concern in 12 women at a further round of screening. Three true interval cancers were identified. Sensitivity (88.5% [108 of 122]; 95% confidence interval [CI]: 81.5%, 93.6%) and negative predictive value (99.1% [1528 of 1542]; 95% CI: 98.5%, 99.4%) of consensus review remained stable after the introduction of FFDM. Specificity of consensus review increased from 57.6% (729 of 1264; 95% CI: 54.9%, 60.4%) to 62.2% (1528 of 2457; 95% CI: 60.2%, 64.1%) (P = .008). Conclusion Consensus review of discordant mammographic screening-detected abnormalities remains a valuable tool after introduction of full-field digital mammography as it reduces recall for assessment and demonstrates persistently high sensitivity and negative predictive values. © RSNA, 2020 See also the editorial by Hofvind and Lee in this issue.

Heisser, T., Weigl, K., Hoffmeister, M., et al. (2020). "Age-specific sequence of colorectal cancer screening options in Germany: A model-based critical evaluation." PLoS Med **17**(7): e1003194.

BACKGROUND: The current organized screening program for colorectal cancer in Germany offers both sexes 5 annual fecal immunochemical tests (FITs) between ages 50 and 54 years, followed by a first screening colonoscopy at age 55 years if all of these FITs were negative. We sought to assess the implications of this approach for key parameters of diagnostic performance. METHODS AND FINDINGS: Using a multistate Markov model, we estimated the expected detection rates of advanced neoplasms (advanced adenomas and cancers) and number needed to scope (NNS) to detect 1 advanced neoplasm at a first screening colonoscopy conducted at age 55 after 5 preceding negative FITs and compared them with the corresponding estimates for a first screening colonoscopy at age 55 with no preceding FIT testing. In individuals with 5 consecutive negative FITs undergoing screening colonoscopy at age 55, expected colonoscopy detection rate (NNS) was 3.7% (27) and 0.10% (1,021) for any advanced neoplasm and cancer, respectively, in men, and 2.1% (47) and 0.05% (1,880) for any advanced neoplasm and cancer, respectively, in women. These NNS values for detecting 1 advanced neoplasm are approximately 3-fold higher, and the NNS values for detecting 1 cancer are approximately 8-fold higher, than those for a first screening colonoscopy at age 55 without prior FITs. This study is limited by model simplifying assumptions and uncertainties related to input parameters. CONCLUSIONS: Screening colonoscopy at age 55 after 5 consecutive negative FITs at ages 50-54, as currently offered in the German cancer early detection program, is expected to have very low positive predictive value. Our results may inform efforts to enhance the design of screening programs.

Hoeck, S., van de Veerdonk, W. et De Brabander, I. (2020). "Do socioeconomic factors play a role in nonadherence to follow-up colonoscopy after a positive faecal immunochemical test in the Flemish colorectal cancer screening programme?" Eur J Cancer Prev **29**(2): 119-126.

OBJECTIVE: In Flanders (Belgium), a population-based colorectal cancer (CRC) screening programme was started in 2013, coordinated by the Centre for Cancer Detection (CCD) in cooperation with the Belgian Cancer Registry (BCR). The CCD offers a biennial faecal immunochemical test (FIT) to Flemish citizens aged 56-74 years and recommends a colonoscopy when screened positive by FIT. The study objective is to investigate sociodemographic differences in follow-up colonoscopy adherence after a positive FIT. METHODS: Characteristics of the study population were derived by linkage of data from the CCD and BCR, linked with data of the Intermutualistic Agency and the Crossroads Bank for Social Security, resulting in aggregated tables to ensure anonymity. A total of 37 834 men and women aged 56-74 years with a positive FIT in 2013-2014 were included. Adherence to follow-up colonoscopy was calculated for age, sex, work intensity at household level, preferential reimbursement status, and first and current nationality. Descriptive analyses and logistic regressions were performed. RESULTS: Nonadherence to follow-up colonoscopy was associated with increasing age, and was significantly higher in men [odds ratio (OR), 1.08], participants with a preferential reimbursement status (OR, 1.34), very low work intensity (OR, 1.41), no payed work (OR, 1.38) and other than Belgian nationality by birth (OR, 1.6-4.66). CONCLUSION: Adherence to follow-up colonoscopy after a positive FIT differs according to sociodemographic variables. Additional research is needed to explore reasons for nonadherence to colonoscopy and tackle barriers by exploring interventions to increase colonoscopy follow-up adherence after a positive FIT in the Flemish colorectal cancer screening programme.

Hoeck, S., Van Roy, K. et Willems, S. (2020). "Barriers and facilitators to participate in the colorectal cancer screening programme in Flanders (Belgium): a focus group study." Acta Clin Belg: 1-8.

OBJECTIVE: In Flanders (Belgium), a population-based colorectal cancer (CRC) screening programme offers a faecal immunochemical test (FIT) biennially to Flemish citizens aged 50-74 years. A FIT uptake of only 51,5% in 2018 is significantly lower among men, lower income groups and among people with other than the Belgian nationality.The objective of this study was to identify attitudes, barriers and facilitators to participate in the Flemish CRC screening programme. METHODS: Qualitative study using focus group discussions (FGDs) with non-participants in the Flemish CRC screening programme. Four FGDs were held with non-migrant Flemish population groups, and four were held with Turkish migrants (41 participants). RESULTS: Feeling healthy, fear of cancer and embarrassment to talk about CRC screening emerged as common barriers in all FGDs. Having other priorities (non-migrant group) and a lack of understanding mainly due to a language barrier (Turkish migrants) differed between the two groups. Providing face-to-face information, information in group and GP recommendation were perceived as important facilitators to CRC screening in both groups. More publicity and making CRC screening more of a routine (non-migrant group) and offering translated information (Turkish migrants) were the suggested facilitators that differed between the groups. CONCLUSIONS: Several common and some group-specific barriers and facilitators appeared to play a role in the decision to participate in the CRC screening programme. In order to improve informed decision making and participation in the CRC screening programme in Flanders, the options of more GP involvement, targeted information events, and adapted reminder letters are currently being explored.

Jensen, M. D., Siersma, V., Rasmussen, J. F., et al. (2020). "Direct and indirect healthcare costs of lung cancer CT screening in Denmark: a registry study." BMJ Open **10**(1): e031768.

INTRODUCTION: A study based on the Danish Randomised Controlled Lung Cancer Screening Trial (DLCST) calculated the healthcare costs of lung cancer screening by comparing costs in an intervention group with a control group. Participants in both groups, however, experienced significantly increased negative psychosocial consequences after randomisation. Substantial participation bias has also been documented: The DLCST participants reported fewer negative psychosocial aspects and experienced better living conditions compared with the random sample. OBJECTIVE: To comprehensively analyse the costs of lung cancer CT screening and to determine whether invitations to mass screening alter the utilisation of the healthcare system resulting in indirect costs. Healthcare utilisation and costs are analysed in the primary care sector (general practitioner psychologists, physiotherapists, other specialists, drugs) and the secondary care sector (emergency room contacts, outpatient visits, hospitalisation days, surgical procedures and non-surgical procedures). DESIGN: To account for bias in the original trial, the costs and utilisation of healthcare by participants in DLCST were compared with a new reference group, selected in the period from randomisation (2004-2006) until 2014. SETTING: Four Danish national registers. PARTICIPANTS: DLCST included 4104 current or former heavy smokers, randomly assigned to the CT group or the control group. The new reference group comprised a random sample of 535 current or former heavy smokers in the general Danish population who were never invited to participate in a cancer screening test. MAIN OUTCOME MEASURES: Total healthcare costs including costs and utilisation of healthcare in both the primary and the secondary care sector. RESULTS: Compared with the reference group, the participants in both the CT group (offered annual CT screening, lung function test and smoking counselling) and the control group (offered annual lung function test and smoking counselling) had significantly increased total healthcare costs, calculated at 60% and 48% respectively. The increase in costs was caused by increased use of healthcare in both the primary and the secondary sectors. CONCLUSION: CT screening leads to 60% increased total healthcare costs. Such increase would raise the expected annual healthcare cost per participant from EUR 2348 to EUR 3756. Cost analysis that only includes costs directly related to the CT scan and follow-up procedures most likely underestimates total costs. Our data show that the increased costs are not limited to the secondary sector. TRIAL REGISTRATION NUMBER: NCT00496977.

Kool, R. B., Verkerk, E. W., Meijs, J., et al. (2020). "Assessing volume and variation of low-value care practices in the Netherlands." European Journal of Public Health **30**(2): 236-240.
https://doi.org/10.1093/eurpub/ckz245

There have been contributions to quantify the volume of low-value care practices in the USA, Canada and Australia but we have no knowledge about the volume in Europe. The purpose of this study was to assess the volume and variation of Dutch low-value care practices.We conducted a cross-sectional study with data of a Dutch healthcare insurance company from general practioners (GP's) and hospitals in the Netherlands from 2016. We used all billing claims made by healthcare providers of 3.5 million Dutch inhabitants. We studied Choosing Wisely recommendations in order to select low-value care practices. We used the percentage low-value care practices per hospital and number of low-value care practices per GP as outcomes.We assessed the volume of low-back imaging by GPs, screening of patients over 75 years for colorectal cancer and diagnosing varices with Doppler or Plethysmography. We found that 0.4% (range 0–7%) of the eligible patients received low-value screening for colorectal cancer and 8.0% (range 0–88%) of eligible patients received low-value diagnosing of varices. About 52.4% of the GPs ordered X-rays and 11.2% ordered magnetic resonance imagings of the lumbosacral spine. Most healthcare providers did not provide the measured low-value care practices. However, 1 in 12 GPs ordered at least one low-back X-ray a week.The three Choosing Wisely recommendations showed a lot of practice variation; many healthcare providers did not order these low-value diagnostic tests; a minor part did order a substantial amount, low-back spine radiology in particular. These healthcare providers should start reducing these activities.

Lilliecreutz, C., Karlsson, H. et Spetz Holm, A. C. (2020). "Participation in interventions and recommended follow-up for non-attendees in cervical cancer screening -taking the women's own preferred test method into account-A Swedish randomised controlled trial." Plos One **15**(7): e0235202.

BACKGROUND: Cervical cancer is a highly preventable disease. To not attend an organized cervical cancer screening program increases the risk for cervical dysplasia and cervical cancer. The aim was to investigate the participation rate in three different intervention groups for non- attendees in the Swedish national program for cervical screening. The participation in the recommended follow up, and the histology found were also examined. METHOD: Population-based randomized control trial. It included10,614 women that had not participated in the cervical cancer screening programme during the last six years (ages 30-49) and the last eight years (ages 50-64) were randomised 1:1:1(telephone call from a midwife (offering the choice between a visit for a pap smear or an HPV self-sampling test); an HPV self-sampling test only; or the routine procedure with a yearly invitation). RESULTS: In the intention to treat analysis the participation rates were 25.5% (N = 803/3146) vs 34.1% (N = 1047/3068) and 7.0% (N = 250/3538) (p<0.001) for telephone, HPV self-test and control groups respectively. In the by protocol analysis including women that answered the phone call the participation rates were 31.7% (N = 565/1784) vs 26.1% (N = 788/3002) and 7.0% (N = 250/3538) (p<0.001) for telephone, HPV self-test and control groups. The corresponding results in the by protocol analysis including women that did not answer the phone call was 19.7% (N = 565/2870) vs 26.1% (N = 788/3002) and 7.0% (N = 250/3538) (p< 0.001). The majority of the women 63,4% (1131/1784) who answered the telephone wanted to participate either by booking a visit for pap smear (38,5%) or to be sent a HPV self-sampling test (24,9%) (p<0.001). Women who chose an HPV self-test were older and gave anxiety/ fear as a reason to decline participation, and they were also less likely to participate in the follow-up if found to be HPV-positive compared to the women who chose a Pap smear. The attendance to the recommended follow-up after abnormality was in total 87%. The non-attendees had a three or eight times higher risk of having a cytology result of HSIL or suspected SCC respectively, in the index sample compared to women screened as recommended (OR 3.3 CI 95% 1.9-5.2, OR 8.6 CI 1.6-30). A total of ten SCC and one adenocarcinoma were found in the histopathology results from the non-attendee group with a study intervention, while there was only one SCC in the non-attendee group without any study intervention (p = 0.02, OR 8.1 CI 95% 1.2-350). CONCLUSIONS: Our study suggests, according to intention to treat analysis, that the best intervention to get as many non-attendees as possible to participate is to send an HPV self-sampling test together with an invitation letter. Almost 90% of women in the study with an abnormal index sample attended follow-up. This is high enough to indicate that interventions to increase the participation among non-attendees are meaningful. REGISTRY: International Standard Randomised Controlled Trial Number (ISRCTN) Registration number ISRCTN78719765.

Losurdo, P., Giacca, M., Biloslavo, A., et al. (2020). "Colorectal cancer-screening program improves both short- and long-term outcomes: a single-center experience in Trieste." Updates Surg **72**(1): 89-96.

Screening programs (SC) have been proven to reduce both incidence and mortality of CRC. We retrospectively analyzed patients who underwent surgical treatment for CRC between 01/2011 and 01/2017. The current screening program in our region collects patients aged from 50 to 69. For this reason, out of a total of 600 patients, we compared 125 patients with CRC founded during the SC to 162 patients who presented with symptoms and were diagnosed between 50-69 years old (NO-SC). 45% patients in the SC group were diagnosed as AJCC stage I vs 27% patients in the NO-SC group; 14% vs 20% were stage II, 14% vs 26% were stage III, and 3% vs 14% were stage IV (p 0.002). We found a significant difference in surgical approach: 89% SC vs 56% NO-SC patients had laparoscopic surgery (p 0.002). In the NO-SC group, 16% patients underwent resection in an emergency setting. Only 5% patients in the SC group had postoperative complications vs 14% patients in the NO-SC group (p 0.03). We had a 2-year OS of 86%, being 95% in the SC group and 80% in the NO-SC group (p 0.002). Likewise, the whole 2-year DFS was 77%, whereas it was 90% in the SC group and 66% in the NO-SC group (p 0.002). Screening significantly improves early diagnosis and accelerated surgical treatment. We obtained earlier stages at diagnosis, a less invasive surgical approach, and lower rates of complications and emergency surgery, all this leading to an improvement in both OS and DFS.

Møen, K. A., Kumar, B., Igland, J., et al. (2020). "Effect of an Intervention in General Practice to Increase the Participation of Immigrants in Cervical Cancer Screening: A Cluster Randomized Clinical Trial." JAMA Netw Open **3**(4): e201903.

IMPORTANCE: Immigrant women have lower participation in cervical cancer screening (CCS) programs. At the same time, some groups of immigrants have higher prevalence of cervical cancer. Targeted interventions are therefore necessary. OBJECTIVE: To determine whether an intervention among general practitioners (GPs) could influence immigrant women's participation in the Norwegian CCS program. DESIGN, SETTING, AND PARTICIPANTS: Cluster-randomized clinical trial using the 20 subdistricts of the Bergen, Norway, municipality as clusters. The clusters were matched in 10 pairs according to the number of immigrant women living in them and randomized thereafter. The intervention was implemented between January and June 2017 among urban, primary care, general practices in Bergen. Follow-up ended in January 2018. General practices belonging to the control areas continued treatment as usual. A total of 10 360 women who attended 73 general practices in the 20 subdistricts were included as participants. INTERVENTION: The intervention consisted of 3 elements: an educational session for GPs at lunch describing the importance of CCS among immigrants and giving advice about how to invite them to participate, a mouse pad as a reminder, and a poster placed in waiting rooms. In the educational session, we elaborated the need for GPs to ask every immigrant woman about CCS, regardless of their reason for contacting their GP. MAIN OUTCOMES AND MEASURES: The main outcome, screening status of immigrant women by January 1, 2018, was obtained from the Norwegian Cancer Registry. The effect of the intervention was measured as odds ratio (OR) for CCS status as of January 1, 2018, for the intervention group vs the control group, with 3 levels of adjustments: baseline CCS status at January 1, 2017 (model 1), additional adjustment for women's age, marital status, income level, and region of origin (model 2), and further adjustment for the GP's sex, age, and region of origin (model 3). Two subgroup analyses, screening status at baseline and women's country of origin, were conducted to assess whether these factors had any influence on the effect of the intervention. Data were analyzed as intention to treat. RESULTS: A total of 10 360 immigrant women, 5227 (50.4%; mean [SD] age, 44.0 [12.0] years) in the intervention group and 5133 (49.6%; mean [SD] age, 44.5 [11.6] years) in the control group, belonging to 39 general practices in the intervention area and 34 in the control area, were included in the study. The proportion of immigrant women screened increased by 2.6% in the intervention group and 0.6% in the control group. After adjustment for screening status at baseline, women in the intervention group were more likely to have participated in CCS (OR, 1.24 [95% CI, 1.11-1.38]). This statistically significant effect remained unchanged after adjustment for women's characteristics (OR, 1.24 [95% CI, 1.11-1.38]) and was reduced, but still significant, after further adjustment for GP characteristics (OR, 1.19 [95% CI, 1.06-1.34]). In subgroup analyses, the intervention particularly increased participation among women who were not previously screened at baseline (OR, 1.35 [95% CI, 1.16-1.56]), and those from Poland, Pakistan, and Somalia (OR, 1.74 [95% CI, 1.17-2.61]) when adjusting for baseline screening status. CONCLUSIONS AND RELEVANCE: Our intervention targeting general practices significantly increased CCS participation among immigrants, although the absolute effect size of 2% in the fully adjusted model was small. Engaging other primary health professionals such as midwives to perform CCS could further contribute to increasing participation. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT03155581.

Muratov, S., Canelo-Aybar, C., Tarride, J. E., et al. (2020). "Monitoring and evaluation of breast cancer screening programmes: selecting candidate performance indicators." BMC Cancer **20**(1): 795.

BACKGROUND: In the scope of the European Commission Initiative on Breast Cancer (ECIBC) the Monitoring and Evaluation (M&E) subgroup was tasked to identify breast cancer screening programme (BCSP) performance indicators, including their acceptable and desirable levels, which are associated with breast cancer (BC) mortality. This paper documents the methodology used for the indicator selection. METHODS: The indicators were identified through a multi-stage process. First, a scoping review was conducted to identify existing performance indicators. Second, building on existing frameworks for making well-informed health care choices, a specific conceptual framework was developed to guide the indicator selection. Third, two group exercises including a rating and ranking survey were conducted for indicator selection using pre-determined criteria, such as: relevance, measurability, accurateness, ethics and understandability. The selected indicators were mapped onto a BC screening pathway developed by the M&E subgroup to illustrate the steps of BC screening common to all EU countries. RESULTS: A total of 96 indicators were identified from an initial list of 1325 indicators. After removing redundant and irrelevant indicators and adding those missing, 39 candidate indicators underwent the rating and ranking exercise. Based on the results, the M&E subgroup selected 13 indicators: screening coverage, participation rate, recall rate, breast cancer detection rate, invasive breast cancer detection rate, cancers > 20 mm, cancers ≤10 mm, lymph node status, interval cancer rate, episode sensitivity, time interval between screening and first treatment, benign open surgical biopsy rate, and mastectomy rate. CONCLUSION: This systematic approach led to the identification of 13 BCSP candidate performance indicators to be further evaluated for their association with BC mortality.

Pasek, M., Plachta, J., Kaducakova, H., et al. (2020). "Analysis of the health situation of women referring to breast cancer screening in Poland." J buon **25**(3): 1354-1360.

PURPOSE: To analyze the health situation of women referring to breast cancer screening. METHODS: The study was conducted at "Certus" Medical Center in Myslenice (Malopolska Province). A total of 808 women aged 51-69 years were enrolled. The protocol of the study was approved by the administration of the medical center where it was conducted. The survey consisted of 24 descriptive and single/multiple choice questions referring to health behaviors related to breast cancer prevention. RESULTS: Most often the women received information about breast cancer prevention from specialist physicians [24%]. Only 14% of the participants reported radio, press and Internet as an important source of information. Only 12% of the respondents declared that they self-examined their breasts systematically every month, and 35% stated that their breasts had been examined by a physician during recent years. A statistically significant relationship was found between the primary source of information about breast cancer prevention and the educational level of the study participants (p=0.0008). CONCLUSIONS: Considering the Polish Central Statistical Office estimates, according to which the proportion of persons older than 65 years is projected to grow up to 22.3% by 2030, we may expect further increase in breast cancer incidence. Improvement of the epidemiological situation in Poland, which is worse than in other European countries, requires continuation of multidirectional activities, among them population-based education and active screening.

Poroes, C., Cornuz, J., Gouveia, A., et al. (2020). "Self-reported screening practices of family physicians participating in the colorectal cancer screening program of the canton of Vaud: a cross-sectional study." BMC Fam Pract **21**(1): 103.

BACKGROUND: The organized colorectal cancer (CRC) screening program in the canton of Vaud, Switzerland offers citizens the choice of the faecal immunochemical test (FIT) or colonoscopy via a visit with a family physician (FP). Given the central role of FPs in the program, this study aimed to compare their self-reported preventive practices with the objectives of the program, namely to inform patients about CRC screening and present the choice of colonoscopy and FIT, and to identify factors associated with presenting a choice of tests. METHODS: Mixed-methods study using an online survey and semi-structured interviews. Participants were FPs from the canton of Vaud who had included ≥1 patient in the screening program. We used multivariate logistic regression to compare FPs offering only colonoscopy to those who offered a choice of tests or FIT. RESULTS: The participation rate was 40% (177 respondents / 443 eligible). Most FPs (68%) reported informing more than 75% of eligible patients about the program. Lack of time (n = 86, 33%) was the principal reason cited for not informing patients. Regarding the screening methods, 20% (n = 36) of FPs prescribed only colonoscopy, 13% (n = 23) only FIT and 65% (n = 115) both screening methods. Predictors of offering only colonoscopy rather than a choice of screening tests included: first, FP reporting that they chose/would choose colonoscopy for themselves (OR 8.54 [95% CI 1.83-39.79, P < 0.01]); second, being > 20 years in practice (OR 4.8 [95% CI 1.3-0.17.66, P = 0.02]); and third, seeing 300 or more patients per month (OR 3.05 [95% CI 1.23-7.57, P = 0.02]). When asked what could improve the program, 17% (n = 31) wrote that patients should be informed in advance about the program by postal mail and a large-scale communication campaign. CONCLUSION: The majority of FPs reported CRC screening practices consistent with the objectives of the program. However, to ensure that patients are well informed and to save time, all patients need to be systematically informed about the program. Further, FPs should be encouraged to offer a choice of tests.

Ritchie, D., Van Hal, G. et Van den Broucke, S. (2020). "How is informed decision-making about breast cancer screening addressed in Europe? An international survey of 28 countries." Health Policy. https://doi.org/10.1016/j.healthpol.2020.05.011

The aim of this study was to develop a typology of approaches towards informed decision-making (IFD) about mammography screening in Europe. All countries collaborating in the European Commission Initiative on Breast Cancer were approached to participate. Experts from 28 European countries responded to a web-based survey providing data on key organisational and policy characteristics of breast screening at the national or regional level. A total of 35 responses were received including data from regionally organised breast screening in several countries. 27 respondents, covering 21 countries, reported the existence of a policy towards IFD and stated that they communicated to women about the benefit and risks. Few countries had attempted to measure the proportion of women making an informed choice. A cluster analysis of the survey responses allowed to identify three categories: countries in a confirmation phase who have adopted a policy specific to mammography screening; countries in an implementation phase with generic polices and limited administrative support dedicated yet to IFD; and countries in a decision phase who are deliberating how to address IFD. To the best of our knowledge, this study is the first to investigate the key policy and organisational characteristics of approaches taken to facilitate IFD in Europe. The results demonstrate a broad adoption of the principle of enabling IFD but indicate heterogeneity of implementation.

Saz-Parkinson, Z., Monteagudo-Piqueras, O., Granados Ortega, J., et al. (2020). "["European Commission Initiative on Breast Cancer": Selected Breast Cancer Screening Recommendations from the European Guidelines.]." Rev Esp Salud Publica **94**.

OBJECTIVE: The European Commission Initiative on Breast Cancer (ECIBC) has developed new recommendations on breast cancer screening and diagnosis. The objective of this work was to adapt these recommendations to Spanish in order to implement and guarantee the quality and success of breast cancer screening programmes (PCCM) throughout the Spanish territory. METHODS: The new European Guidelines on Screening and Diagnosis of Breast Cancer have been prepared by a multidisciplinary panel of experts and patients (Guidelines Development Group, GDG). The recommendations inclu-ded are supported by systematic reviews of the evidence conducted by a team of researchers from the Ibero-American Cochrane Center. For its preparation, the European Commission's conflict of interest management rules were applied and the GRADE (Grading of Recommendations Assessment, Development and Evaluation) methodology was used. The GRADE evidence-to-decision (EtD) frameworks were used to minimize potential influence of interests on the recommendations. RESULTS: As a result of the systematic reviews carried out, the GDG published on the ECIBC website a list of recommendations as part of the guidelines for the screening and diagnosis of breast cancer, which were translated into Spanish in this work. CONCLUSIONS: The adaptation to Spanish of the new recommendations helps their implementation and the creation of a uniform PCCM throughout the Spanish territory. All of this improves informed decision making and the success of PCCM.

Sebuødegård, S., Botteri, E. et Hofvind, S. (2020). "Breast Cancer Mortality After Implementation of Organized Population-Based Breast Cancer Screening in Norway." J Natl Cancer Inst **112**(8): 839-846.

BACKGROUND: We estimated breast cancer (BC) mortality reduction associated with invitations to a nationwide population-based screening program and with changes in treatment. MATERIALS AND METHODS: BreastScreen Norway started in 1996 and became nationwide in 2005. It invites women aged 50-69 years to biennial mammographic screening. We retrieved individual-level data for 1 340 333 women from national registries. During 1996-2014 (screening window), women contributed person-years in noninvited and invited periods. We created comparable periods for 1977-1995 (prescreening window) by dividing the follow-up time for each woman into pseudo-noninvited and pseudo-invited periods. We estimated BC mortality for the four periods, using the so-called evaluation model: counting BC deaths in each period for all women diagnosed within the period and counting BC deaths and person-years after screening-age for those diagnosed within screening age. We used a multivariable flexible parametric survival model to estimate hazard ratio (HR) for the effect of invitation and improved treatment. RESULTS: Using the regression approach, we found 5818 BC deaths across 16 533 281 person-years. Invitations to screening reduced BC mortality by 20% (HR = 0.80, 95% confidence interval [CI] = 0.70 to 0.91) among women 50 years and older and by 25% (HR = 0.75, 95% CI = 0.65 to 0.86) among screening-aged women. The treatment effect was 23% (HR = 0.77, 95% CI = 0.65 to 0.92) for women 50 years and older and 17% (HR = 0.83, 95% CI = 0.74 to 0.94) for screening-aged women. CONCLUSION: We observed a similar reduction in BC mortality associated with invitations to screening and improvements in treatment during 1977-2014, among women

50 years and older.

Solís-Ibinagagoitia, M., Unanue-Arza, S., Díaz-Seoane, M., et al. (2020). "Factors Related to Non-participation in the Basque Country Colorectal Cancer Screening Programme." Front Public Health **8**: 604385.

Background: Despite the high participation rates in the Basque Country, colorectal cancer screening programme (Spain), there is still a part of the population that has never participated. Since it is essential to ensure equal access to health services, it is necessary to identify the determinants of health and socio-economic factors related to non-participation in the screening programme. Methods: Cross sectional descriptive study including all invited population in a complete round between 2015 and the first trimester of 2017. Health risk factors available in medical records and their control have been analyzed using univariate and multivariate analyses. Results: 515,388 people were invited at the programme with a 71.9% of fecal immunochemical test participation rate. Factors that increase the risk of non-participation are: being men (OR = 1.10, 95% CI 1.09-1.12); younger than 60 (OR = 1.18, 95% CI 1.17-1.20); smoker (OR = 1.20, 95% CI 1.18-1.22); hypertensive (OR = 1.14, 95% CI 1.12-1.15) and diabetic (OR = 1.40, 95% CI 1.36-1.43); having severe comorbidity (OR = 2.09, 95% CI 2.00-2.19) and very high deprivation (OR = 1.15, 95% CI 1.12-1.17), as well as making <6 appointments to Primary Care in 3 years (OR = 2.39, 95% CI 2.33-2.45). Still, the area under the curve (AUC) indicates that there are more factors related to non-participation. Conclusions: The participation in the Basque Country colorectal cancer-screening Programme is related to some risk factors controlled by Primary Care among others. Therefore, the involvement of these professionals could improve, not only the adherence to the CRC screening, but also other health styles and preventive interventions.

Sroczynski, G., Esteban, E., Widschwendter, A., et al. (2020). "Reducing overtreatment associated with overdiagnosis in cervical cancer screening-A model-based benefit-harm analysis for Austria." Int J Cancer **147**(4): 1131-1142.

A general concern exists that cervical cancer screening using human papillomavirus (HPV) testing may lead to considerable overtreatment. We evaluated the trade-off between benefits and overtreatment among different screening strategies differing by primary tests (cytology, p16/Ki-67, HPV alone or in combinations), interval, age and diagnostic follow-up algorithms. A Markov state-transition model calibrated to the Austrian epidemiological context was used to predict cervical cancer cases, deaths, overtreatments and incremental harm-benefit ratios (IHBR) for each strategy. When considering the same screening interval, HPV-based screening strategies were more effective compared to cytology or p16/Ki-67 testing (e.g., relative reduction in cervical cancer with biennial screening: 67.7% for HPV + Pap cotesting, 57.3% for cytology and 65.5% for p16/Ki-67), but were associated with increased overtreatment (e.g., 19.8% more conizations with biennial HPV + Papcotesting vs. biennial cytology). The IHBRs measured in unnecessary conizations per additional prevented cancer-related death were 31 (quinquennial Pap + p16/Ki-67-triage), 49 (triennial Pap + p16/Ki-67-triage), 58 (triennial HPV + Pap cotesting), 66 (biennial HPV + Pap cotesting), 189 (annual Pap + p16/Ki-67-triage) and 401 (annual p16/Ki-67 testing alone). The IHBRs increased significantly with increasing screening adherence rates and slightly with lower age at screening initiation, with a reduction in HPV incidence or with lower Pap-test sensitivity. Depending on the accepted IHBR threshold, biennial or triennial HPV-based screening in women as of age 30 and biennial cytology in younger women may be considered in opportunistic screening settings with low or moderate adherence such as in Austria. In organized settings with high screening adherence and in postvaccination settings with lower HPV prevalence, the interval may be prolonged.

Steponavičienė, L., Briedienė, R., Vansevičiūtė-Petkevičienė, R., et al. (2020). "Breast Cancer Screening Program in Lithuania: Trends in Breast Cancer Mortality Before and During the Introduction of the Mammography Screening Program." Acta Med Litu **27**(2): 61-69.

ABSTRACT BACKGROUND: Breast cancer is the most frequent oncological disease as well as the leading cause of cancer death among women worldwide. Decline in mortality in economically strong countries is observed. This decline is mostly related to early diagnosis (an improvement in breast cancer awareness and the mammography screening program (MSP)) and a more effective treatment. In the end of 2005, MSP started in Lithuania. The main aim of this article is to evaluate the breast cancer mortality during 22 years in Lithuania, as well as changes before the start of the MSP and during its implementation, in order to assess the influence of the MSP on mortality. MATERIALS AND METHODS: Analysis is based on data from the population-based Lithuanian Cancer Registry. Analysis of changes in mortality includes the period from 1998 to 2019. Age standardized mortality rates are calculated for assessment of changes. Joinpoint regression analysis is used. RESULTS: Applying the segmental regression model, it was found that during the study period mortality was statistically significantly decreasing by -1.1% each year. Mortality among women under the age of 50 decreased both before and during the implementation of MSP. Mortality in the target population also was already decreasing until the implementation of the program, but a significant reduction in mortality was observed in this group since 2006. CONCLUSIONS: Overall breast cancer mortality is decreasing in Lithuania. After the implementation of MSP the largest reduction in mortality was observed in the target population, however, it is not as pronounced as it could be with the well-organized MSP.

Toes-Zoutendijk, E., Portillo, I., Hoeck, S., et al. (2020). "Participation in faecal immunochemical testing-based colorectal cancer screening programmes in the northwest of Europe." J Med Screen **27**(2): 68-76.

OBJECTIVE: This study compared the participation in four faecal immunochemical testing-based screening programmes for colorectal cancer in Flanders, France, Basque country and the Netherlands, to identify factors to further optimize faecal immunochemical testing programmes. METHOD: Background information and data on performance indicators were collected and compared for the four programmes. RESULTS: Invitation method, reminders, funding, faecal immunochemical testing cut-off and follow-up after positive faecal immunochemical testing differed in the four programmes. In France, only an invitation letter is sent by mail, while the sample kit must be collected from the general practitioner. In the other programmes, an invitation letter including the sample kit is sent by mail. Participation rates vary substantially according to the method of invitation, with the highest participation rates in the Netherlands (73.0%) and Basque country (72.4%), followed by Flanders (54.5%) and France (28.6%). Basque country (92.8%) and France (88.4%), the two programmes with most active involvement of general practitioners in referral for colonoscopy, had the highest participation rates for colonoscopy. CONCLUSIONS: Large differences in screening participation observed between programmes according to the invitation method used suggest that changes to the design of the programme, such as including the sample kit with the invitation, or active involvement of GPs, might increase participation.

Ulyte, A., Wei, W., Dressel, H., et al. (2020). "Variation of colorectal, breast and prostate cancer screening activity in Switzerland: Influence of insurance, policy and guidelines." Plos One **15**(4): e0231409.

Variation in utilization of healthcare services is influenced by patient, provider and healthcare system characteristics. It could also be related to the evidence supporting their use, as reflected in the availability and strength of recommendations in clinical guidelines. In this study, we analyzed the geographic variation of colorectal, breast and prostate cancer screening utilization in Switzerland and the influence of available guidelines and different modifiers of access. Colonoscopy, mammography and prostate specific antigen (PSA) testing use in eligible population in 2014 was assessed with administrative claims data. We ran a multilevel multivariable logistic regression model and calculated Moran's I and regional level median odds ratio (MOR) statistics to explore residual geographic variation. In total, an estimated 8.1% of eligible persons received colonoscopy, 22.3% mammography and 31.3% PSA testing. Low deductibles, supplementary health insurance and enrollment in a managed care plan were associated with higher screening utilization. Cantonal breast cancer screening programs were also associated with higher utilization. Spatial clustering was observed in the raw regional utilization of all services, but only for prostate cancer screening in regional residuals of the multilevel model. MOR was highest for prostate cancer screening (1.24) and lowest for colorectal cancer screening (1.16). The reasons for the variation of the prostate cancer screening utilization, not recommended routinely without explicit shared decision-making, could be further investigated by adding provider characteristics and patient preference information. This first cross-comparison of different cancer screening patterns indicates that the strength of recommendations, mediated by specific health policies facilitating screening, may indeed contribute to variation.

Zamorano-Leon, J. J., López-de-Andres, A., Álvarez-González, A., et al. (2020). "Reduction from 2011 to 2017 in adherence to breast cancer screening and non-improvement in the uptake of cervical cancer screening among women living in Spain." Maturitas **135**: 27-33.

OBJECTIVES: To analyze the uptake of breast and cervical cancer screening according to the 2017 Spanish National Health Survey (SNHS), to compare uptake rates with those obtained in the previous SNHS 2011 and to identify predictors for the uptake for these two screening tests. STUDY DESIGN: Cross-sectional study. MAIN OUTCOME MEASURES: Uptake rates of breast cancer and cervical cancer screening were analyzed for women aged 40-69 and aged 25-65 years, respectively. Independent variables included sociodemographic characteristics and factors related to health status and lifestyle. RESULTS: We found that 66.8 % of women aged 40-69 years had undergone mammography in the previous two years. Positive predictors for mammography uptake were age (50-69 years); marital status (married); Spanish nationality; university education; one or more chronic diseases; no alcohol consumption; physical activity; body mass index <30 kg/m(2); and not smoking. We observed that 73.0 % of women aged 25-65 years had undergone cervical cytology screening in the previous three years. Positive predictors for uptake were age (25-52 years); marital status (married); Spanish nationality; middle-high educational level; no chronic diseases; no alcohol consumption; physical activity; body mass index <30 kg/m(2); and not smoking. There was a significant decrease in the uptake rate for breast cancer screening from the previous SNHS 2011 (OR 0.89; 95 % CI 0.83-0.94). CONCLUSIONS: The adherence rate for mammography in Spain in 2017 was below the recommended 70 % and was significantly lower than in 2011. The figures for cervical cancer screening were over 70 % and stable over time.

2019

Blanks, R. G., Given-Wilson, R. M., Cohen, S. L., et al. (2019). "An analysis of 11.3 million screening tests examining the association between recall and cancer detection rates in the English NHS breast cancer screening programme." Eur Radiol **29**(7): 3812-3819.

OBJECTIVE: To develop methods to model the relationship between cancer detection and recall rates to inform professional standards. METHODS: Annual screening programme information for each of the 80 English NHSBSP units (totalling 11.3 million screening tests) for the seven screening years from 1 April 2009 to 31 March 2016 and some Dutch screening programme information were used to produce linear and non-linear models. The non-linear models estimated the modelled maximum values (MMV) for cancers detected at different grades and estimated how rapidly the MMV was reached (the modelled 'slope' (MS)). Main outcomes include the detection rate for combined invasive/micro-invasive and high-grade DCIS (IHG) detection rate and the low/intermediate grade DCIS (LIG) detection rate. RESULTS: At prevalent screens for IHG cancers, 99% of the MMV was reached at a recall rate of 7.0%. The LIG detection rate had no discernible plateau, increasing linearly at a rate of 0.12 per 1000 for every 1% increase in recall rate. At incident screens, 99% of the MMV for IHG cancer detection was 4.0%. LIG DCIS increased linearly at a rate of 0.18 per 1000 per 1% increase in recall rate. CONCLUSIONS: Our models demonstrate the diminishing returns associated with increasing recall rates. The screening programme in England could use the models to set recall rate ranges, and other countries could explore similar methodology. KEY POINTS: • Question: How can we determine optimum recall rates in breast cancer screening? • Findings: In this large observational study, we show that increases in recall rates above defined levels are almost exclusively associated with false positive recalls and a very small increase in low/intermediate grade DCIS. • Meaning: High recall rates are not associated with increases in detection of life-threatening cancers. The models developed in this paper can be used to help set recall rate ranges that maximise benefit and minimise harm.

Blay, L., Louro, J., Barata, T., et al. (2019). "Variability of breast surgery in women participating in breast cancer screening programs." Cir Esp (Engl Ed) **97**(2): 89-96.

INTRODUCTION: Currently, variability in surgical practice is a problem to be solved. The aim of this study is to describe the variability in the surgical treatment of breast cancer and to analyze the factors associated with it. METHODS: The study population included 1057 women diagnosed with breast cancer and surgically treated. Our data were from the CaMISS retrospective cohort. RESULTS: The mean age at diagnosis was 59.3 ± 5 years. A total of 732 patients were diagnosed through screening mammograms and 325 patients as interval cancers. The mastectomy surgery was more frequent in the tumors detected between intervals (OR=2.5; [95%CI: 1.8-3.4]), although this effect disappeared when we adjusted for the rest of the variables. The most important factor associated with performing a mastectomy was TNM: tumors in stage III-IV had an OR of 7.4 [95%CI: 3.9-13.8], increasing in adjusted OR to 21.7 [95%CI: 11.4-41.8]. Histologically, infiltrating lobular carcinoma maintains significance in adjusted OR (OR=2.5; [95%CI: 1.4-4.7]). According to the screening program, there were significant differences in surgical treatment. Program 3 presented an OR of non-conservative surgery of 4.0 [95%CI: 1.8-8.9]. This program coincided with the highest percentage of reconstruction (58.3%). CONCLUSIONS: This study shows that, despite taking into account patient and tumor characteristics, there is great variability in the type of surgery depending on the place of diagnosis.

Borrull-Guardeño, J., Domínguez, A., Merizalde-Torres, M. H., et al. (2019). "Cervical Cancer Screening in Women With Severe Mental Disorders: An Approach to the Spanish Context." Cancer Nurs **42**(4): E31-e35.

BACKGROUND: The incidence of invasive cervical cancer and its mortality have been reduced through primary and secondary prevention. Screening rates tend to be lower in vulnerable groups, such as people with severe mental disorders, who have a later detection of cancer and a higher mortality. The access of these women to cervical cancer screening is uncertain in our context. OBJECTIVE: The aim of this study was to determine the cervical cancer screening rates in women with severe mental disorders. METHODS: This was a descriptive cross-sectional study. Women 25 to 65 years old who were admitted during 2016 to the psychiatric unit of a public hospital in Spain were included in the study, and it was determined if they had had cervical cancer screening. RESULTS: A total of 103 eligible women, with a mean age of 45.6 years, were enrolled. Only 28 of the participants (27.2%) had had a cervical cancer screening done in the last 5 years. By age groups, statistically significant differences were found, with women between 35 and 44 years of age having higher rates of cervical cancer screening (41.9%) and the oldest, between 55 and 65 years of age, having the lowest (5%). CONCLUSIONS: Women with severe mental health disorders who were admitted to acute psychiatric care units had much lower cervical cancer screening rates compared with the general population. IMPLICATIONS FOR PRACTICE: Mental health nurses could be the optimum professionals to promote cancer primary and secondary prevention in women with mental disorders.

Braillon, A. (2019). "Is the national Danish colorectal cancer screening programme a success?" Cancer Epidemiol **58**: 199.

Buskermolen, M., Cenin, D. R., Helsingen, L. M., et al. (2019). "Colorectal cancer screening with faecal immunochemical testing, sigmoidoscopy or colonoscopy: a microsimulation modelling study." Bmj **367**: l5383.

OBJECTIVE: To estimate benefits and harms of different colorectal cancer screening strategies, stratified by (baseline) 15-year colorectal cancer risk. DESIGN: Microsimulation modelling study using MIcrosimulation SCreening ANalysis-Colon (MISCAN-Colon). SETTING: A parallel guideline committee (BMJ Rapid Recommendations) defined the time frame and screening interventions, including selection of outcome measures. POPULATION: Norwegian men and women aged 50-79 years with varying 15-year colorectal cancer risk (1-7%). COMPARISONS: Four screening strategies were compared with no screening: biennial or annual faecal immunochemical test (FIT) or single sigmoidoscopy or colonoscopy at 100% adherence. MAIN OUTCOME MEASURES: Colorectal cancer mortality and incidence, burdens, and harms over 15 years of follow-up. The certainty of the evidence was assessed using the GRADE approach. RESULTS: Over 15 years of follow-up, screening individuals aged 50-79 at 3% risk of colorectal cancer with annual FIT or single colonoscopy reduced colorectal cancer mortality by 6 per 1000 individuals. Single sigmoidoscopy and biennial FIT reduced it by 5 per 1000 individuals. Colonoscopy, sigmoidoscopy, and annual FIT reduced colorectal cancer incidence by 10, 8, and 4 per 1000 individuals, respectively. The estimated incidence reduction for biennial FIT was 1 per 1000 individuals. Serious harms were estimated to be between 3 per 1000 (biennial FIT) and 5 per 1000 individuals (colonoscopy); harms increased with older age. The absolute benefits of screening increased with increasing colorectal cancer risk, while harms were less affected by baseline risk. Results were sensitive to the setting defined by the guideline panel. Because of uncertainty associated with modelling assumptions, we applied a GRADE rating of low certainty evidence to all estimates. CONCLUSIONS: Over a 15 year period, all screening strategies may reduce colorectal cancer mortality to a similar extent. Colonoscopy and sigmoidoscopy may also reduce colorectal cancer incidence, while FIT shows a smaller incidence reduction. Harms are rare and of similar magnitude for all screening strategies.

Czwikla, J., Urbschat, I., Kieschke, J., et al. (2019). "Assessing and Explaining Geographic Variations in Mammography Screening Participation and Breast Cancer Incidence." Frontiers in Oncology **9**: 909.
https://www.frontiersin.org/article/10.3389/fonc.2019.00909

Investigating geographic variations in mammography screening participation and breast cancer incidence help improve prevention strategies to reduce the burden of breast cancer. This study examined the suitability of health insurance claims data for assessing and explaining geographic variations in mammography screening participation and breast cancer incidence at the district level. Based on screening unit data (1,181,212 mammography screening events), cancer registry data (13,241 incident breast cancer cases) and claims data (147,325 mammography screening events; 1,778 incident breast cancer cases), screening unit and claims-based standardized participation ratios (SPR) of mammography screening as well as cancer registry and claims-based standardized incidence ratios (SIR) of breast cancer between 2011 and 2014 were estimated for the 46 districts of the German federal state of Lower Saxony. Bland-Altman analyses were performed to benchmark claims-based SPR and SIR against screening unit and cancer registry data. Determinants of district-level variations were investigated at the individual and contextual level using claims-based multilevel logistic regression analysis. In claims and benchmark data, SPR showed considerable variations and SIR hardly any. Claims-based estimates were between 0.13 below and 0.14 above (SPR), and between 0.36 below and 0.36 above (SIR) the benchmark. Given the limited suitability of health insurance claims data for assessing geographic variations in breast cancer incidence, only mammography screening participation was investigated in the multilevel analysis. At the individual level, 10 of 31 Elixhauser comorbidities were negatively and 11 positively associated with mammography screening participation. Age and comorbidities did not contribute to the explanation of geographic variations. At the contextual level, unemployment rate was negatively and the proportion of employees with an academic degree positively associated with mammography screening participation. Unemployment, income, education, foreign population and type of district explained 58.5% of geographic variations. Future studies should combine health insurance claims data with individual data on socioeconomic characteristics, lifestyle factors, psychological factors, quality of life and health literacy as well as contextual data on socioeconomic characteristics and accessibility of mammography screening. This would allow a comprehensive investigation of geographic variations in mammography screening participation and help to further improve prevention strategies for reducing the burden of breast cancer.

Douma, L. N., Uiters, E. et Timmermans, D. R. M. (2019). "Do people with a different goal-orientation or specific focus make different decisions about colorectal cancer-screening participation?" Plos One **14**(2): e0213003.

OBJECTIVE: Previous studies have shown that having promotion-oriented goals (e.g. wanting to become healthy) or prevention-oriented goals (e.g. wanting to avoid getting ill) can affect people's health-related decisions and behaviour by emphasising aspects and information that seem relevant in light of what they want to achieve. However, this issue has not yet been researched regarding colorectal cancer (CRC) screening. With our study, we aimed to examine the relationship between people's goal-orientation or focus on advantages or disadvantages and their CRC screening participation, as this could provide insights for supporting people in making this complex decision. METHODS: An online survey was carried out among a sample of first-time CRC screening invitees (1282 respondents, response rate 49%). We assessed people's goal-orientation (i.e. promotion-orientation and prevention-orientation), focus on the advantages or disadvantages of CRC screening, screening participation and main considerations (e.g. cancer is a serious illness) concerning their screening decision. RESULTS: Generally, CRC screening participants scored higher on both promotion-orientation and prevention-orientation than non-participants. Both CRC screening participation and non-participation were not associated with a dominant goal-orientation. CRC screening participants did show a dominant focus on the advantages of CRC screening. Mediation analysis showed support for our premise that the relationship between people's goal-orientation or focus on advantages or disadvantages and their screening participation could be (partially) mediated by people's main considerations concerning CRC screening. CONCLUSION: CRC screening participants and non-participants differed in their goal-orientation and focus on advantages or disadvantages. CRC screening participation appears to be associated with a focus on the advantages of CRC screening, which could impede the making of an informed decision. CRC screening non-participation appears not to be associated with any clear goal-orientation or focus, or we have not yet managed to capture this, which could be either beneficial or problematic for making an informed decision.

Elfström, K. M., Sundström, K., Andersson, S., et al. (2019). "Increasing participation in cervical screening by targeting long-term nonattenders: Randomized health services study." Int J Cancer **145**(11): 3033-3039.

High screening participation in the population is essential for optimal prevention of cervical cancer. Offering a high-risk human papillomavirus (HPV) self-test has previously been shown to increase participation. In this randomized health services study, we evaluated four strategies with regard to participation. Women who had not attended organized cervical screening in 10 years were eligible for inclusion. This group comprised 16,437 out of 413,487 resident women ages 33-60 (<4% of the screening target group). Among these 16,437 long-term nonattenders, 8,000 women were randomized to either (i) a HPV self-sampling kit sent directly; (ii) an invitation to order a HPV self-sampling kit using a new open source eHealth web application; (iii) an invitation to call a coordinating midwife with questions and concerns; or (iv) the standard annual renewed invitation letter with prebooked appointment time (routine practice). Overall participation, by arm, was (i) 18.7%; (ii) 10.7%; (iii) 1.9%; and (iv) 1.7%. The relative risk of participation in Arm 1 was 11.0 (95% CI 7.8-15.5), 6.3 (95% CI 4.4-8.9) in Arm 2 and 1.1 (95% CI 0.7-1.7) in Arm 3, compared to Arm 4. High-risk HPV prevalence among women who returned kits in study Arms 1 and 2 was 12.2%. In total, 63 women were directly referred to colposcopy from Arms 1 and 2; of which, 43 (68.3%) attended and 17 had a high-grade cervical lesion (CIN2+) in histology (39.5%). Targeting long-term nonattending women with sending or offering the opportunity to order self-sampling kits further increased the participation in an organized screening program.

Esquivel-Sada, D., Lévesque, E., Hagan, J., et al. (2019). "Envisioning Implementation of a Personalized Approach in Breast Cancer Screening Programs: Stakeholder Perspectives." Healthc Policy **15**(2): 39-54.

BACKGROUND: Advances in genomics and epidemiology can foster the implementation of a risk-based approach to current age-based breast cancer screening programs. This personalized approach would challenge the trajectory for women in the healthcare system by adding both a risk-assessment step (including a genomic test) and screening options. OBJECTIVE: The aim of this study is to explore, from an organizational perspective, the acceptability of different proposals for each step of the trajectory for women in the healthcare system should a personalized approach be implemented in the province of Quebec. METHODS: We interviewed 20 professional stakeholders who are either involved in the current breast cancer screening program in Quebec or who are likely to play a role in the future implementation of a personalized risk-based approach. RESULTS|DISCUSSION: Preferences are split between proposals supporting self-management by the women themselves (e.g., solicitation through media campaign, self-collection of information and sample and results provided by letter) and proposals prioritizing more interaction between women and healthcare providers (e.g., solicitation by health professionals, collection of information and samples by a nurse and results provided by health professionals).

Goossens, M., De Brabander, I., De Grève, J., et al. (2019). "Flemish breast cancer screening programme: 15 years of key performance indicators (2002-2016)." BMC Cancer **19**(1): 1012.

BACKGROUND: We examined 15 years of key performance indicators (KPIs) of the population-based mammography screening programme (PMSP) in Flanders, Belgium. METHODS: Individual screening data were linked to the national cancer registry to obtain oncological follow-up. We benchmarked crude KPI results against KPI-targets set by the European guidelines and KPI results of other national screening programmes. Temporal trends were examined by plotting age-standardised KPIs against the year of screening and estimating the Average Annual Percentage Change (AAPC). RESULTS: PMSP coverage increased significantly over the period of 15 years (+ 7.5% AAPC), but the increase fell to + 1.6% after invitation coverage was maximised. In 2016, PMSP coverage was at 50.0% and opportunistic coverage was at 14.1%, resulting in a total coverage by screening of 64.2%. The response to the invitations was 49.8% in 2016, without a trend. Recall rate decreased significantly (AAPC -1.5% & -5.0% in initial and subsequent regular screenings respectively) while cancer detection remained stable (AAPC 0.0%). The result was an increased positive predictive value (AAPC + 3.8%). Overall programme sensitivity was stable and was at 65.1% in 2014. In initial screens of 2015, the proportion of DCIS, tumours stage II+, and node negative invasive cancers was 18.2, 31.2, and 61.6% respectively. In subsequent regular screens of 2015, those proportions were 14.0, 24.8, and 65.4% respectively. Trends were not significant. CONCLUSION: Besides a suboptimal attendance rate, most KPIs in the Flemish PMSP meet EU benchmark targets. Nonetheless, there are several priorities for further investigation such as a critical evaluation of strategies to increase screening participation, organising a biennial radiological review of interval cancers, analysing the effect that preceding opportunistic screening has on the KPI for initial screenings, and efforts to estimate the impact on breast cancer mortality.

Hertzum-Larsen, R., Kjær, S. K., Frederiksen, K., et al. (2019). "Participation in cervical cancer screening among immigrants and Danish-born women in Denmark." Prev Med **123**: 55-64.

In this nationwide register-based cohort study, we examined cervical cancer screening participation among immigrants in Denmark by country and region of origin. Furthermore, we assessed whether differences in screening participation between immigrants and Danish-born women were explained by sociodemographic or health-related characteristics, and examined predictors of participation among immigrants. Using high-quality registries, we identified women invited for cervical cancer screening during 2008-2009 and retrieved individual-level data on sociodemographic-, health- and immigration-related characteristics. A total of 610,907 women were followed for up to 2.9 years after screening invitation. We estimated the probability of participation using the Aalen-Johansen estimator and the hazard ratios (HRs) of participation using Cox regression. The probability of participation within follow-up was 74.5% (95% CI, 74.4%-74.6%) in Danish-born women; 61.2% (95% CI, 60.4%-62.1%) in Western immigrants; and 61.3% (95% CI, 60.9%-61.8%) in non-Western immigrants. Participation in immigrants varied by region of origin from 44.3% (95% CI, 41.4%-47.4%) in immigrants from North America, New Zealand and Australia to 67.8% (95% CI, 65.4%-70.3%) in immigrants from South- and Central America. Substantial variation was seen between specific countries of origin. Differences in participation between immigrants and Danish-born women were not explained by sociodemographic or health-related characteristics. Predictors of low participation in immigrants included lower income, unemployment, being unmarried, having a history of schizophrenia or other psychoses, and ≤5 years' stay in Denmark. In conclusion, cervical cancer screening participation in immigrants varied by region and country of origin, but all immigrant groups had lower participation than Danish-born women.

Hoff, G., Ursin, G., Løberg, M., et al. (2019). "Continuous development of colorectal cancer screening programs." Acta Oncol **58**(6): 822-823.

Colorectal cancer (CRC) screening programs are far from perfect. Many crucial questions remain, yet expensive CRC screening services are implemented throughout the world without a plan on how to evaluate and improve the service. The time is ripe for improving the design of CRC screening programs.

Iwamoto, Y., Kaucher, S., Lorenz, E., et al. (2019). "Development of breast cancer mortality considering the implementation of mammography screening programs - a comparison of western European countries." BMC Public Health **19**(1): 823.

BACKGROUND: Triggered by the successive implementation of organized mammography screening programs (MSPs) throughout western European countries over the last decades, there is an ongoing debate questioning their effectiveness. Since it is difficult to assess the effect of MSPs on a population level, we rather aim to assess the impact of the implementation itself on breast cancer mortality rates utilizing an ecological study design. METHODS: We analyzed age group-specific (50-59, 60-69 and 70-79 years) female breast cancer mortality rates in 14 western European countries between 1980 and 2017 using Joinpoint regression, interrupted time series (ITS) regression and multivariable Poisson regression. RESULTS: The Joinpoint analysis demonstrated decreasing trends resulting in annual percentage changes ranging from - 1.5% to - 5.4% (50-59), - 0.2% to - 8.1% (60-69) and 0% to - 7.1% (70-79) depending on the country within 3 years after MSP implementation. The ITS analysis results in highly significant interaction terms (calendar year * binary MSP indicator) for all age groups. The multivariable regression using "calendar year", "year of MSP implementation" and "years with MSP" as independent variables yielded a significant yearly decrease for "years with MSP" ranging from 0.9 to 1.2%. CONCLUSIONS: The results of this study suggest a positive association between the implementation of MSPs and the (accelerated) reduction of breast cancer mortality rates. Measuring and quantifying the isolated effect of MSPs on a population level will require additional studies using individual data.

Jonmarker, O., Strand, F., Brandberg, Y., et al. (2019). "The future of breast cancer screening: what do participants in a breast cancer screening program think about automation using artificial intelligence?" Acta Radiol Open **8**(12): 2058460119880315.

BACKGROUND: If screening participants do not trust computerized decision-making, screening participation may be affected by the introduction of such methods. PURPOSE: To survey breast cancer screening participants' attitudes towards potential future uses of computerization. MATERIAL AND METHODS: A survey was constructed. Women in a breast cancer screening program were invited via the final report letter to participate. Data were collected from February 2018 to March 2019 and 2196 surveys were completed. Questions asked participants to rate propositions using Likert scales. Data analysis was done using χ(2) and logistic regression tests. RESULTS: The mean age of participants was 61 years. Response rate was 1.3%. Of the submitted surveys, 97.5% were complete; 38% of respondents reported a preference for a computer-only examination. The highest level of confidence was given a computer-only reading followed by a physician reading. Participants with > 12 years of education were more likely to prefer a computer-only reading (odds ratio [OR] 1.655, 95% confidence interval [CI] 1.168-2.344), had a greater trust in letting a computer determine screening intervals and the need for a supplemental MRI (OR 1.606, 95% CI 1.171-2.202 and OR 1.577, 95% CI 1.107-2.247, respectively). Age was not found to be a significant predictor. CONCLUSION: A high level of trust in computerized decision-making was expressed. Higher age was associated with a lower understanding of technology but did not affect attitudes to computerized decision-making. A lower level of education was associated with a lower trust in computerization. This may be valuable knowledge for future studies.

Kivés, Z., Kovács, A., Budai, A., et al. (2019). "[Quality and performance indicators of colorectal cancer screening pilot program in Csongrád County, Hungary]." Magy Onkol **63**(2): 125-132.

Colorectal cancer is a major social and economic burden for developed countries. Our analysis aimed to evaluate the quality and performance indicators of colorectal cancer screening pilot program. The colon cancer screening pilot program was carried out in 2015 involving an average-risk population aged 50-69 in Csongrád county, Hungary. The analysis involved data from the Communication module of the Office of the National Chief Medical Officer. We recorded 21.1% invitation rate (22,130 persons), 51.2% attendance and 47.3% participation rates, with a higher female participation rate (p<0.001). Participation rate was far lower than the expected 65%. The rate of non-negative results (13.1%) exceeds the international reference rate. Participation rate on the colonoscopy screening (90.1%) reached the expected value. Compared to the number of actual colonoscopies performed, adenomas were found in 2.5% and malignant lesions in 0.3% of the cases. Our results highlight the deficiencies regarding the follow-up and data recording of screening results in the IT system as well as the lack of communication between the GP and the diagnostic laboratories.

Kroupa, R., Ondrackova, M., Kovalcikova, P., et al. (2019). "Viewpoints of the target population regarding barriers and facilitators of colorectal cancer screening in the Czech Republic." World J Gastroenterol **25**(9): 1132-1141.

BACKGROUND: Public awareness of colorectal cancer (CRC) and uptake of CRC screening remain challenges. The viewpoints of the target population (asymptomatic individuals older than 50) regarding CRC screening information sources and the reasons for and against participation in CRC screening are not well known in the Czech Republic. This study aimed to acquire independent opinions from the target population independently on the health system. AIM: To investigate the viewpoints of the target population regarding the source of information for and barriers and facilitators of CRC screening. METHODS: A survey among relatives (aged 50 and older) of university students was conducted. Participants answered a questionnaire about sources of awareness regarding CRC screening, reasons for and against participation, and suggestions for improvements in CRC screening. The effect of certain variables on participation in CRC screening was analyzed. RESULTS: Of 498 participants, 478 (96%) respondents had some information about CRC screening and 375 (75.3%) had participated in a CRC screening test. General practitioners (GPs) (n = 319, 64.1%) and traditional media (n = 166, 33.3%) were the most common information sources regarding CRC screening. A lack of interest or time and a fear of colonoscopy or positive results were reported as reasons for non-participation. Individuals aged > 60 years [adjusted odds ratio (aOR) = 2.30, 95% confidence interval (CI) (1.42-3.71), P = 0.001], females (aOR = 1.95, 95%CI (1.26-3.01) P = 0.003), and relatives of CRC patients (aOR = 4.17, 95%CI (1.82-9.58) P = 0.001) were more likely to participate in screening. Information regarding screening provided by physicians - GPs: (aOR = 8.11, 95%CI (4.90-13.41), P < 0.001) and other specialists (aOR = 4.19, 95%CI (1.87-9.38), P = 0.001) increased participation in screening. Respondents suggested that providing better explanations regarding screening procedures and equipment for stool capturing could improve CRC screening uptake. CONCLUSION: GPs and other specialists play crucial roles in the successful uptake of CRC screening. Reduction of the fear of colonoscopy and simple equipment for stool sampling might assist in improving the uptake of CRC screening.

Laroussy, L., Ameijide, A., Saladié, F., et al. (2019). "[Participation of the immigrant population in breast cancer screening in Tarragona, Spain]." Gac Sanit **33**(5): 468-471.

OBJECTIVE: To evaluate the differences between autochthonous and allochthonous women's participation in a breast cancer screening programme. METHOD: Retrospective study based on data from the Breast Cancer Screening Programme of the province of Tarragona (2008-2015). The sample is the target population of the programme with known country of origin. RESULTS: Cohort of 40,824 women. Allochthonous women participate less than autochthonous women (41.8% vs. 72.3%) although they have a similar global detection rate to the latter but with differences according to the human development index of their country of origin. Both groups present similar tumour stages on detection (p=.59). CONCLUSIONS: Strategies specifically aimed at the immigrant population are required to improve their participation in breast cancer screening.

Møller, M. H., Lousdal, M. L., Kristiansen, I. S., et al. (2019). "Effect of organized mammography screening on breast cancer mortality: A population-based cohort study in Norway." Int J Cancer **144**(4): 697-706.

We aimed to estimate the effect of organized mammography screening on incidence-based breast cancer mortality by comparing changes in mortality among women eligible for screening to concurrent changes in younger and older ineligible women. In a county-wise balanced, open-cohort study, we used birth cohorts (1896-1982) to construct three age groups in both the historical and screening period: women eligible for screening, and younger or older women ineligible for screening. We included women diagnosed with breast cancer who died within the same age-period group during 1987-2010 (n = 4,903). We estimated relative incidence-based mortality rate ratios (relative MRR) comparing temporal changes in eligible women to concurrent changes in ineligible women. Additionally, we conducted analyses comparing the change in eligible women to younger, ineligible women with either continued accrual and follow-up period (eligible women only) or continued follow-up period. All three age groups experienced a reduction in mortality, but the decrease among eligible women was about the same among ineligible women (relative MRR = 1.05, 95% CI: (0.94-1.18)). Varying the definition of follow-up yielded similar results. Mammography screening was not associated with a larger breast cancer mortality reduction in women eligible relative to ineligible women.

Paulauskiene, J., Ivanauskiene, R., Skrodeniene, E., et al. (2019). "Organised Versus Opportunistic Cervical Cancer Screening in Urban and Rural Regions of Lithuania." Medicina (Kaunas) **55**(9).

Background and Objectives: In 2004, Lithuania started the Nationwide Cervical Cancer Screening Programme. However, screening is more opportunistic than population-wide and the programme's coverage is insufficient. The aim of this study was to assess the effect of systematic personal invitation on coverage of cervical cancer (CC) screening in urban and rural regions of Lithuania. Materials and Methods: The study was conducted in an urban primary healthcare centre (PHCC) and in a rural PHCC, where prevailing CC screening practice was highly opportunistic. Over the first year, all women aged 25-60 who had not received a Pap smear test within the last three years in urban (n = 1591) and rural (n = 1843) PHCCs received a personal invitation letter to participate in the screening. Over the second year, the reminder letter was sent to the non-attendees (n = 1042 in urban and n = 929 in rural PHCCs). A random sample of women (n = 93), who did not attend for screening after two letters, was contacted by phone in order to identify the barriers of non-attendance. Results: Before the study, only 9.6% of the target population in urban and 14.7% in rural PHCCs participated in CC screening. After the first invitation letter, the participation in CC screening increased up to 24.6% in urban and 30.8% in rural areas (p < 0.001). After the reminder letter, the attendance was 16.4% in urban and 22.2% in rural PHCCs (p < 0.001). The most common barriers for the non-attendance were lack of time, long waiting time for family doctor's appointment, worries that a Pap test might be unpleasant and preventive gynaecological examination outside of the screening program. Conclusions: A systematic personal invitation with one reminder letter significantly increased the coverage of CC screening and was more effective in rural regions than in urban regions. The assessed barriers for non-attendance can be used to improve the coverage of screening.

Peintinger, F. (2019). "National Breast Screening Programs across Europe." Breast Care **14**(6): 354-358.
https://www.karger.com/DOI/10.1159/000503715

Mammography screening programs in Europe revealed a 25–30% breast cancer mortality reduction in women between 50 and 74 years. Early cancer detection and less radical treatment in dedicated multidisciplinary breast centers have improved breast cancer care. Breast population-based screening (persons are individually identified and personally invited to attend screening) is intended to detect breast cancer at an early stage to enable lower mortality rates. <i>Methods:</i> The status of implementation of cancer screening programs among European countries, quality parameters and possible differences will be reviewed. <i>Results:</i> Implementation of the recommended maximum age range was adopted in most programs. Almost all the European countries established digital mammography as the method of screening instead of screen-film mammography. Inequalities in implementation of cancer screening in the European Union have been observed. <i>Conclusion:</i> Improvement of data quality and mortality registries linked to the screening programs are needed.

Pienaar, K., Petersen, A. et Bowman, D. M. (2019). "Matters of fact and politics: Generating expectations of cancer screening." Soc Sci Med **232**: 408-416.

Many countries, including Australia, the United Kingdom and the United States have established national screening programs in the effort to advance the early diagnosis of cancers. Australia has population screening programs for breast, bowel and cervical cancers, and this article focuses on breast and cervical cancer screening as the two longest running programs in Australia. While these screening programs are well-established and report relatively high participation rates, the effectiveness of population screening is a contested issue, subject to significant, ongoing debate about its purported benefits (Armstrong, 2019). In this article, we draw on ideas from sociology of science on the construction of scientific facts to analyse how evidentiary claims are presented in policy documents for Australia's breast and cervical cancer screening programs, and the implications for those who are the targets of screening. We explore how screening-related information assumes the status of scientific 'facts', and argue that presenting information as neutral and objective obscures the political choices involved in its generation. Importantly, some of the claims presented in the policy documents have a tendency to emphasise the benefits, and minimise the risks and harms of population-based screening. In doing so, we suggest that the current national policies may be contributing to sustaining expectations of screening that are higher than warranted. Higher expectations may bring with them unintended societal and economic costs to the public. We conclude by noting how deeply ingrained socio-cultural meanings of cancer shape public expectations of the protective value of screening, which allows current screening approaches to become further entrenched and resistant to challenge.

Quaife, S. L., Waller, J., von Wagner, C., et al. (2019). "Cancer worries and uptake of breast, cervical, and colorectal cancer screening: A population-based survey in England." J Med Screen **26**(1): 3-10.

OBJECTIVE: Some degree of general worry about cancer may facilitate screening participation, but specific worries about the potential consequences (e.g. treatment, death) may act as deterrents. No studies have examined these associations in the same sample. We assessed associations between general versus specific cancer worries and cancer screening participation. METHODS: In 2016, a population-based cross-sectional survey of adults living in England was carried out. This paper reports analyses of a subsample (n = 1694). Measures included (i) frequency of general cancer worry, (ii) specific worries about the emotional and physical consequences of a cancer diagnosis, and (iii) specific worries about the social consequences of a cancer diagnosis. Logistic regression analyses examined their association with self-reported screening uptake among participants eligible for cervical (n = 671), breast (n = 323), and colorectal (n = 368) cancer screening. RESULTS: Frequency of general cancer worry was not associated with screening participation. Specific worry about the emotional and physical consequences increased the odds of participants reporting regular uptake of colorectal screening (OR 1.41, 95% CI 1.04-1.90). Specific worry about the social consequences of diagnosis was negatively associated with regular attendance for cervical and breast screening in unadjusted analyses only. In adjusted models, the associations were no longer statistically significant for cervical (OR 0.82, 95% CI 0.65-1.03) or breast (OR 0.69, 95% CI 0.45-1.04) screening. CONCLUSIONS: Specific worries about cancer may be differentially associated with participation across screening programmes. Further research is needed, as interventions to optimise informed participation may be improved if the specific worries associated with low participation in each programme are understood.

Ross, E., Maguire, A., Donnelly, M., et al. (2019). "Does poor mental health explain socio-demographic gradients in breast cancer screening uptake? A population-based study." European Journal of Public Health **30**(3): 396-401.
https://doi.org/10.1093/eurpub/ckz220

Research from the USA indicates disparities in breast cancer screening uptake for women with poor mental health. However, no attempt has been made to examine the contribution of poor mental health to socio-demographic variations in breast screening uptake. The current study aims to examine the impact of self-reported chronic poor mental health on attendance at breast screening in the UK, and to what extent this explains socio-demographic inequalities in screening uptake.Breast screening records were linked to 2011 Census records within the Northern Ireland Longitudinal Study. This identified a cohort of 57 328 women who were followed through one 3-year screening cycle of the National Health Service Breast Screening Programme. Information on mental health status, in addition to other individual and household-level attributes, was derived from the 2011 Census. Logistic regression was employed to calculate odds ratios (ORs) and 95% confidence intervals (CIs) of attendance at screening.10.7% of women in the cohort reported poor mental health, and in fully adjusted analyses, these individuals were 23% less likely to attend breast screening (OR 0.77; 95% CI 0.73–0.82). Although poor mental health was a strong predictor of screening uptake, it did not explain the observed inequalities in uptake by socio-economic status, marital status, or area of residence.This study provides novel evidence of inequalities in breast screening uptake for women with chronic poor mental health in the UK. Targeted interventions are necessary to ensure equitable screening access and to enhance overall mortality benefit.

Selva, A., Torà, N., Pascual, E., et al. (2019). "Effectiveness of a brief phone intervention to increase participation in a population-based colorectal cancer screening programme: a randomized controlled trial." Colorectal Dis **21**(10): 1120-1129.

AIM: Although colorectal cancer (CRC) screening reduces mortality and morbidity the uptake in target populations is suboptimal. The aim was to assess whether adding a brief phone intervention to the usual invitation process increases participation in a CRC screening programme based in Catalonia. METHOD: This was a non-blinded prospective randomized control study of patients eligible for their first CRC screening test (immunochemical faecal occult blood test). Between March and December 2017, 512 invitees (age range 50-69 years) were randomized to receiving either a brief informative phone call prior to receiving the standard screening invitation (letter and informative brochure) or the standard screening invitation alone. The primary outcome was participation in the screening programme at 6 months. RESULTS: In all, 492/512 patients (54.7% women; 45.3% men) could be analysed (239/256 intervention group; 253/256 control group). On an intention to treat basis, the intervention group (55% women; 45% men) saw an 11% increase in the participation rate (51.05% vs 40.32%, P = 0.017). The intervention was more effective in male patients (50.93% vs 33.91%, P = 0.01) and those patients aged between 50 and 54 years (54.32% vs 37.77%, P = 0.03). After adjusting for sex, age and geographic area, the benefit of the intervention remained statistically significant (adjusted OR 1.54, 95% CI 1.07-2.20). CONCLUSION: Our data suggest that a brief, informative intervention by phone in addition to the usual invitation process is effective in increasing participation in a CRC screening programme. It may be a useful strategy to improve uptake in groups which are less likely to participate in CRC screening (clinicaltrials.gov NCT03082911).

Steponaviciene, L., Vincerzevskiene, I., Briediene, R., et al. (2019). "Breast Cancer Screening Program in Lithuania: Interval Cancers and Program Sensitivity After 7 Years of Mammography Screening." Cancer Control **26**(1): 1073274819874122.

OBJECTIVE: Analysis of interval cancers is critical in determining the sensitivity of screening and represents an objective measure of the quality of mammography screening program (MSP). METHODS: Period analyzed: from 2006 to 2012. The rate of screen-detected, interval cancers and program sensitivity were measured. A comparison of screen-detected and interval cancers was performed. RESULTS: During the period of the study, 429 473 women were screened and 1297 were found to have cancer. The overall screen-detected cancer rate was 30.2 per 10 000 women screened. Four hundred thirty-one case of interval cancers have occurred during the period of the study. The interval cancer ratio (ICR) was 0.25. Overall sensitivity of MSP amounted to 75.1%. Slightly lower sensitivity was found among the youngest age-group, especially for those with lobular cancers. Interval cancers were bigger in size, more often with metastases in lymph nodes, than screen-detected cancers, but these differences were not statistically significant. CONCLUSIONS: Overall program sensitivity in Lithuania is about 75%, ICR is 0.25, and these parameters are comparable to other European countries.

Stoffel, S., Benito, L., Milà, N., et al. (2019). "Testing behavioral interventions to optimize participation in a population-based colorectal cancer screening program in Catalonia, Spain." Prev Med **119**: 58-62.

The aim of the study was to measure the effect of three cost-neutral behavioral interventions on participation compared to the standard invitation letter in a population-based colorectal cancer screening program in 2014. For that purpose, a four-arm randomized field trial was conducted among 5077 individuals aged 50 to 69 years. Over an 8-week period, each week was randomly allocated to the intervention or the control conditions. Individuals assigned to the intervention conditions additionally received a prompt to write down the date to pick up the screening test in a pharmacy. Two of the three intervention groups also included an additional paragraph in the invitation letter on either: 1) the high proportion of individuals participating regularly (social norms condition) or 2) the importance of regular participation (benefit condition). We measured screening participation before and after receiving a reminder letter six weeks after the screening invitation. An overall 8.0 percentage point increase in CRC screening was achieved as a direct result of receiving a reminder letter; however none of the intervention strategies influenced participation. The only significant difference was found for newly invited individuals. There, participation rates decreased from 34.9% to 24.2% when the invitation mailing mentioned the importance of regular participation (OR: 0.60; 95% CI: 0.38-0.95). While none of the intervention strategies improved participation rates we found that praising the benefit of regular screening may discourage individuals who have never been invited before as the continuous behavior may be perceived as a large request. Nevertheless, the reminder letter boosted participation rates independently of the intervention assigned.

Travier, N., Vidal, C., Garcia, M., et al. (2019). "Communication Channels Used by Women to Contact a Population-Based Breast Cancer Screening Program in Catalonia, Spain." J Med Syst **43**(8): 244.

Communication is a corner stone of population-based breast cancer screening programs that need to invite all the women from their target population and provide them with balanced information on screening to guaranty informed participation. Invited women also need to be able to contact screening programs to get further information on screening procedures and/or cancel and reschedule appointments. This study describes the communication channels used by women invited for breast cancer screening to contact the program. The study population consisted of 141,684 women, aged 50-69 years, who were invited during 2015-2016 for screening by the Catalan Breast Cancer Screening Program (Spain). Multiple logistic regression models were performed to assess the association between age, screening history, socioeconomic status and reasons for contacting the program and the outcome variables (contact with the program; contact through information and communication technology (ICT) channels). Among the 141,684 women invited for BC screening, 22.5% contacted the screening office mainly to reschedule (42.2%) and cancel (29.2%) appointments. While the communication channel mostly used was the telephone, 24.8% of the women used ICT. ICT was more frequently used by women who had never been screened. Women who wanted to change their appointment were 65% (OR 1.65, 95%CI 1.54-1.76) more likely to use ICT than women who wanted to cancel it. This study showed the need to reinforce communication between women and breast cancer screening programs and the importance of offering communication channels suiting all women's needs to facilitate appointments' rescheduling and cancelling and therefore improve screening programs' efficiency.

Woudstra, A. J., Smets, E. M. A., Dekker, E., et al. (2019). "Development and pilot-testing of a colorectal cancer screening decision aid for individuals with varying health literacy levels." Patient Educ Couns **102**(10): 1847-1858.

OBJECTIVE: Making an informed decision about colorectal cancer screening requires health literacy. Our aim was to develop and pilot-test a computer-based decision aid to support informed decision making about whether or not to participate in colorectal cancer screening for individuals with varying health literacy levels in the Netherlands. METHODS: First, we designed and adapted the decision aid prototype among 25 individuals with low (n = 15) and adequate (n = 10) health literacy. Second, we used a before/after study to assess changes in knowledge, attitude, intention, decisional conflict, deliberation, anxiety and risk perception in an online survey among 81 individuals eligible for colorectal cancer screening with low (n = 35) and adequate (n = 46) health literacy. RESULTS: The decision aid was acceptable, comprehensible, reduced decisional conflict, increased deliberation and improved knowledge about colorectal cancer screening, but not about colorectal cancer, among individuals with adequate and low health literacy. Usability was slightly higher for participants with adequate health literacy compared to those with low health literacy. CONCLUSION: The decision aid is promising in supporting informed decision making about colorectal cancer screening, also among individuals with lower health literacy. PRACTICE IMPLICATIONS: Further refinement of interactive features, such as videos, animations and the values clarification exercise, is needed to increase the usability of the decision aid.

2018

Abdi, A. J., Fieselmann, A., Pfaff, H., et al. (2018). "Comparison of screening performance metrics and patient dose of two mammographic image acquisition modes in the Danish National Breast Cancer Screening Programme." Eur J Radiol **105**: 188-194.

INTRODUCTION: In this study, screening performance metrics and radiation dose were compared for two image acquisition modes for breast cancer screening with MAMMOMAT Inspiration (Siemens Healthcare GmbH, Forchheim, Germany). This mammography system can operate without an anti-scatter grid in place but using software scatter correction instead. This grid-less acquisition mode (PRIME) requires less patient dose due to the increase in primary radiation reaching the detector. This study retrospectively analyses data from the Region of Southern Denmark where the grid-less mode has been installed in November 2013 and replaced grid-based screening. METHODS AND MATERIALS: A total of 72,188 screening cases from the same geographical region in Denmark were included in the study. They were subdivided into two study populations: cases acquired before and after installation of the grid-less acquisition mode. Sensitivity and specificity of breast cancer screening were calculated for the two populations; thus representing the performance of grid-less and grid-based screening. To measure the entrance surface air kerma (ESAK) additional phantom tests were carried out. Polymethylmethacrylate (PMMA) attenuation plates with different thicknesses (20-70 mm in steps of 10 mm) simulated the compressed breast (21 mm-90 mm) and a solid-state dosimeter was used. RESULTS: Statistical testing of the results showed that screening with grid-less acquisition provides equivalent performance with respect to sensitivity and specificity compared to grid-based screening. The specificity was 98.11% (95% confidence interval (CI) from 97.93% to 98.29%) and 97.96% (95% CI from 97.84% to 98.09%) for screening with grid-less acquisition and grid-based acquisition, respectively. The cancer detection rate as a measure for sensitivity was equal (0.55%) for grid-less screening and grid-based screening. An average glandular dose saving between 13.5% and 36.4% depending on breast thickness in grid-less acquisition was obtained compared to grid-based acquisition. CONCLUSION: Statistically significant equivalence was shown with an equivalence margin of 0.12% points for cancer detection rate and with an equivalence margin of 0.40% points for specificity. A marked patient dose savings in grid-less acquisition of up to 36% compared to grid-based acquisition was achieved. It can be concluded that grid-less acquisition with software scatter correction is an alternative to grid-based acquisition in mammography.

Basu, P., Ponti, A., Anttila, A., et al. (2018). "Status of implementation and organization of cancer screening in The European Union Member States-Summary results from the second European screening report." Int J Cancer **142**(1): 44-56.

The second report on the implementation status of cancer screening in European Union (EU) was published in 2017. The report described the implementation status, protocols and organization (updated till 2016) and invitation coverage (for index year 2013) of breast, cervical and colorectal cancer screening in the EU. Experts in screening programme monitoring (N = 80) from the EU Member States having access to requisite information in their respective countries provided data on breast, cervical and colorectal cancer screening through online questionnaires. Data was collected for screening performed in the framework of publicly mandated programmes only. Filled in questionnaires were received from 26 Member States for all three sites and from one Member State for breast cancer only. Substantial improvement in screening implementation using population-based approach was documented. Among the age-eligible women, 94.7% were residents of Member States implementing or planning population-based breast cancer screening in 2016, compared to 91.6% in 2007. The corresponding figures for cervical cancer screening were 72.3 and 51.3% in 2016 and 2007, respectively. Most significant improvement was documented for colorectal cancer screening with roll-out ongoing or completed in 17 Member States in 2016, compared to only five in 2007. So the access to population-based screening increased to 72.4% of the age-eligible populations in 2016 as opposed to only 42.6% in 2007. The invitation coverage was highly variable, ranging from 0.2-111% for breast cancer, 7.6-105% for cervical cancer and 1.8-127% for colorectal cancer in the target populations. In spite of the considerable progress, much work remains to be done to achieve optimal effectiveness. Continued monitoring, regular feedbacks and periodic reporting are needed to ensure the desired impacts of the programmes.

Beruchashwili, T., Gvamichava, R. et Duffy, S. W. (2018). "Screening organization and recall rate in a regional breast screening programme." J Med Screen **25**(1): 55-56.

Objective To use results on recall rates from a regional non-population-based breast screening programme to inform practice in a planned national population-based programme. Methods We analysed data on rates of recall for further assessment in 27,327 mammographic screening episodes in 2015-2016 in the breast screening programme in the city of Tbilisi, Georgia. Screening was done by two-view digital mammography with double reading in women aged 40-70, and further assessment took place at the same clinic and during the same visit as the initial screening mammogram. Results The recall rates were 46% (3573/7824) in 2015 and 27% (5276/19,503) in 2016. Cancer detection rates were 8 per 1000 in 2015 and 3 per 1000 in 2016. Rates of recall were higher in younger women than in older, whereas the rates of cancer detection were higher in older women. Conclusions The recall rates, while lower in 2016 than in 2015, are still too high to manage in a nationwide population programme. The use of same-visit assessment is likely to be contributing to this. The national programme should consider separate assessment clinics and carry out audit of recalls to date.

Bhargava, S., Tsuruda, K., Moen, K., et al. (2018). "Lower attendance rates in immigrant versus non-immigrant women in the Norwegian Breast Cancer Screening Programme." J Med Screen **25**(3): 155-161.

OBJECTIVE: The Norwegian Breast Cancer Screening Programme invites women aged 50-69 to biennial mammographic screening. Although 84% of invited women have attended at least once, attendance rates vary across the country. We investigated attendance rates among various immigrant groups compared with non-immigrants in the programme. METHODS: There were 4,053,691 invitations sent to 885,979 women between 1996 and 2015. Using individual level population-based data from the Cancer Registry and Statistics Norway, we examined percent attendance and calculated incidence rate ratios, comparing immigrants with non-immigrants, using Poisson regression, following women's first invitation to the programme and for ever having attended. RESULTS: Immigrant women had lower attendance rates than the rest of the population, both following the first invitation (53.1% versus 76.1%) and for ever having attended (66.9% versus 86.4%). Differences in attendance rates between non-immigrant and immigrant women were less pronounced, but still present, when adjusted for sociodemographic factors. We also identified differences in attendance between immigrant groups. Attendance increased with duration of residency in Norway. A subgroup analysis of migrants' daughters showed that 70.0% attended following the first invitation, while 82.3% had ever attended. CONCLUSIONS: Immigrant women had lower breast cancer screening attendance rates. The rationale for immigrant women's non-attendance needs to be explored through further studies targeting women from various birth countries and regions.

de Klerk, C. M., Gupta, S., Dekker, E., et al. (2018). "Socioeconomic and ethnic inequities within organised colorectal cancer screening programmes worldwide." Gut **67**(4): 679-687.

OBJECTIVE: Colorectal cancer (CRC) screening programmes can reduce CRC mortality. However, the implementation of a screening programme may create or exacerbate socioeconomic and ethnic health inequities if participation varies by subgroup. We determined which organised programmes characterise participation inequities by socioeconomic and ethnic subgroups, and assessed the variation in subgroup participation among programmes collecting group-specific data. DESIGN: Employing a literature review and survey among leaders of national or regional screening programmes, this study identified published and unpublished data on participation by socioeconomic status and ethnicity. We assessed programmes offering faecal occult blood tests (FOBT) for screening. Primary outcome was screening participation rate. RESULTS: Across 24 organised FOBT-screening programmes meeting the inclusion criteria, participation rates ranged from 21% to 73%. Most programmes (13/24, 54%) did not collect data on participation by socioeconomic status and ethnicity. Among the 11 programmes with data on participation by socioeconomic status, 90% (28/31 publications) reported lower participation among lower socioeconomic groups. Differences across socioeconomic gradients were moderate (66% vs 71%) to severe (35% vs 61%). Only six programmes reported participation results by ethnicity. Ethnic differences were moderate, though only limited data were available for evaluation. CONCLUSIONS: Across organised CRC screening programmes worldwide, variation in participation by socioeconomic status and ethnicity is often not assessed. However, when measured, marked disparities in participation by socioeconomic status have been observed. Limited data were available to assess inequities by ethnicity. To avoid exacerbating health inequities, screening programmes should systematically monitor participation by socioeconomic status and ethnicity, and investigate and address determinants of low participation.

Diaz, M., Moriña, D., Rodríguez-Salés, V., et al. (2018). "Moving towards an organized cervical cancer screening: costs and impact." Eur J Public Health **28**(6): 1132-1138.

BACKGROUND: HPV screening has been shown to be more cost-effective than cytology screening under most scenarios. Furthermore, it should be offered only in organized programmes with good quality assurance mechanisms. This study analyses the comparative cost of the current policy of opportunistic cytology screening vs. a hypothetical organized programme based on primary HPV screening. METHODS: Total cervical cancer expenditure was defined as the sum of three cost elements: (i) direct (medical and non-medical) costs, obtained from a calibrated Markov model of the natural history of HPV and cervical cancer; (ii) programmatic costs, estimated based on other organized screening programmes; and (iii) indirect costs, extrapolated from previously published data. RESULTS: Organized HPV screening at 5-year intervals costs consistently less across all coverage levels than opportunistic cytology screening at 3-year intervals. The current annual direct medical cost to the public health system of the opportunistic cytology at 40% coverage is estimated at €33.2 per woman screened aged 25-64. Under an organized programme of primary HPV screening at 70% coverage, the cost is estimated to be €18.4 per woman screened aged 25-64. CONCLUSION: Our study concludes that the economic resources currently devoted to providing opportunistic cytology screening to 40% of the target population at 3-year intervals could be more effectively used to screen 70% of the target population at 5-year intervals by switching to an organized programme based on primary HPV screening. This finding is of relevance to other European countries or regions with similar screening policies and health infrastructures.

Espina, C., Soerjomataram, I., Forman, D., et al. (2018). "Cancer prevention policy in the EU: Best practices are now well recognised; no reason for countries to lag behind." Journal of Cancer Policy **18**: 40-51.
https://www.sciencedirect.com/science/article/pii/S2213538318300419

Through the application of science to public health practice, National Cancer Control Programmes provide the framework for the development of policies on cancer control, with the ultimate goal of reducing cancer morbidity and mortality, and improving quality of life. In the last decade, a substantial number of Member States in the European Union (EU) have formulated and/or updated their National Cancer Control Programmes, Plans or Strategies including primary prevention (health promotion and environmental protection), secondary prevention (screening and early detection), integrated care and organization of services, and palliative care as main elements. Although tobacco control and population-based screening policies are examples of best practices that are gradually being implemented in most of the EU countries, there are still large regional differences in cancer burden arising from the wide variety of social determinants and other epidemiological factors, along with gaps in the policy and practical articulation of cancer control within the health systems. On the other hand, few quantitative assessments are available with regard to evaluating the success or failure of the implementation of these programmes, especially in terms of reducing cancer incidence or mortality. An EU framework to better assess of the effectiveness of cancer prevention policies and the factors triggering shortfall in best practices implementation seems imperative.

Gianino, M. M., Lenzi, J., Bonaudo, M., et al. (2018). "Organized screening programmes for breast and cervical cancer in 17 EU countries: trajectories of attendance rates." BMC Public Health **18**(1): 1236.

BACKGROUND: The aim was to analyse participation trajectories in organised breast and cervical cancer screening programmes and the association between socioeconomic variables and participation. METHODS: A pooled, cross-sectional, time series analysis was used to evaluate secondary data from 17 European countries in 2004-2014. RESULTS: The results show that the mammographic screening trend decreases after an initial increase (coefficient for the linear term = 0.40; p = 0.210; 95% CI = - 0.25, 1.06; coefficient for the quadratic term = - 0.07; p = 0.027; 95% CI = - 0.14, - 0.01), while the cervical screening trend is essentially stable (coefficient for the linear term = 0.39, p = 0.312, 95% CI = - 0.42, 1.20; coefficient for the quadratic term = 0.02, p = 0.689, 95% CI = - 0.07, 0.10). There is a significant difference among the country-specific slopes for breast and cervical cancer screening (SD = 16.7, p < 0.001; SD = 14.4, p < 0.001, respectively). No association is found between participation rate and educational level, income, type of employment, unemployment and preventive expenditure. However, participation in cervical cancer screening is significantly associated with a higher proportion of younger women (≤ 49 years) and a higher Gini index (that is, higher income inequality). CONCLUSIONS: In conclusion three messages: organized cancer screening programmes may reduce the socioeconomic inequalities in younger people's use of preventive services over time; socioeconomic variables are not related to participation rates; these rates do not reach a level of stability in several countries. Therefore, without effective recruitment strategies and tailored organizations, screening participation may not achieve additional gains.

Giorgi Rossi, P., Carrozzi, G., Federici, A., et al. (2018). "Invitation coverage and participation in Italian cervical, breast and colorectal cancer screening programmes." J Med Screen **25**(1): 17-23.

Objectives In Italy, regional governments organize cervical, breast and colorectal cancer screening programmes, but there are difficulties in regularly inviting all the target populations and participation remains low. We analysed the determinants associated with invitation coverage of and participation in these programmes. Methods We used data on screening programmes from annual Ministry of Health surveys, 1999-2012 for cervical, 1999-2011 for breast and 2005-2011 for colorectal cancer. For recent years, we linked these data to the results of the national routine survey on preventive behaviours to evaluate the effect of spontaneous screening at Province level. Invitation and participation relative risk were calculated using Generalized Linear Models. Results There is a strong decreasing trend in invitation coverage and participation in screening programmes from North to South Italy. In metropolitan areas, both invitation coverage (rate ratio 0.35-0.96) and participation (rate ratio 0.63-0.88) are lower. An inverse association exists between spontaneous screening and both screening invitation coverage (1-3% decrease in invitation coverage per 1% spontaneous coverage increase) and participation (2% decrease in participation per 1% spontaneous coverage increase) for the three programmes. High recall rate has a negative effect on invitation coverage in the next round for breast cancer (1% decrease in invitation per 1% recall increase). Conclusions Organizational and cultural changes are needed to better implement cancer screening in southern Italy.

Gyulai, A., Nagy, A., Pataki, V., et al. (2018). "General practitioners can increase participation in cervical cancer screening - a model program in Hungary." BMC Fam Pract **19**(1): 67.

BACKGROUND: Cervical cancer is a preventable disease. Unfortunately, its mortality is high in Hungary: 9.2 deaths /100000 women/year in 2015. The Hungarian organized, nationwide cervical screening program was launched in 2003, but it could improve the coverage rate of cervical cancer screening only by a few percentage points. The vast majority of women still uses opportunistic screening and the organized screening program had little impact on participation by women who never or rarely consult their gynecologists. We assessed whether involving general practitioners in the cervical cancer screening process would increase participation. METHODS: The study consisted of two parts: 1. A questionnaire-based health survey was conducted using a representative sample of women aged 25 to 65 years from 11 Hungarian counties, in which we studied where women obtained information about cervical cancer screening. 2. Additionally, a model program and its evaluation were implemented in the practices of general practitioners in one of the 11 counties (Zala county). In this program, general practitioners were informed of their patients' participation in the cervical cancer screening program, and they motivated those who refused the invitation. RESULTS: Questionnaire-based health survey: A total of 74% (95% confidence interval (CI): 70-77%) of the target population had a screening examination within the previous 3 years. The majority (58, 95% CI: 54-62%) of the target population did not ask for information about cervical cancer screening at all. Only 21% (95% CI: 17-26%) consulted their general practitioners about cancer screening. Evaluation of the model program: the general practitioners effectively motivated 24 out of 88 women (27, 95% CI: 18-38%) who initially refused to participate in the screening program. CONCLUSION: The majority of Hungarian women are not informed about cervical cancer screening beyond the invitation letter. General practitioners could play a more important role in mobilizing the population to utilize preventive services. The involvement of general practitioners in the organization of the cervical cancer screening program could increase the participation of those women who generally refuse the services.

Harder, E., Juul, K. E., Jensen, S. M., et al. (2018). "Factors associated with non-participation in cervical cancer screening - A nationwide study of nearly half a million women in Denmark." Prev Med **111**: 94-100.

Cervical cancer occurs most often in under-screened women. In this nationwide register study, we described differences in sociodemographic characteristics between passive and active non-participants and examined socio-demographic characteristics, reproductive history, and mental and physical health as potential determinants for passive non-participation compared with participation in the Danish cervical cancer screening program. Screening history in women aged 23-49 years invited for cervical cancer screening in 2008-2009 was retrieved from the Danish Pathology Databank with information about dates of invitation and unsubscription. We identified participants (n = 402,984), active non-participants (n = 10,251) and passive non-participants (n = 63,435) within four years following baseline invitation and retrieved data about the study population from high-quality registries. We examined differences in socio-demographic characteristics of passive and active non-participants, and used multiple logistic regression analyses to identify potential determinants of passive non-participation. We found that active and passive non-participants differed in relation to socio-demography. When compared with screening participants, the odds of passive non-participation was increased in women who originated from less developed countries; were unmarried; had basic education or low income; had four or more children; smoked during pregnancy; had multiple induced abortions; or had a history of obesity, intoxicant abuse or schizophrenia or other psychoses. In conclusion, in this nationwide, prospective, population-based study, differences in socio-demographic characteristics between passive and active non-participants were found. Furthermore, sociodemography, reproductive history, and mental and physical health were determinants for passive non-participation. Addressing inequalities in screening attendance may help to further decrease the incidence of and mortality from cervical cancer.

Herrmann, C., Vounatsou, P., Thürlimann, B., et al. (2018). "Impact of mammography screening programmes on breast cancer mortality in Switzerland, a country with different regional screening policies." BMJ Open **8**(3): e017806.

INTRODUCTION: In the past decades, mortality due to breast cancer has declined considerably in Switzerland and other developed countries. The reasons for this decline remain controversial as several factors occurred almost simultaneously, including important advances in treatment approaches, breast cancer awareness and the introduction of mammography screening programmes in many European countries. In Switzerland, mammography screening programmes (MSPs) have existed in some regions for over 20 years but do not yet exist in others. This offers the possibility to analyse its effects with modern spatiotemporal methodology. We aimed to assess the spatiotemporal patterns and the effect of MSPs on breast cancer mortality. SETTING: Switzerland. PARTICIPANTS: The study covers breast cancer deaths of the female population of Switzerland during the period 1969-2012. We retrieved data from the Swiss Federal Statistical Office aggregated on a small-area level. DESIGN: We fitted Bayesian hierarchical spatiotemporal models on death rates indirectly standardised by national references. We used linguistic region, degree of urbanisation, duration of population-based screening programmes and socioeconomic index as covariates. RESULTS: In Switzerland, breast cancer mortality in women slightly increased until 1989-1992 and declined strongly thereafter. Until 2009-2012, the standardised mortality ratio declined to 57% (95% CI 54% to 60%) of the 1969-1972 value. None of the other coefficients of the spatial regressions had a significant effect on breast cancer mortality. In 2009-2012, no region had significantly elevated or reduced breast cancer mortality at 95% credible interval level compared with the national mean. CONCLUSION: There has been a strong reduction of breast cancer mortality from the 1990s onwards. No important spatial disparities were observed. The factors studied (urbanisation, language, duration of population-based MSP and socioeconomic characteristics) did not seem to have an influence on them. Low participation rates and opportunistic screening use may have contributed to the low impact of MSPs.

Hirst, Y., Stoffel, S., Baio, G., et al. (2018). "Uptake of the English Bowel (Colorectal) Cancer Screening Programme: an update 5 years after the full roll-out." Eur J Cancer **103**: 267-273.

BACKGROUND: The initial roll-out of the English Bowel (Colorectal) Cancer Screening programme, during 2006 and 2009, found uptake to be low (54%) and socially graded. The current analysis used data from 2010 to 2015 to test whether uptake is increasing and becoming less socially graded over time. METHODS: Postcode-derived area-level uptake of 4.4 million first-time invitees, stratified by gender and the year of the first invitation (2010-2015), was generated using the National Bowel Cancer Screening System. Data were limited to people aged 60-64 years. Binomial regression tested for variations in uptake by the year of invitation, gender, region, area-based socio-economic deprivation and area-based ethnic diversity. RESULTS: Overall, the first-time colorectal cancer (CRC) screening uptake across 6 years was 52% (n = 2,285,996/4,423,734) with a decline between 2010 and 2015 (53%, 54%, 52%, 50%, 49%, 49% respectively). Uptake continued to be socially graded between the most and the least deprived area-level socio-economic deprivation quintiles (43% vs 57%), the most and the least area-based ethnic diversity quintiles (41% vs 56%) and men and women (47% vs 56%). Multivariate analysis demonstrated the effects of year, deprivation, ethnicity and gender on uptake. The effect of deprivation was more pronounced in the most deprived area quintile between men and women (40% vs 47%) than the least deprived area quintile (52% vs 62% respectively). CONCLUSION: We did not find evidence of change in uptake patterns in CRC screening since its initial launch 10 years ago. The programme is unlikely to realise its full public health benefits and is en route to widening inequalities in CRC outcomes.

Jovicevic, A., Ristic, S., Mandic, V., et al. (2018). "Factors influencing participation in breast cancer opportunistic screening in Belgrade, Serbia." J buon **23**(3): 706-712.

PURPOSE: To assess the motivation and barrier factors influencing participation of women in opportunistic breast cancer screening in Belgrade, Serbia, and to detect changes in these factors over time. METHODS: A cross-sectional study has been carried out at the Institute for Oncology and Radiology of Serbia in 2009 and 2016 among women aged 40 to 69 years from Belgrade who came at the Institute for opportunistic breast cancer screening. The demographic characteristics, data regarding breast exams practices, screening motivators and barriers and sources of information on breast cancer were collected by self-administered questionnaire. RESULTS: The questionnaire was completed by 478 women in 2009 and 453 in 2016, with increase in women reporting regular mammograms or at least one previous mammogram (from 30.1% to 58.6%, p=0.000). In 2009, the most frequent motivating factors were health maintenance (36%), friend's advice, TV, cancer in the family or fear of breast cancer; in 2016, advice from gynecologist (significant increase from 10.9% to 37.7%, p=0.000), health maintenance, family cancer and fear of cancer. The most frequent reasons for not going to exams regularly were absence of breast problems, crowded doctor's offices and no family breast cancer. CONCLUSIONS: These findings provide information on motivation and barrier factors that may influence women's decision to participate in opportunistic breast cancer screening. Those factors have changed over time and the role of physicians has increased significantly. Further exploration of motivating and barrier factors and the extent of their association with actual women's behavior would be helpful for the development of interventions to improve organized and opportunistic screening participation.

Lund, E., Nakamura, A. et Thalabard, J. C. (2018). "No overdiagnosis in the Norwegian Breast Cancer Screening Program estimated by combining record linkage and questionnaire information in the Norwegian Women and Cancer study." Eur J Cancer **89**: 102-112.

BACKGROUND: The Norwegian Breast Cancer Screening Program (NBCSP) was implemented across the country in 2005 and has been criticised for potential 'overdiagnosis', i.e. a breast cancer diagnosis that otherwise would not have been detected or treated in a woman's lifetime. We aimed to estimate overdiagnosis in the NBCSP based on the Norwegian Women and Cancer (NOWAC) study using both questionnaire information and record linkage information from NBCSP. METHOD: For 124,978 women aged 49-79 years from the NOWAC study, information on screened women could be cross-validated from the NBCSP database. Based on information from the NOWAC questionnaire, unscreened women were further divided into those who had mammograms taken only outside the NBCSP and those who had never had taken a mammogram. Breast cancers diagnosed in 2005-2013 were identified through linkage to the Cancer Registry of Norway; in situ or DCIS 417; invasive 2845; combined 3262. Cumulative incidence rates (CIRs) for ages 49-79 years of breast cancer were compared using the log-rank test. RESULTS: After exclusion of women with a family history of breast cancer, screened women had a CIR of 9.7% for combined breast cancer, non-significantly lower compared with unscreened women. Screened women had a 1.1% increased CIR or 13.0% increased relative risk of breast cancer diagnosis (significant) compared with women who had never had a mammogram, but for invasive breast cancer alone the difference was reduced to -0.2% (95% CI: -9.1; 8.8). Invasive breast cancers were significantly smaller (<2.5 cm) in screened versus unscreened women. There was a borderline significant decrease in lymph node positive cancer among screened (p = 0.06). CONCLUSION: The findings of no significant overdiagnosis combined with smaller tumours and less lymph node metastases suggest that the prevailing view of overdiagnosis in the NBCSP should be challenged.

Májek, O., Anttila, A., Arbyn, M., et al. (2018). "The legal framework for European cervical cancer screening programmes." European Journal of Public Health(Sept. 27): cky200-cky200.
http://dx.doi.org/10.1093/eurpub/cky200

BackgroundA comprehensive legal framework needs to be developed to run the health services and to regulate the information systems required to manage and to ensure the quality of cancer screening programmes. The aim of our study was to document and to compare the status of legal basis for cervical screening registration in European countries.MethodsAn electronic questionnaire including questions on governance, decision-making structures and legal framework was developed. The primary responses were collected by September 2016.ResultsWe sent the questionnaire to representatives of 35 European countries (28 countries of the EU, with the United Kingdom included as 4 countries; 4 EFTA member countries: Iceland, Liechtenstein, Norway, and Switzerland); responses were collected from 33 countries. The legal framework makes it possible to personally invite individuals in 29 countries (88%). Systematic screening registration in an electronic registry is legally enshrined in 23 countries (70%). Individual linkage of records between screening and cancer registries is allowed in 19 of those countries. Linkage studies involving cancer and screening registries have been conducted in 15 countries.ConclusionAlthough the majority of EU/EFTA countries have implemented population-based screening, only half of them have successfully performed record linkage studies, which are nevertheless a key recommendation for quality assurance of the entire screening process. The European legislation is open to the possibility of using health data for these purposes; however, member states themselves must recognize the public interest to create a legal basis, which would enable all the necessary functions for high-quality cancer screening programmes.

Merino-Ventosa, M. et Urbanos-Garrido, R. M. (2018). "Changes in income-related inequalities in cervical cancer screening during the Spanish economic crisis: a decomposition analysis." Int J Equity Health **17**(1): 184.

BACKGROUND: Cervical cancer is one of the most prevalent cancers, but it may be prevented by early detection. Social inequalities in the use of cytology testing have been identified in the literature. However, the degree of income-related inequality has not been quantified and determinants of inequality changes during the economic crisis remain unknown. METHODS: Using the Spanish National Health Surveys (2006-07 / 2011-12), we analyzed how income-related inequalities in the use of cervical cancer screening for women aged 25-64 changed across the economic crisis. We used corrected concentration indices (CCI) which were further decomposed in order to compute the contribution of the explanatory variables. An Oaxaca-type approach was employed to investigate the origin of changes over time. RESULTS: Our final sample consisted of 10,743 observations in 2006-07 and 6587 in 2011-12. Despite the higher prevalence of screening over time (from 73.9 to 77.9%), pro-rich inequality significantly increased (from CCI = 0.1726 to CCI = 0.1880, p < 0.001). Income was the main determinant of inequality in cervical screening, although its contribution decreased over time, as well as the contribution of the type of health insurance, mainly due to changes in elasticity. Other factors, such as nationality or the educational level, seem to have played an important role in the increase of pro-rich inequality of cytology testing. CONCLUSIONS: Reducing cervical screening inequalities would require actions focused on most vulnerable groups such as migrants, low income and low educated population. The implementation of population-based screening programs would also help to cope with income-related inequalities in cytology testing.

Molina-Barceló, A., Peiró-Pérez, R., Vanaclocha, M., et al. (2018). "Informed participation in the Valencian Community Colorectal Cancer Screening Programme from a gender perspective." Gac Sanit **32**(1): 72-76.

OBJECTIVE: To examine the factors that influence informed participation in a Colorectal Cancer Screening Programme (CRCSP) from a gender perspective. METHODS: Cross-sectional telephone survey directed to men and women invited to participate (2009-2010) in the Valencian Community CRCSP (Spain). SAMPLE SIZE: 785 subjects. OUTCOME VARIABLES: participation in CRCSP and being informed. Bivariate and multivariate analysis using logistic regression models (95% confidence interval [95%CI], p <0.05). RESULTS: Being a woman (odds ratio [OR]: 1.52; 95%CI: 1.06-2.19), receiving information from a general practitioner (OR: 1.64; 95%CI: 1.05-2.55) and being informed (OR: 1.54; 95%CI: 1.08-2.21) are related to participation. Men are more likely to participate if they live with a partner (OR: 6.26; 95%CI: 1.82-21.49); and are more informed if they have family responsibilities (OR: 2.53; 95%CI: 1.39-4.63). CONCLUSION: Information about CRCSP, involving primary health care professionals and including specific actions directed at men and at women, could contribute to improve informed participation with a gender equity perspective.

Njor, S. H., Friis-Hansen, L., Andersen, B., et al. (2018). "Three years of colorectal cancer screening in Denmark." Cancer Epidemiol **57**: 39-44.

BACKGROUND: The Danish National Colorectal Cancer Screening Programme was implemented in March 2014 and is offered free of charge to all residents aged 50-74 years. The aim of this study is to compare performance indicators from the Danish National Colorectal Cancer Screening Programme to the recommendations from European Guidelines in order to assure the quality of the programme and to provide findings relevant to other population-based colorectal cancer screening programmes.

METHODS: Based on data from the Danish Colorectal Cancer Screening Database, we evaluated all performance indicators for which the European Guidelines provided acceptable level, desirable level or the level from first screening rounds in population-based studies using FIT. RESULTS: All performance indicators were above the acceptable level and/or in line with the level from the first screening round in population-based studies using FIT. Whenever the European Guidelines provided a desirable level for a performance indicator, the Danish National Colorectal Cancer Screening Programme was close to or above this desirable level. CONCLUSIONS: Compared to the European Guidelines, all performance indicators were above the acceptable level and close to the desirable level. Based on these findings, the implementation of the National Danish Colorectal Cancer Screening Programme is considered a success and the programme is hopefully in the process of reducing colorectal cancer morbidity and mortality in Denmark. This study provides relevant information for comparisons to other population-based public service colorectal cancer screening programmes as well as for future revisions of guidelines.

Quyn, A. J., Fraser, C. G., Stanners, G., et al. (2018). "Uptake trends in the Scottish Bowel Screening Programme and the influences of age, sex, and deprivation." J Med Screen **25**(1): 24-31.

Objective Age, sex, and deprivation are known factors influencing colorectal (bowel) cancer screening uptake. We investigated the influence of these factors on uptake over time. Methods Data from the Scottish Bowel Screening Programme (SBoSP) were collected between 2007 and 2014. End-points for analysis were uptake, faecal occult blood test positivity, and disease detection, adjusted for age, sex, deprivation, and year of screening. Results From 5,308,336 individual screening episodes documented, uptake gradually increased with increasing age up to 65-69 and was lower in men than women (52.4% vs. 58.7%, respectively). Deprivation had a significant effect on uptake by men and women of all age groups, with the most deprived least likely to complete a screening test. Uptake has increased with time in both sexes and across the deprivation gradient. The number needed to screen to detect significant neoplasia was significantly lower in men than women overall (170 vs. 365), and this held over all age and deprivation groups. The number needed to screen was also lower in the more deprived population. Conclusions Although lower age, male sex, and increased deprivation are associated with lower bowel cancer screening uptake in Scotland, uptake has increased since SBoSP introduction in all age groups, both sexes, and across the deprivation gradient. Despite a lower uptake, the number needed to screen to find significant disease was lower in men and in those with higher levels of deprivation.

Petrelli, A., Giorgi Rossi, P., Francovich, L., et al. (2018). "Geographical and socioeconomic differences in uptake of Pap test and mammography in Italy: results from the National Health Interview Survey." BMJ Open **8**(9): e021653.
https://bmjopen.bmj.com/content/bmjopen/8/9/e021653.full.pdf

Objective The Italian National Health Service instituted cervical and breast cancer screening programmes in 1999; the local health authorities have a mandate to implement these screening programmes by inviting all women aged 25–64 years for a Pap test every 3 years (or for an Human Papilloma Virus (HPV) test every 5 years) and women aged 50–69 years for a mammography every 2 years. However, the implementation of screening programmes throughout the country is still incomplete. This study aims to: (1) describe cervical and breast cancer screening uptake and (2) evaluate geographical and individual socioeconomic difference in screening uptake.Methods Data both from the Italian National Health Interview Survey (NHIS) conducted by the National Institute of Statistics in 2012–2013 and from the Italian National Centre for Screening Monitoring (INCSM) were used. The NHIS interviewed a national representative random sample of 32 831 women aged 25–64 years and of 16 459 women aged 50–69 years. Logistic multilevel models were used to estimate the effect of socioeconomic variables and behavioural factors (level 1) on screening uptake. Data on screening invitation coverage at the regional level, taken from INCSM, were used as ecological (level 2) covariates.Results Total 3-year Pap test and 2-year mammography uptake were 62.1% and 56.4%, respectively; screening programmes accounted for 1/3 and 1/2 of total test uptake, respectively. Strong geographical differences were observed. Uptake was associated with high educational levels, healthy behaviours, being a former smoker and being Italian versus foreign national. Differences in uptake between Italian regions were mostly explained by the invitation coverage to screening programmes.Conclusions The uptake of both screening programmes in Italy is still under acceptable levels. Screening programme implementation has the potential to reduce the health inequalities gap between regions but only if uptake increases.

Portillo, I., Arana-Arri, E., Gutiérrez-Ibarluzea, I., et al. (2018). "Factors related to the participation and detection of lesions in colorectal cancer screening programme-based faecal immunochemical test." Eur J Public Health **28**(6): 1143-1148.

BACKGROUND: The overall aim of this study was to describe trends in participation rates and detection of lesions in a colorectal cancer (CRC) screening programme, during three rounds, using faecal immunochemical test (FIT). METHODS: National registers were used to collect data on invitations for CRC screening in the Basque Country (Spain) from 2009 to 2014. Information about participation, age, gender and lesions in each round were collected. RESULTS: A total of 961.533 individuals were included in the analysis; respectively, 584.950, 298.143 and 78.440 in the first, second and third rounds. The average participation rate was 68.4% (66.8, 70.4 and 72.3%, respectively by round; P < 0.001) and the positivity rate was 6.3% (7, 5.5 and 5.4%, respectively by round; P < 0.001). The participation rate increased significantly with age and was found to be higher in women versus men. A total of 15.144 advanced adenomas and 2.131 CRCs were diagnosed, leading to a detection rate of 23.9 and 3.4‰, respectively. Regarding gender, men had the highest rates in all periods and rounds. The detection rate of advanced neoplasia was lower in the regular when compared with irregular paricipants. CONCLUSIONS: In a CRC screening, this organization obtained high FIT participation rates. Older participants and women were associated with a higher participation. The detection rate of lesions was higher in men, independent on age and round.

Priaulx, J., de Koning, H. J., de Kok, I., et al. (2018). "Identifying the barriers to effective breast, cervical and colorectal cancer screening in thirty one European countries using the Barriers to Effective Screening Tool (BEST)." Health Policy **122**(11): 1190-1197.

The aim of this study was to identify barriers to effective breast, cervical and colorectal cancer screening programmes throughout the whole of the European region using the Barriers to Effective Screening Tool (BEST). The study was part of the scope of the EU-TOPIA (TOwards imProved screening for breast, cervical and colorectal cancer In All of Europe) project and respondents were European screening organisers, researchers and policymakers taking part in a workshop for the project in Budapest in September 2017. 67 respondents from 31 countries responded to the online survey. The study found that there are many barriers to effective screening throughout the system from identification of the eligible population to ensuring appropriate follow-up and treatment for the three cancers. The most common barriers were opportunistic screening, sub-optimal participation, limited capacity (including trained human resource), inadequate and/or disjointed information technology systems and complex administration procedures. Many of the barriers were reported consistently across different countries. This study identified the barriers that, in general, require further investment of resources.

Rzyman, W., Didkowska, J., Dziedzic, R., et al. (2018). "Consensus statement on a screening programme for the detection of early lung cancer in Poland." Adv Respir Med **86**(1): 53-74.

INTRODUCTION: Lung cancer is the most common cancer in Poland and worldwide, and the leading cause of cancer-related deaths. Compared to the present day, the annual number of new cases of lung cancer will have increased by approximately 50%, by 2030. The overall ratio of mortality to incidence totals 0.87 and is among the highest. The five-year survival rate in Poland has recently achieved 13.4%. In 2015, lung cancer screening using low-dose computed tomography (LDCT) was introduced to routine clinical practice in the United States following the publication of the largest randomised study, The National Lung Screening Trial. The implementation of screening programmes in Poland and the rest of Europe also seems unavoidable. Due to the differences, both in the socioeconomic considerations and healthcare funding, compared to that in the United States, the current approach comes down to the awaited results of the European randomised study, NELSON. MATERIAL AND METHODS: During the meeting of an expert panel at the "Torakoneptunalia 2016" conference in Jastarnia, Poland, a decision was made to summarise and publish the current data on LDCT lung cancer screening in the form of recommendations, or a position statement. The document was prepared by a team composed of a radiologist, thoracic surgeons, pulmonologists, clinical oncologists, epidemiologists, internists, health prevention specialists and pathologists. It reflects the current body of knowledge about lung cancer, its diagnosis and treatment, and provides recommendations on early detection of lung cancer using LDCT. The recommendations address the screening procedure, the requirements for the teams conducting the screening, and the requirements for radiologists, pathologists and surgeons involved in the diagnosis and treatment of patients. RESULTS: While awaiting the results of the NELSON study and the European position statement on lung cancer screening methodology, the multidisciplinary group of experts presents their position, laying grounds for the development of an action plan for early detection of lung cancer in the upcoming future in Poland. CONCLUSIONS: Primary and secondary prophylaxis are the principal ways to reduce lung cancer mortality. While smoking cessation is a task of utmost importance, it must be accompanied by an effective screening programme if the outcome of the disease is to be improved.

Saraste, D., Öhman, D. J., Sventelius, M., et al. (2018). "Initial participation as a predictor for continuous participation in population-based colorectal cancer screening." J Med Screen **25**(3): 126-133.

OBJECTIVES: To assess patterns and probabilities of participation in multiple rounds of colorectal cancer screening. METHODS: All individuals who were invited to participate in population-based colorectal cancer screening in the Stockholm-Gotland region in Sweden between 1 January 2008 and 30 September 2015 were included in the study. Guaiac-based faecal occult blood testing was used. All individuals invited to the three first consecutive screening rounds were included in the analysis. RESULTS: There were 346,168 individuals eligible for invitation to screening. The average participation rate during the follow-up period was 60%. Eligible individuals could be invited 1-4 times, depending on age at first invitation. Of 48,959 individuals invited to the three first consecutive rounds of screening, 71% participated at least once, and 50% participated in all three rounds. Participation at first invitation was a predictor for participation in subsequent rounds, and the likelihood of continuous participation following participation in the first round was 84%. Of those who attended the first and second rounds, 93% also participated in the third round. Similar patterns of consistency were seen among non-participants. For individuals not participating in the first screening round, the likelihood of consistent non-participation was 71. CONCLUSIONS: Participation in the first round of screening is a strong predictor for participation in subsequent rounds. Therefore, reducing barriers for initial participation is a key for achieving consistent participation over several rounds in organized colorectal cancer screening programmes.

Solé Llop, M. E., Cano Del Pozo, M., García Montero, J. I., et al. (2018). "[Colorectal cancer screening programme in Aragon (Spain): preliminary results]." Gac Sanit **32**(6): 559-562.

OBJECTIVE: To describe preliminary findings from the colorectal cancer screening programme in Aragon (Spain) to evaluate its implementation. METHODS: We have collected data from the first year of the program (2014) based on faecal occult blood immunochemical (FOBTi) test in patients 60-69 years old. We report "indicators" defined by the "Red Nacional de Cribado". RESULTS: Invited population after exclusions: 12,518. Program participation rate: 45.28% (95%CI: 44.41-46.15). Inadequate tests: 0.21% (95%CI: 0.12-0.37); positive FOBTi test 10.75% (95%CI: 9.97-11.58) and colonoscopy acceptance 95.07% (95%CI: 93.04-96.52). Colonoscopy was appropriate and complete in 97.58% (95%CI: 95.98-98.55) of cases. The high- and low-risk adenoma detection rates were 14.7‰ (95%CI: 11.9-18.2) and 5.55‰ (95%CI: 3.9-7.8) respectively. The positive predictive value for any adenoma was 58.55% (95%CI: 54.49-62.49) and for invasive cancer was 5.36% (95%CI: 3.8-7.51). CONCLUSION: The indicator analysis of the ongoing programme suggests the programme is being implemented correctly in our community.

Sportes, A., Catajar, N., Charles, S., et al. (2018). "Invitation letter with a standardized form is a reliable tool to exclude increased risk patients from organized fecal immunological testing-based colorectal cancer screening program." Dig Liver Dis **50**(12): 1339-1342.

In Europe, screening guidelines for colorectal cancer (CRC) recommend colonoscopy for high-risk patients and fecal immunological testing (FIT) for the standard-risk group. Currently, there is not any validated screening tool to exclude high-risk patients. The aim of the study is to evaluate the validity of exclusion and evaluate the follow-up of patients identified as increased risk for CRC. In this retrospective study using a prospective database, patients at increased risk were identified using the standardized form and then excluded from the FIT screening invitation. A specific questionnaire was sent to all patients at increased risk in order to confirm the reason for the exclusion and evaluate their follow-up. Among 220 695 eligible individuals, 16 693 (7.5%) were excluded after being characterized at increased risk using the standardized form. The questionnaire was sent to these 16.693 excluded patients and completed by 5076 (30.7%) patients. Validity of exclusion was confirmed in 92% of cases. Endoscopic follow-up was in agreement with guideline in 89% of persons at increased risk (inflammatory bowel disease 93%, personal history of CCR 92%, of colonic polyps 82%, family history of CRC 77%). This study suggests that the standardized form is a reliable tool to correctly exclude from the screening program 92% of patients at increased risk for CRC.

Thomsen, M. K., Rasmussen, M., Njor, S. H., et al. (2018). "Demographic and comorbidity predictors of adherence to diagnostic colonoscopy in the Danish Colorectal Cancer Screening Program: a nationwide cross-sectional study." Clin Epidemiol **10**: 1733-1742.

BACKGROUND: Predictors of participation in colorectal cancer screening with a stool sample screening modality have been widely studied, but adherence to subsequent diagnostic colonoscopy after a positive screening test has received less attention. We aimed to determine predictors of adherence to diagnostic colonoscopy in the Danish Colorectal Cancer Screening Program. METHODS: We conducted a cross-sectional study using data from National Health Service registries. We included 8,112 individuals invited to screening between March 3, 2014, and August 31, 2014, who had a positive immunochemical fecal occult blood test. Potential predictors were gender, age, region of residence, Charlson Comorbidity Index (CCI) score, specific diseases (cardiovascular disease, chronic pulmonary disease, diabetes, and cancer), and number of prior hospital stays. We estimated prevalence proportion differences (PPDs) for the associations between potential predictors and adherence. RESULTS: Overall, adherence to diagnostic colonoscopy was 88.6%. Adherence was lower in individuals aged 75 years compared with those aged <70 years, PPD=-4.20 (95% confidence interval [CI]: -6.19; -2.20). Adherence decreased with a higher level of comorbidity: PPD=-2.30 (95% CI: -3.87; -0.74) for a CCI score of 1-2 and PPD=-9.24 (95% CI: -12.30; -6.19) for a CCI score of ≥3 compared to 0. For specific diseases, adherence was decreased in those with a diagnosis of cardiovascular disease, chronic pulmonary disease, or diabetes, but less for cancer. When comorbidity was measured as number of prior hospital stays, the adjusted PPDs were -2.41 (95% CI: -4.43;-0.39) for one to two stays and -14.50 (95% CI: -20.30; -8.74) for three or more stays compared with no in-hospital stays. CONCLUSION: Major predictors of nonadherence to diagnostic colonoscopy after a positive immunochemical fecal occult blood test were older age, a CCI score of 1 or more, cardiovascular disease, chronic pulmonary disease, diabetes, and one or more in-hospital stays within the last year.

Thorlacius, H. et Toth, E. (2018). "[Implementation of colorectal cancer screening in Sweden]." Lakartidningen **115**.

Convincing data demonstrate that screening reduces mortality in colorectal cancer. International organizations and national authorities recommend implementation of colorectal cancer screening programs. There are several different primary methods for screening, including tests of blood in feces, sigmoidoscopy and colonoscopy, all with their inherent advantages and disadvantages. The majority of programs utilizes fecal occult blood test as primary screening method followed by colonoscopy. Colonoscopy as a primary screening method has the advantage of directly removing precancerous lesions and ongoing studies evaluates the role of colonoscopy as a primary screening method for colorectal cancer. Challenges for implementation of screening in Sweden include limited access to colonoscopy resources and problems to reassure quality control. This article summarizes current evidence for colorectal cancer screening, as well as methods and requirements for implementation.

Turnbull, E., Priaulx, J., de Kok, I. M. C. M., et al. (2018). "Results of a health systems approach to identify barriers to population-based cervical and colorectal cancer screening programmes in six European countries." Health Policy **122**(11): 1206-1211.
http://www.sciencedirect.com/science/article/pii/S0168851018303853

The aim of this study was to identify barriers to effective cervical and colorectal cancers screening programmes in Europe. The Barriers to Effective Screening Tool (BEST), based on a health systems approach, was completed by teams of three to six experts on cancer screening in each of the six countries involved in leading the EU-TOPIA project (TOwards imProved screening for breast, cervical and colorectal cancer In All of Europe). While the basic components of screening systems and the challenges they face, such as low participation, are similar, there are also many differences, both in the structures underpinning particular functions, such as maintenance of populationregisters and monitoring outcomes, and the ways that they operate. Many of these lie outside the strict organisational boundaries of screening programmes. BEST offers a means to identify and prioritise issues for further detailed exploration. The holistic health systems approach to assessing barriers differs from previous approaches. Those focus on individual characteristics that determine participation. The approach described here provides additional opportunities to improve outcomes with measures that are largely within the control of those managing the health system.

Turnbull, E., Priaulx, J., van Ravesteyn, N. T., et al. (2018). "A health systems approach to identifying barriers to breast cancer screening programmes. Methodology and application in six European countries." Health Policy **122**(11): 1198-1205.
http://www.sciencedirect.com/science/article/pii/S0168851018303804

The benefits of population-based screening for breast cancer are now accepted although, in practice, programmes often fail to achieve their full potential. In this paper, we propose a conceptual model that situates screening programmes within the broader health system to understand the factors that influence their outcomes. We view the overall screening system as having multiple sub-systems to identify the population at risk, generate knowledge of effectiveness, maximise uptake, operate the programme, and optimise follow-up and assurance of subsequent treatment. Based on this model we have developed the Barriers to Effective Screening Tool (BEST) for analysing government-led, population-based screening programmes from a health systems perspective. Conceived as a self-assessment tool, we piloted the tool with key informants in six European countries (Estonia, Finland, Hungary, Italy, The Netherlands and Slovenia) to identify barriers to the optimal operation of population-based breast cancer screening programmes. The pilot provided valuable feedback on the barriers affecting breast cancer screening programmes and stimulated a greater recognition among those operating them of the need to take a health systems perspective. In addition, the pilot led to further development of the tool and provided a foundation for further research into how to overcome the identified barriers.

Unim, B., Boggi, R., Napoli, M., et al. (2018). "Women's satisfaction with mammography and predictors of participation in an organized breast cancer screening program: Perspectives of a Local Health Unit in Rome." Public Health **155**: 91-94.

OBJECTIVES: The aims of the study were to evaluate satisfaction with the mammography service of the Local Health Unit RMA (Rome, Lazio Region) among women who have attended the program and to identify the predictors of participation. STUDY DESIGN: Cross-sectional study. METHODS: A telephone-based questionnaire was administered to women eligible for mammography screening. The respondents were randomly selected and interviewed by the health center staff. RESULTS: A total of 502 women were interviewed, of which 264 (52.6%) have attended the screening program at least once. The attendees received the invitation letter more often than the non-attendees (88.3% vs

77.7%; P = 0.002), were more willing to participate (85.6% vs 69.3%; P = 0.001), they considered the letter very clear (15% vs 10.8%; P = 0.003), and information obtained through the hotline appropriate (64.7% vs 56.7%; P = 0.002). Overall satisfaction was high. Critical issues were lack of response from the hotline staff, medium-long waiting time for the results and further examinations. Age >61 years (odds ratio [OR] = 2.747; 95% confidence interval [CI] = 1.842-4.096), receiving the invitation letter (OR = 2.539; 95% CI = 1.519-4.242), and intention to participate (OR = 3.086; 95% CI = 1.938-4.915) were significantly associated with participation in the screening program. CONCLUSIONS: Women's satisfaction with mammography is an important aspect of service utilization. Implementation of strategies to reduce waiting time, increase operating hours, and improve the invitation procedure and the hotline service could enhance satisfaction and attendance rate.

Vermeer, N. C. A., Bahadoer, R. R., Bastiaannet, E., et al. (2018). "Introduction of a colorectal cancer screening programme: results from a single-centre study." Colorectal Dis **20**(9): O239-o247.

AIM: In 2014, a national colorectal cancer (CRC) screening programme was launched in the Netherlands. It is difficult to assess for the individual patients with CRC whether the oncological benefits of surgery will outweigh the morbidity of the procedure, especially in early lesions. This study compares patient and tumour characteristics between screen-detected and nonscreen-detected patients. Also, we present an overview of treatment options and clinical dilemmas when treating patients with early-stage colorectal disease. METHOD: Between January 2014 and December 2016, all patients with nonmalignant polyps or CRC who were referred to the Department of Surgery of the Leiden University Medical Centre in the Netherlands were included. Baseline characteristics, type of treatment and short-term outcomes of patients with screen-detected and nonscreen-detected colorectal tumours were compared. RESULTS: A total of 426 patients were included, of whom 240 (56.3%) were identified by screening. Nonscreen-detected patients more often had comorbidity (P = 0.03), the primary tumour was more often located in the rectum (P = 0.001) and there was a higher rate of metastatic disease (P < 0.001). Of 354 surgically treated patients, postoperative adverse events did not significantly differ between the two groups (P = 0.38). Of 46 patients with T1 CRC in the endoscopic resection specimen, 23 underwent surgical resection of whom only 30.4% had residual invasive disease at colectomy. CONCLUSION: Despite differences in comorbidity, stage and surgical outcome of patients with screen-detected tumours compared to nonscreen-detected tumours were not significantly different. Considering its limited oncological benefits as well as the rate of adverse events, surgery for nonmalignant polyps and T1 CRC should be considered carefully.

Wangmar, J., Jervaeus, A., Fritzell, K., et al. (2018). "Health literacy levels and views about being invited to a colorectal cancer screening program." Acta Oncol **57**(6): 743-749.

BACKGROUND: Sweden has not yet implemented a national screening program for colorectal cancer, but a nationwide study is ongoing; the Screening of Swedish Colons (SCREESCO). Previous research shows that the use of health care services, together with several health-related outcomes, is associated with an individual's level of health literacy. However, the relation between health literacy and participation in colorectal cancer screening has produced varying results reported within the few studies addressing this issue and therefore, further research is warranted. MATERIAL AND METHODS: The aim was to explore health literacy and views about being invited to screening, among participants and non-participants in a national colorectal cancer screening program. They were randomly sampled to fecal immunochemical test or colonoscopy and a mixed methods approach was applied, using questionnaires, focus group discussions and interviews. RESULTS: The majority of individuals, whether they were participants or non-participants in the SCREESCO program, had an acceptable level of health literacy and no significant differences in health literacy levels between the groups were found. Participants expressed that it was important and appreciated to be able to choose information sources on an individual basis. Among non-participants, the importance of receiving invitations with a clear message that quickly draws one's attention was highlighted. However, both groups expressed a positive outlook towards the invitation. The mixed methods approach revealed that findings from interviews and focus group discussions corresponded to items in the health literacy scales. CONCLUSION: A majority of individuals displayed acceptable levels of health literacy, regardless of whether they chose to participate or not. Similarities between the groups were seen in the qualitative findings regarding views of the invitation. Currently, the SCREESCO invitation letter is distributed by regular mail, but in the future a more dynamic approach could be valuable to increase clarity in the message about importance of screening.

Wangmar, J., von Vogelsang, A. C., Hultcrantz, R., et al. (2018). "Are anxiety levels associated with the decision to participate in a Swedish colorectal cancer screening programme? A nationwide cross-sectional study." BMJ Open **8**(12): e025109.

OBJECTIVES: Colorectal cancer (CRC) screening programmes are commonly challenged by low uptake, limiting their potential to reduce CRC burden. We aimed to investigate anxiety levels related to the decision to participate or not in CRC screening among screening participants and non-participants. Further to explore associations between higher anxiety levels related to the decision and individuals' characteristics. DESIGN: A nationwide cross-sectional study conducted with individuals included in a national randomised controlled CRC screening trial, the Screening of Swedish Colons (SCREESCO). PARTICIPANTS: A total of 1409 individuals, 60-62 years, recruited from SCREESCO during 2015-2016 participated in the study; 1256 had participated in CRC screening (faecal immunochemical test: n=958; colonoscopy: n=298) and 153 had declined screening participation. MEASURES: Anxiety levels were assessed with the State-Trait Anxiety Inventory (STAI) S-Anxiety Scale. Health literacy (HL) was assessed with the Swedish Functional and Communicative and Critical Health Literacy Scales. RESULTS: Altogether, 79% of survey participants reported lower anxiety levels regarding their CRC screening decision (STAI S-Anxiety <40). Anxiety levels did not differ between screening participants and non-participants (mean STAI S-Anxiety score=34.1 vs 33.9, p=0.859). The odds of reporting higher anxiety levels increased by female sex (OR=1.37; CI 1.04 to 1.80; p=0.025) and previous faecal sampling (OR=1.53; CI 1.14 to 2.05; p=0.004), and decreased if living with partner (OR=0.65; CI 0.48 to 0.88; p=0.005), working (OR=0.72; CI 0.53 to 0.96; p=0.027) or having sufficient HL (functional: OR=0.49; CI 0.33 to 0.73, p≤0.001; communicative and critical: OR=0.55; CI 0.38 to 0.82; p=0.003). CONCLUSIONS: Anxiety levels did not differ between screening participants and non-participants. Higher anxiety scores were associated with certain characteristics. Interventions accounting for these characteristics can be applied to reduce anxiety and facilitate programme acceptance. TRIAL REGISTRATION NUMBER: NCT02078804; Results.

Willems, B. et Bracke, P. (2018). "The education gradient in cancer screening participation: a consistent phenomenon across Europe?" Int J Public Health **63**(1): 93-103.

OBJECTIVES: To extend the literature on educational inequalities in cancer screening participation (1) by simultaneously focusing on participation in screening for cervical, breast and colorectal cancer across 27 European countries and (2) by statistically testing whether these educational inequalities vary according to country-specific screening strategies: organised or opportunistic. METHODS: Self-reported data from Eurobarometer 66.2 (2006) on cancer screening participation in the preceding 12 months were used to outline cross-national variations in screening strategies, target populations and participation rates. Multilevel logistic regressions were applied. RESULTS: Individuals with higher levels of education were more likely to participate in screening for cervical, breast and colorectal cancer than were those with less education. Educational inequalities in cancer screening participation were significantly smaller in countries with organised screening for cervical (OR = 0.696, 95% CI 0.531–0.912), breast (OR = 0.628, 95% CI 0.438–0.900) and colorectal (OR = 0.531, 95% CI 0.303–0.932) cancer than they were in countries with opportunistic screening. The same interaction was observed for participation in screening for breast and colorectal cancer, albeit with marginal significance. CONCLUSIONS: This study clearly highlights the crucial role of educational level in the likelihood of participating in cancer screening. Countries can reduce educational inequalities by applying organised screening programmes.

Willems, B. et Bracke, P. (2018). "The impact of regional screening policies on the diffusion of cancer screening participation in Belgium: time trends in educational inequalities in Flanders and Wallonia." BMC Health Serv Res **18**(1): 943.

https://doi.org/10.1186/s12913-018-3746-x

We investigate whether the extent of educational inequalities in the use of Pap smears (cervical cancer screening) and mammograms (breast cancer screening) in Belgium has changed over time in accordance with the pattern predicted by diffusion of innovation theory, as well as how the regional cancer screening policies of Flanders and Wallonia influence this pattern.

2017

Altobelli, E., Rapacchietta, L., Angeletti, P. M., et al. (2017). "Breast Cancer Screening Programmes across the WHO European Region: Differences among Countries Based on National Income Level." Int J Environ Res Public Health **14**(4).

Breast cancer (BC) is the most frequent tumour affecting women all over the world. In low- and middle-income countries, where its incidence is expected to rise further, BC seems set to become a public health emergency. The aim of the present study is to provide a systematic review of current BC screening programmes in WHO European Region to identify possible patterns. Multiple correspondence analysis was performed to evaluate the association among: measures of occurrence; GNI level; type of BC screening programme; organization of public information and awareness campaigns regarding primary prevention of modifiable risk factors; type of BC screening services; year of screening institution; screening coverage and data quality. A key difference between High Income (HI) and Low and Middle Income (LMI) States, emerging from the present data, is that in the former screening programmes are well organized, with approved screening centres, the presence of mobile units to increase coverage, the offer of screening tests free of charge; the fairly high quality of occurrence data based on high-quality sources, and the adoption of accurate methods to estimate incidence and mortality. In conclusion, the governments of LMI countries should allocate sufficient resources to increase screening participation and they should improve the accuracy of incidence and mortality rates.

Andreassen, T., Weiderpass, E., Nicula, F., et al. (2017). "Controversies about cervical cancer screening: A qualitative study of Roma women's (non)participation in cervical cancer screening in Romania." Soc Sci Med **183**: 48-55.

Romania has Europe's highest incidence and mortality of cervical cancer. While a free national cervical cancer-screening programme has been in operation since 2012, participation in the programme is low, particularly in minority populations. The aim of this study was to explore Roma women's (non)participation in the programme from women's own perspectives and those of healthcare providers and policy makers. We carried out fieldwork for a period of 125 days in 2015/16 involving 144 study participants in Cluj and Bucharest counties. Fieldwork entailed participant observation, qualitative interviewing and focus group discussions. A striking finding was that screening providers and Roma women had highly different takes on the national screening programme. We identified four fundamental questions about which there was considerable disagreement between them: whether a free national screening programme existed in the first place, whether Roma women were meant to be included in the programme if it did, whether Roma women wanted to take part in screening, and to what degree screening participation would really benefit women's health. On the background of insights from actor-network theory, the article discusses to what degree the programme could be said to speak to the interest of its intended Roma public, and considers the controversies in light of the literature on patient centred care and user involvement in health care. The paper contributes to the understanding of the health and health-related circumstances of the largest minority in Europe. It also problematizes the use of the concept of "barriers" in research into participation in cancer screening, and exemplifies how user involvement can potentially help transform and improve screening programmes.

Arana-Arri, E., Idigoras, I., Uranga, B., et al. (2017). "Population-based colorectal cancer screening programmes using a faecal immunochemical test: should faecal haemoglobin cut-offs differ by age and sex?" BMC

Cancer **17**(1): 577.

BACKGROUND: The Basque Colorectal Cancer Screening Programme has both high participation rate and high compliance rate of colonoscopy after a positive faecal occult blood test (FIT). Although, colorectal cancer (CRC) screening with biannual (FIT) has shown to reduce CRC mortality, the ultimate effectiveness of the screening programmes depends on the accuracy of FIT and post-FIT colonoscopy, and thus, harms related to false results might not be underestimated. Current CRC screening programmes use a single faecal haemoglobin concentration (f-Hb) cut-off for colonoscopy referral for both sexes and all ages. We aimed to determine optimum f-Hb cut-offs by sex and age without compromising neoplasia detection and interval cancer proportion. METHODS: Prospective cohort study using a single-sample faecal immunochemical test (FIT) on 444,582 invited average-risk subjects aged 50-69 years. A result was considered positive at ≥20 µg Hb/g faeces. Outcome measures were analysed by sex and age for a wide range of f-Hb cut-offs. RESULTS: We analysed 17,387 positive participants in the programme who underwent colonoscopy. Participation rate was 66.5%. Men had a positivity rate for f-Hb of 8.3% and women 4.8% (p < 0.0001). The detection rate for advanced neoplasia (cancer plus advanced adenoma) was 44.0‰ for men and 15.9‰ for women (p < 0.0001). The number of colonoscopies required decreased in both sexes and all age groups through increasing the f-Hb cut-off. However, the loss in CRC detection increased by up to 28.1% in men and 22.9% in women. CRC missed were generally at early stages (Stage I-II: from 70.2% in men to 66.3% in women). CONCLUSIONS: This study provides detailed outcomes in men and women of different ages at a range of f-Hb cut-offs. We found differences in positivity rates, neoplasia detection rate, number needed to screen, and interval cancers in men and women and in younger and older groups. However, there are factors other than sex and age to consider when consideration is given to setting the f-Hb cut-off.

Beau, A. B., Lynge, E., Njor, S. H., et al. (2017). "Benefit-to-harm ratio of the Danish breast cancer screening programme." Int J Cancer **141**(3): 512-518.

The primary aim of breast cancer screening is to reduce breast cancer mortality, but screening also has negative side-effects as overdiagnosis. To evaluate a screening programme, both benefits and harms should be considered. Published estimates of the benefit-to-harm ratio, the number of breast cancer deaths prevented divided by the number of overdiagnosed breast cancer cases, varied considerably. The objective of the study was to estimate the benefit-to-harm ratio of breast cancer screening in Denmark. The numbers of breast cancer deaths prevented and overdiagnosed cases [invasive and ductal carcinoma in situ (DCIS)] were estimated per 1,000 women aged 50-79, using national published estimates for breast cancer mortality and overdiagnosis, and national incidence and mortality rates. Estimations were made for both invited and screened women. Among 1,000 women invited to screening from age 50 to age 69 and followed until age 79, we estimated that 5.4 breast cancer deaths would be prevented and 2.1 cases overdiagnosed, under the observed scenario in Denmark of a breast cancer mortality reduction of 23.4% and 2.3% of the breast cancer cases being overdiagnosed. The estimated benefit-to-harm ratio was 2.6 for invited women and 2.5 for screened women. Hence, 2-3 women would be prevented from dying from breast cancer for every woman overdiagnosed with invasive breast cancer or DCIS. The difference between the previous published ratios and 2.6 for Denmark is probably more a reflection of the accuracy of the underlying estimates than of the actual screening programmes. Therefore, benefit-to-harm ratios should be used cautiously.

Blom, J. et Törnberg, S. (2017). "Interval cancers in a guaiac-based colorectal cancer screening programme: Consequences on sensitivity." J Med Screen **24**(3): 146-152.

Objective To evaluate interval cancers in the population-based colorectal cancer screening programme of Stockholm/Gotland, Sweden. Methods From 2008, individuals aged 60-69 were invited to colorectal cancer screening using biennial guaiac-based faecal occult blood test (Hemoccult®). Interval cancers, defined as colorectal cancer among participants not diagnosed by the screening programme but registered in the Swedish cancer register, were evaluated by cross-checking the screening histories for all cancers in the region 2008-2012. Results Of 203,848 individuals from nine different birth cohorts who participated (~60%), 4530 (2.2%) tested positive. All invited individuals were followed up for 24 months after invitation. The cancer register reported 557 colorectal cancer, 219 (39.3%) screen-detected cancers and 338 (60.7%) interval cancers, generating both test- and episode sensitivities of approximately 40% and an interval cancer-rate of 17.1/10,000 tests. Among individuals with positive tests without colorectal cancer diagnosed at work-up colonoscopy, 37 interval cancers (10.9%) occurred. There was statistically significant lower sensitivity in women, ranging 22.4-32.2%, compared with 43.2-52.0% in men. Age-group and tumour location were not strongly correlated to screen-detected cancer rates. The programme sensitivity increased by year (20.3-25.0%), with successively more colorectal cancers diagnosed within the expanding programme (11.6-16.2%). Conclusion Interval cancer is a quality indicator of a screening programme. As the interval cancer-rate determined in a well-organized population-based screening programme was actually higher than the screen-detected cancer rate, a change to a more sensitive screening test is indicated. The lower screen-detected cancers among women, and compliance and quality of work-up colonoscopies also need attention.

Burón, A., Posso, M., Sivilla, J., et al. (2017). "Analysis of participant satisfaction in the Barcelona colorectal cancer screening programme: Positive evaluation of the community pharmacy." Gastroenterol Hepatol **40**(4): 265-275.

BACKGROUND AND OBJECTIVE: Population-based bowel screening programmes with faecal occult blood (FOB) tests need to achieve high uptake rates and offer quality services. We invited participants in the Barcelona Programme to complete a satisfaction survey, in order to explore factors influencing uptake and respondents' opinion and satisfaction with each step of the screening process. MATERIAL AND METHOD: Telephone survey using an ad hoc questionnaire (see annex) administered to a final sample of 1189 people: 310 non-participants in the programme (NoP), 553 participants with a negative test result (PNeg), and 326 participants with a positive result (PPos). RESULTS: High scores were obtained for the clarity of the information provided by the programme (mean 8.9 on a scale 0-10), and for the accessibility and attention at the pharmacy as well as its role as the point for collection and return of FOB test cards (mean >9.3). Aspects that were not so highly rated were: preparation for the colonoscopy (41.6% reported quite a lot or a lot of discomfort), and to a lesser extent telephone accessibility (27.1% reported some difficulties). Participants also expressed concern about receiving a positive test result by telephone (78.9% reported some concern). CONCLUSIONS: Respondents' opinion of the programme was positive overall, and supports the pharmacy as the point for distributing and collecting FOB test cards, as well as the role of the pharmacist in the context of the programme. Some aspects of the screening process will be reviewed in order to improve participant satisfaction and eventually increase uptake.

Chiu, S. Y., Malila, N., Yen, A. M., et al. (2017). "Predicting the effectiveness of the Finnish population-based colorectal cancer screening programme." J Med Screen **24**(4): 182-188.

Objective Because colorectal cancer (CRC) has a long natural history, estimating the effectiveness of CRC screening programmes requires long-term follow-up. As an alternative, we here demonstrate the use of a temporal multi-state natural history model to predict the effectiveness of CRC screening. Methods In the Finnish population-based biennial CRC screening programme using faecal occult blood tests (FOBT), which was conducted in a randomised health services study, we estimated the pre-clinical incidence, the mean sojourn time (MST), and the sensitivity of FOBT using a Markov model to analyse data from 2004 to 2007. These estimates were applied to predict, through simulation, the effects of five rounds of screening on the relative rate of reducing advanced CRC with 6 years of follow-up, and on the reduction in mortality with 10 years of follow-up, in a cohort of 500,000 subjects aged 60 to 69. Results For localised and non-localised CRC, respectively, the MST was 2.06 and 1.36 years and the sensitivity estimates were 65.12% and 73.70%. The predicted relative risk of non-localised CRC and death from CRC in the screened compared with the control population was 0.86 (95% CI: 0.79-0.98) and 0.91 (95% CI: 0.85-1.02), respectively. Conclusion Based on the preliminary results of the Finnish CRC screening programme, our model predicted a 9% reduction in CRC mortality and a 14% reduction in advanced CRC.

Davies, P., Valuta, D., Cojohari, N., et al. (2017). "Implementing an organised cervical screening programme in the Republic of Moldova-Stakeholder identification and engagement." Cancer Epidemiol **50**(Pt B): 272-277.

INTRODUCTION: Successfully implementing cervical screening programmes requires them to be adapted to the local context and have broad stakeholder support. This can be achieved by actively engaging local stakeholders in planning as well as implementing the programmes. The Moldovan government started implementing an organised cervical screening programme in 2010 with the first step being stakeholder identification and engagement. MATERIALS AND METHODS: This process started by contacting easily identified stakeholders with each asked to recommend others and the process continued until no new ones were identified. Stakeholders were then involved in a series of individual and group meetings over a 2-year period to build confidence and encourage progressively greater engagement. RESULTS: In total, 87 individuals from 46 organisations were identified. Over the 2-year process, the individual and group meetings facilitated a change in stakeholder attitudes from disinterest, to acceptance and finally to active cooperation in designing the screening programme and preparing an implementation plan that were both well adapted to the Moldovan context. DISCUSSION: Developing the broad support needed to implement cervical screening programmes required ongoing interaction with stakeholders over an extended period. This interaction allowed stakeholder concerns to be identified and addressed, progress to be demonstrated, and stakeholders to be educated about organised screening programmes so they had the knowledge to progressively take greater responsibility and ownership.

Fransen, M. P., Dekker, E., Timmermans, D. R. M., et al. (2017). "Accessibility of standardized information of a national colorectal cancer screening program for low health literate screening invitees: A mixed method study." Patient Educ Couns **100**(2): 327-336.

OBJECTIVE: To explore the accessibility of standardized printed information materials of the national Dutch colorectal cancer screening program among low health literate screening invitees and to assess the effect of the information on their knowledge about colorectal cancer and the screening program. METHODS: Linguistic tools were used to analyze the text and design characteristics. The accessibility, comprehensibility and relevance of the information materials were explored in interviews and in observations (n=25). The effect of the information on knowledge was assessed in an online survey (n=127). RESULTS: The materials employed a simple text and design. However, respondents expressed problems with the amount of information, and the difference between screening and diagnostic follow-up. Knowledge significantly increased in 10 out of 16 items after reading the information but remained low for colorectal cancer risk, sensitivity of testing, and the voluntariness of colorectal cancer screening. CONCLUSION: Despite intelligible linguistic and design characteristics, screening invitees with low health literacy had problems in accessing, comprehending and applying standard information materials on colorectal cancer screening, and lacked essential knowledge for informed decision-making about participation. PRACTICE IMPLICATIONS: To enable equal access to informed decision-making, information strategies need to be adjusted to the skills of low health literate screening invitees.

Gallo, F., Caprioglio, A., Castagno, R., et al. (2017). "Inequalities in cervical cancer screening utilisation and results: A comparison between Italian natives and immigrants from disadvantaged countries." Health Policy(Ahead of print).
http://dx.doi.org/10.1016/j.healthpol.2017.08.005

Cervical screening underutilisation is well documented among immigrants from poor countries. Participation rate to cervical screening was lower for immigrants than for Italians.?Increasing age, illiteracy, being single, negatively influenced immigrants? participation.?Severe lesions nearly double among immigrants in first screens compared to Italians. Policy makers should support screening providers in establishing coalitions with immigrants' organisations.

Godley, K. C., Gladwell, C., Murray, P. J., et al. (2017). "The UK breast screening program - what you need to know." Climacteric **20**(4): 313-320.

Breast cancer is the most commonly diagnosed cancer in women with a lifetime risk of 1 in 8 in the UK. The disease is associated with considerable morbidity and mortality. The UK breast screening program has been in place for almost 30 years and has evolved with improved diagnostic imaging. The overall benefits of the screening program are subject to continued heated debate with multiple potential harms. The aim of this review is to provide the non-breast specialist health-care professional an overview of the evolution of the breast screening program, a summary of the evidence of the benefits, and a description of the harms. In addition, the diagnostic methods currently employed as well as potential future changes to the screening program and imaging techniques will be covered.

Guiriguet, C., Pera, G., Castells, A., et al. (2017). "Impact of comorbid conditions on participation in an organised colorectal cancer screening programme: a cross-sectional study." BMC Cancer **17**(1): 524.

BACKGROUND: There is controversy regarding how comorbidity impacts on colorectal cancer screening, especially in the context of organised programmes. The aim of this study is to assess the effect of comorbidities on participation in the Barcelona population-based colorectal cancer screening programme (BCCSP). METHODS: Cross-sectional study carried out in ten primary care centres involved in the BCCSP. Individuals aged 50 to 69, at average risk of colorectal cancer, who were invited to participate in the first round of the faecal immunochemical test-based BCCSP were included (2011-2012). The main variable was participation in the BCCSP. Comorbidity was assessed by clinical risk group status. Other adjusting variables were age, sex, socioeconomic deprivation, visits to primary care, smoking, alcohol consumption and body mass index. Logistic regression models were used to test the association between participation in the programme and potential explanatory variables. The results were given as incidence rate ratios (IRR) and their 95% confidence intervals (CI). RESULTS: Of the 36,208 individuals included, 17,404 (48%) participated in the BCCSP. Participation was statistically significantly higher in women, individuals aged 60 to 64, patients with intermediate socioeconomic deprivation, and patients with more medical visits. There was a higher rate of current smoking, high-risk alcohol intake, obesity and individuals in the highest comorbidity categories in the non-participation group. In the adjusted analysis, only individuals with multiple minor chronic diseases were more likely to participate in the BCCSP (IRR 1.14; 95% CI [1.06 to 1.22]; p < 0.001). In contrast, having three or more dominant chronic diseases was associated with lower participation in the screening programme (IRR 0.76; 95% CI [0.65 to 0.89]; p = 0.001). CONCLUSIONS: Having three or more dominant chronic diseases, was associated with lower participation in a faecal immunochemical test-based colorectal cancer screening programme, whereas individuals with multiple minor chronic diseases were more likely to participate. Further research is needed to explore comorbidity as a cause of non-participation in colorectal cancer screening programmes and which individuals could benefit most from colorectal cancer screening.

Idigoras, I., Arrospide, A., Portillo, I., et al. (2017). "Evaluation of the colorectal cancer screening Programme in the Basque Country (Spain) and its effectiveness based on the Miscan-colon model." BMC Public Health **18**(1): 78.

The population-based Basque Colorectal Cancer (CRC) Screening Programme started in 2009 with a biennial immunochemical quantitative test (FIT) biennial and colonoscopy under sedation in positive cases. The population target of 586,700 residents was from 50 to 69 years old and the total coverage was reached at the beginning of 2014. The aim of our study was to determine possible scenarios in terms of incidence, mortality and reduction of Life-years-Lost (L-y-L) in the medium and long term of CRC. METHODS: Invitations were sent out by the Programme from 2009 to 2014, with combined organizational strategies. Simulation was done by MISCAN-colon (Microsimulation Screening Analysis) over 30 years comparing the results of screening vs no-screening, taking the population-based Cancer Registry into account. Lifetime population and real data from the Programme were used from 2008 to 2012. The model was run differentially for men and women. RESULTS: 924,416 invitations were sent out from 2009 to 2014. The average participation rate was 68.4%, CRC detection rate was 3.4% and the Advanced Adenoma detection rate was 24.0‰, with differences observed in sex and age. Future scenarios showed a higher decrease of incidence (17.2% vs 14.7%), mortality (28.1% vs 22.4%) and L-y-L (22.6% vs 18.4%) in men than women in 2030. CONCLUSIONS: The Basque Country CRC Programme results are aligned to its strategy and comparable to other programmes. MISCAN model was found to be a useful tool to predict the benefits of the programme in the future. The effectiveness of the Programme has not been formally established as case control studies are required to determine long term benefits from the screening strategy.

Ilenko, A., Sergent, F., Mercuzot, A., et al. (2017). "Could Patients Older than 75 Years Benefit from a Systematic Breast Cancer Screening Program?" Anticancer Res **37**(2): 903-907.

BACKGROUND/AIM: To assess prognosis of women aged 75 and older according to breast cancer (BC) diagnosis circumstances. PATIENTS AND METHODS: A retrospective cohort study was conducted in the Amiens, France, regional oncologic referral center between 2005 and 2015. Two groups were formed depending on whether the patients followed clinical manifestations (CM) or a prescribed systematic mammography (SM). RESULTS: Three hundred and ninenty-three patients were selected. CM and SM represented 72% and 14.5% of BC diagnosis circumstances, respectively. In the SM group statistically significant differences included: earlier stage cancer diagnosis (tumor stages 0 and 1 accounted for 6.3% and 61.4% of cases, respectively), less lymph node invasions (35.7% and 8.8%) and metastases (19.1% and 0%), more frequent possibility of conservative surgery (25.6% and 74.5%), improved global and disease-free survival rates (by 14.2 and 18.4 months). CONCLUSION: Screening seems to improve prognosis of older BC patients; this constitutes a strong argument for reconsidering age limits of national BC screening programs.

Jacobsen, K. K., von Euler Chelpin, M., Vejborg, I., et al. (2017). "Impact of invitation schemes on breast cancer screening coverage: A cohort study from Copenhagen, Denmark." J Med Screen **24**(1): 20-26.

Background The purpose of mammography screening is to decrease breast cancer mortality. To achieve this a high coverage by examination is needed. Within an organized screening programme, we examined the impact of changes in the invitation schedule on the interplay between coverage and participation. Method We studied nine cohorts aged 50-51 when first targeted by mammography screening in Copenhagen, Denmark. Population data were retrieved from the Danish Civil Registration System; invitation and attendance data from the screening programme database. Data were linked using unique personal identification numbers. Coverage by invitation was defined as (number of invited women/number of targeted women), coverage by examination as (number of screened women/number of targeted women), and participation rate as (number of screened women/number of invited women). Results Coverage by invitation was close to or above 95% for all newly recruited cohorts. In subsequent invitation rounds, both technical errors and changes in the invitation scheme affected the coverage by invitation. Coverage by examination at first invitation was 72.5% for the first cohort, but dropped to 64.2% for the latest cohort. Furthermore, coverage by examination dropped by increasing invitation number and with omission of re-invitation of previous non-attenders. Participation rate closely reflected changes in the invitation scheme. Conclusion Changes in the invitation schemes influenced coverage by invitation, coverage by examination, and participation rate. We observed a considerable gap between coverage by examination and participation rate, strongly indicating that the latter cannot without reservations, be taken as an indicator of the first.

Larsen, M. B., Mikkelsen, E. M., Rasmussen, M., et al. (2017). "Sociodemographic characteristics of nonparticipants in the Danish colorectal cancer screening program: a nationwide cross-sectional study." Clin Epidemiol **9**: 345-354.

INTRODUCTION: Fecal occult blood tests are recommended for colorectal cancer (CRC) screening in Europe. Recently, the fecal immunochemical test (FIT) has come into use. Sociodemographic differences between participants and nonparticipants may be less pronounced when using FIT as there are no preceding dietary restrictions and only one specimen is required. The aim of this study was to examine the associations between sociodemographic characteristics and nonparticipation for both genders, with special emphasis on those who actively unsubscribe from the program. METHODS: The study was a national, register-based, cross-sectional study among men and women randomized to be invited to participate in the prevalence round of the Danish CRC screening program between March 1 and December 31, 2014. Prevalence ratios (PRs) were used to quantify the association between sociodemographic characteristics and nonparticipation (including active nonparticipation). PRs were assessed using Poisson regression with robust error variance. RESULTS: The likelihood of being a nonparticipant was highest in the younger part of the population; however, for women, the association across age groups was U-shaped. Female immigrants were more likely to be nonparticipants. Living alone, being on social welfare, and having lower income were factors that were associated with nonparticipation among both men and women. For both men and women, there was a U-shaped association between education and nonparticipation. For both men and women, the likelihood of active nonparticipation rose with age; it was lowest among non-western immigrants and highest among social welfare recipients. CONCLUSION: Social inequality in screening uptake was evident among both men and women in the Danish CRC screening program, even though the program is free of charge and the screening kit is based on FIT and mailed directly to the individuals. Interventions are needed to bridge this gap if CRC screening is to avoid aggravating existing inequalities in CRC-related morbidity and mortality.

Marlow, L. A. V., Chorley, A. J., Haddrell, J., et al. (2017). "Understanding the heterogeneity of cervical cancer screening non-participants: Data from a national sample of British women." Eur J Cancer **80**: 30-38.

BACKGROUND: Uptake of cervical cancer screening in the United Kingdom (UK) is falling year on year, and a more sophisticated understanding of non-participation may help design interventions to reverse this trend. This study ascertained the prevalence of different non-participant types using the Precaution Adoption Process Model (PAPM). METHODS: Home-based computer-assisted interviews were carried out with 3113 screening-eligible women in Britain. Survey items assessed self-reported screening uptake and intention to attend in future. Responses to these items were used to classify women into one of five different types of non-participants. RESULTS: Of 793 non-participants, 28% were unaware of screening, 15% had decided not to attend and 51% were intending to have screening but were currently overdue. Younger women were more likely to be unaware of screening or to intend to be screened, while older women were more likely to have decided not to be screened. Women from ethnic minority backgrounds were more likely to be unaware of screening than white women. Being in a lower social grade was associated with increased odds of all three types of non-participation. CONCLUSION: The majority of cervical cancer screening non-participants are not making an active decision not to attend but rather are either unaware or unable to act. There are clear sociodemographic differences between non-participant types, which could be used to identify where tailored interventions may be best targeted.

Morton, R., Sayma, M. et Sura, M. S. (2017). "Economic analysis of the breast cancer screening program used by the UK NHS: should the program be maintained?" Breast Cancer (Dove Med Press) **9**: 217-225.

INTRODUCTION: One key tool thought to combat the spiraling costs of late-stage breast cancer diagnosis is the use of breast cancer screening. However, over recent years, more effective treatments and questions being raised over the safety implications of using mammography have led to the cost-effectiveness of breast cancer screening to be highlighted as an important issue to investigate. METHODS: A cost-utility analysis was conducted to appraise the breast cancer screening program. The analysis considered the breast cancer screening program and its utility over a 20-year period, accounting for the typical breast cancer screening period taking place between the ages of 50 and 70 years. Analysis was conducted from the perspective of the UK National Health Service (NHS). This accepted NHS threshold was utilized for analysis of £20,000/quality-adjusted life year (QALY)-£30,000/QALY gain. A systematic literature review was conducted to obtain relevant financial, health, and probability outcomes pertaining to the breast cancer screening program. RESULTS: The mean incremental cost-effectiveness ratio (ICER) calculated was at a value of £11,546.11 with subsequent sensitivity analysis conducted around this value. Three sensitivity analyses were undertaken to evaluate ICERs of a range of scenarios which could occur as the following: 1) maximum costs at each node - £17,254/QALY; 2) all costs are fixed costs: screening center costs, and staff are paid for regardless of use - £14,172/QALY; and 3) combination of (1) and (2) to produce a worst case scenario £20,823/QALY. DISCUSSION AND CONCLUSION: The majority of calculations suggested that breast cancer screening is cost-effective. However, in our worst case scenario, the ICER fell near the bottom ceiling ratio. This makes it unclear whether the program should be available in the future, as more evidence becomes available over the risks of screening and as some currently expensive chemotherapy drugs begin to lose patents.

Navarro, M., Nicolas, A., Ferrandez, A., et al. (2017). "Colorectal cancer population screening programs worldwide in 2016: An update." World J Gastroenterol **23**(20): 3632-3642.

Colorectal cancer (CRC) is the third most commonly diagnosed cancer in the world. The incidence and mortality show wide geographical variations. Screening is recommended to reduce both incidence and mortality. However, there are significant differences among studies in implementation strategies and detection. This review aimed to present the results and strategies of different screening programs worldwide. We reviewed the literature on national and international screening programs published in PubMed, on web pages, and in clinical guidelines. CRC Screening programs are currently underway in most European countries, Canada, specific regions in North and South America, Asia, and Oceania. The most extensive screening strategies were based on fecal occult blood testing, and more recently, the fecal immunochemical test (FIT). Participation in screening has varied greatly among different programs. The Netherlands showed the highest participation rate (68.2%) and some areas of Canada showed the lowest (16%). Participation rates were highest among women and in programs that used the FIT test. Men exhibited the greatest number of positive results. The FIT test has been the most widely used screening program worldwide. The advent of this test has increased participation rates and the detection of positive results.

Nowakowski, A., Wojciechowska, U., Wieszczy, P., et al. (2017). "Trends in cervical cancer incidence and mortality in Poland: is there an impact of the introduction of the organised screening?" Eur J Epidemiol **32**(6): 529-532.

Aside from existing opportunistic screening, an organised screening programme (OSP) for cervical cancer (CC) was implemented in 2006/2007 in Poland. We applied joinpoint regression and age-period-cohort model to look for the impact of the OSP on CC incidence/mortality trends. Decline of age-standardised incidence rates (ASIRs) in the screening-age group (25-59 years) accelerated from -2.2% (95% CI -2.7 to -1.7%) between 1993 and 2008 to -6.1% (95% CI -7.7 to -4.4%) annually after 2008. In women aged 60+ years, ASIRs declined from 1986 until 2005 [annual percent change (APC) = -2.6%, 95% CI -2.9 to -2.4%] and stabilised thereafter. Decline of age-standardised mortality rates (ASMRs) in the screening-age group accelerated from -1.3% (95% CI -1.5 to -1.1%) between 1980 and 2005 to -4.7% (95% CI -5.6 to -3.8%) annually after 2005. In women aged 60+ ASMR declined between 1991 and 2004 (APC = -2.9%, 95% CI -3.5 to -2.3%) and stabilised thereafter. Relative risks of CC diagnosis and death were 0.63 (95% CI 0.62-0.65) and 0.61 (95% CI 0.59-0.63), respectively, for the most recent period compared to the reference around 1982. Implementation of the OSP possibly accelerated downward trends in the burden of CC in Polish women under the age of 60, but recent stabilisation of trends in older women requires actions.

Oberaigner, W., Geiger-Gritsch, S., Edlinger, M., et al. (2017). "Reduction in advanced breast cancer after introduction of a mammography screening program in Tyrol/Austria." Breast **33**: 178-182.

BACKGROUND: We analysed all female breast cancer (BC) cases in Tyrol/Austria regarding the shift in cancer characteristics, especially the shift in advanced BC, for the group exposed to screening as compared to the group unexposed to screening. METHODS: The analysis was based on all BC cases diagnosed in women aged 40-69 years, resident in Tyrol, and diagnosed between 2009 and 2013. The data were linked to the Tyrolean mammography screening programme database to classify BC cases as "exposed to screening" or "unexposed to screening". Age-adjusted relative risks (RR) were estimated by relating the exposed to the unexposed group. RESULTS: In a total of about 145,000 women aged 40-69 years living in Tyrol during the study period, 1475 invasive BC cases were registered. We estimated an age-adjusted relative risk (RR) for tumour size ≥ 21 mm of 0.72 (95% confidence interval (CI) 0.60 to 0.86), for metastatic BC of 0.27 (95% CI 0.17 to 0.46) and for advanced BC of 0.83 (95% CI 0.71 to 0.96), each comparing those exposed to those unexposed to screening, respectively. CONCLUSION: In our population-based registry analysis we observed that participation in the mammography screening programme in Tyrol is associated with a 28% decrease in risk for BC cases with tumour size ≥ 21 mm and a 17% decrease in risk for advanced BC. We therefore expect the Tyrolean mammography programme to show a reduction in BC mortality.

Parker, L. (2017). "Including values in evidence-based policy making for breast screening: An empirically grounded tool to assist expert decision makers." Health Policy **121**(7): 793-799.

Values are an important part of evidence-based decision making for health policy: they guide the type of evidence that is collected, how it is interpreted, and how important the conclusions are considered to be. Experts in breast screening (including clinicians, researchers, consumer advocates and senior administrators) hold differing values in relation to what is important in breast screening policy and practice, and committees may find it difficult to incorporate the complexity and variety of values into policy decisions. The decision making tool provided here is intended to assist with this process. The tool is modified from more general frameworks that are intended to assist with ethical decision making in public health, and informed by data drawn from previous empirical studies on values amongst Australian breast screening experts. It provides a structured format for breast screening committees to consider and discuss the values of themselves and others, suggests relevant topics for further inquiry and highlights areas of need for future research into the values of the public. It enables committees to publicly explain and justify their decisions with reference to values, improving transparency and accountability. It is intended to act alongside practices that seek to accommodate the values of individual women in the informed decision making process for personal decision making about participation in breast screening.

Pletscher, M. (2017). "The effects of organized screening programs on the demand for mammography in Switzerland." Eur J Health Econ **18**(5): 649-665.

The objective of this study is to estimate the causal effect of organized mammography screening programs on the proportion of women between 50 and 69 years of age who have ever used mammography. We exploit the gradual implementation of organized screening programs in nine Swiss cantons using a difference-in-difference approach. An analysis of four waves of the Swiss Health Survey shows that 3.5-5.4% points of the 87.9% utilization rate in cantons with screening programs in 2012 can be attributed to these organized programs. This effect indicates that organized programs can motivate women who have never done mammography to initiate screening.

Portillo, I., Arana-Arri, E., Idigoras, I., et al. (2017). "Colorectal and interval cancers of the Colorectal Cancer Screening Program in the Basque Country (Spain)." World J Gastroenterol **23**(15): 2731-2742.

AIM: To assess proportions, related conditions and survival of interval cancer (IC). METHODS: The programme has a linkage with different clinical databases and cancer registers to allow suitable evaluation. This evaluation involves the detection of ICs after a negative faecal inmunochemical test (FIT), interval cancer FIT (IC-FIT) prior to a subsequent invitation, and the detection of ICs after a positive FIT and confirmatory diagnosis without colorectal cancer (CRC) detected and before the following recommended colonoscopy, IC-colonoscopy. We conducted a retrospective observational study analyzing from January 2009 to December 2015 1193602 invited people onto the Programme (participation rate of 68.6%). RESULTS: Two thousand five hundred and eighteen cancers were diagnosed through the programme, 18 cases of IC-colonoscopy were found before the recommended follow-up (43542 colonoscopies performed) and 186 IC-FIT were identified before the following invitation of the 769200 negative FITs. There was no statistically significant relation between the predictor variables of ICs with sex, age and deprivation index, but there was relation between location and stage. Additionally, it was observed that there was less risk when the location was distal rather than proximal (OR = 0.28, 95%CI: 0.20-0.40, P < 0.0001), with no statistical significance when the location was in the rectum as opposed to proximal. When comparing the screen-detected cancers (SCs) with ICs, significant differences in survival were found (P < 0.001); being the 5-years survival for SCs 91.6% and IC-FIT 77.8%. CONCLUSION: These findings in a Population Based CRC Screening Programme indicate the need of population-based studies that continue analyzing related factors to improve their detection and reducing harm.

Puharić, Z., Žulec, M., Ceronja, I., et al. (2017). "High Participation Rate in Mammography Screening: Experience from Croatia." Cent Eur J Public Health **25**(4): 303-306.

OBJECTIVE: The aim of the study was to analyse the results of three cycles of mammography screening (MS) in the Croatian National Programme (CNP) for Early Breast Cancer Detection for women aged 50–69 years in the Bjelovar-Bilogora County (BBC) from 2006–2014. METHODS: Data on women aged 50–69 screened during a 9-year period were obtained from the Croatian Cancer Registry and Institute of Public Health reports. Participation rate and performance indicators were examined. RESULTS: The total of 57,428 women were invited to mammography screening in BBC during a 9-year period and 31,402 mammograms in total were performed. The response rate of 84% in BBC was consistently higher than the national average of about 60% reported in 2007, 2013 and 2014. CONCLUSION: The National Programme in BBC has been carried out continuously for nine years with a higher response rate compared with the national average, as a result of additional efforts of the Croatian Institute of Public Health team, as well as good cooperation among all programme stakeholders. It was concluded that to achieve better results in the response of women to screening and consequently reduced mortality from breast cancer is possible through tailored health promotion activities.

Rice, K., Gressard, L., DeGroff, A., et al. (2017). "Increasing colonoscopy screening in disparate populations: Results from an evaluation of patient navigation in the New Hampshire Colorectal Cancer Screening Program." Cancer **123**(17): 3356-3366.

BACKGROUND: To investigate uniformly successful results from a statewide program of patient navigation (PN) for colonoscopy, this comparison study evaluated the effectiveness of the PN intervention by comparing outcomes for navigated versus non-navigated patients in one of the community health clinics included in the statewide program. Outcomes measured included screening completion, adequacy of bowel preparation, missed appointments and cancellations, communication of test results, and consistency of follow-up recommendations with clinical guidelines. METHODS: The authors compared a subset of 131 patients who were navigated to a screening or surveillance colonoscopy with a similar subset of 75 non-navigated patients at one endoscopy clinic. The prevalence and prevalence odds ratios were computed to measure the association between PN and each study outcome measure. RESULTS: Patients in the PN intervention group were 11.2 times more likely to complete colonoscopy than control patients (96.2% vs 69.3%; P<.001), and were 5.9 times more likely to have adequate bowel preparation (P =.010). In addition, intervention patients had no missed appointments compared with 15.6% of control patients, and were 24.8 times more likely to not have a cancellation <24 hours before their appointment (P<.001). All navigated patients and their primary care providers received test results, and all follow-up recommendations were consistent with clinical guidelines compared with 82.4% of patients in the control group (P<.001). CONCLUSIONS: PN appears to be effective for improving colonoscopy screening completion and quality in the disparate populations most in need of intervention. To the best of our knowledge, the results of the current study demonstrate some of the strongest evidence for the effectiveness of PN to date, and highlight its value for public health. Cancer 2017;123:3356-66. © 2017 American Cancer Society.

Santolaya, M., Aldea, M., Grau, J., et al. (2017). "Evaluating the appropriateness of a community pharmacy model for a colorectal cancer screening program in Catalonia (Spain)." J Oncol Pharm Pract **23**(1): 26-32.

Background The traditional model of community pharmacy has changed, with patients, caregivers and consumers having access to many cognitive services other than the traditional dispensing and supply of medicines. In December 2009, a population-based colorectal cancer screening program started in

Barcelona, introducing the community pharmacist and the professional expertise of the pharmacist into the organisational model. Aim To evaluate the program implementation process in the pharmacies, identify barriers and facilitators, and know the opinion of the professionals involved in the colorectal cancer screening program in Catalonia (Spain). Methods Cross-sectional study of the pharmacies that participated in the first round of the program during the first and second trimester of 2010 in Barcelona. A validated questionnaire was used to analyse several functional aspects in the implementation process. Qualitative aspects about the opinion of the pharmacist were studied. A descriptive and bivariate analysis was performed. Results All the pharmacies involved in the program (n = 74) participated in the study. The majority of the sample population was composed of women (70.3%), mean age 44.9 years, and most of them (74%) had attended a specific training session. Pharmacists considered their participation in the program to be an added value to their professional role and a way to increase consumer's confidence on this kind of services. The average time to provide the service was estimated to be less than 10 minutes per consumer. Only three (4.1%) pharmacists considered that the program involved a lot of extra work in the daily activities of the pharmacy. The level of satisfaction of the pharmacists was very high. Conclusions Community pharmacies can be a successful alternative and great resource to implement a population cancer screening program. This functional model can improve the accessibility and participation rates on target population. The level of motivation of the community pharmacist, the specific training program and the perception to give a better care for their patients can be an enabler.

Sardanelli, F., Aase, H. S., Álvarez, M., et al. (2017). "Position paper on screening for breast cancer by the European Society of Breast Imaging (EUSOBI) and 30 national breast radiology bodies from Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Israel, Lithuania, Moldova, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Spain, Sweden, Switzerland and Turkey." Eur Radiol **27**(7): 2737-2743.

EUSOBI and 30 national breast radiology bodies support mammography for population-based screening, demonstrated to reduce breast cancer (BC) mortality and treatment impact. According to the International Agency for Research on Cancer, the reduction in mortality is 40 % for women aged 50-69 years taking up the invitation while the probability of false-positive needle biopsy is <1 % per round and overdiagnosis is only 1-10 % for a 20-year screening. Mortality reduction was also observed for the age groups 40-49 years and 70-74 years, although with "limited evidence". Thus, we firstly recommend biennial screening mammography for average-risk women aged 50-69 years; extension up to 73 or 75 years, biennially, is a second priority, from 40-45 to 49 years, annually, a third priority. Screening with thermography or other optical tools as alternatives to mammography is discouraged. Preference should be given to population screening programmes on a territorial basis, with double reading. Adoption of digital mammography (not film-screen or phosphor-plate computer radiography) is a priority, which also improves sensitivity in dense breasts. Radiologists qualified as screening readers should be involved in programmes. Digital breast tomosynthesis is also set to become "routine mammography" in the screening setting in the next future. Dedicated pathways for high-risk women offering breast MRI according to national or international guidelines and recommendations are encouraged. KEY POINTS: • EUSOBI and 30 national breast radiology bodies support screening mammography. • A first priority is double-reading biennial mammography for women aged 50-69 years. • Extension to 73-75 and from 40-45 to 49 years is also encouraged. • Digital mammography (not film-screen or computer radiography) should be used. • DBT is set to become "routine mammography" in the screening setting in the next future.

Schiller-Fruehwirth, I., Jahn, B., Einzinger, P., et al. (2017). "The Long-Term Effectiveness and Cost Effectiveness of Organized versus Opportunistic Screening for Breast Cancer in Austria." Value Health **20**(8): 1048-1057.

BACKGROUND: In 2014, Austrian health authorities implemented an organized breast cancer screening program. Until then, there has been a long-standing tradition of opportunistic screening. OBJECTIVES: To evaluate the cost-effectiveness of organized screening compared with opportunistic screening, as well as to identify factors influencing the clinical and economic outcomes. METHODS: We developed and validated an individual-level state-transition model and assessed the health outcomes and costs of organized and opportunistic screening for 40-year-old asymptomatic women. The base-case analysis compared a scenario involving organized biennial screening with a scenario reflecting opportunistic screening practice for an average-risk woman aged 45 to 69 years. We applied an annual discount rate of 3% and estimated the incremental cost-effectiveness ratio in terms of the cost (2012 euros) per life-year gained (LYG) from a health care perspective. Deterministic and probabilistic sensitivity analyses were performed to assess uncertainty. RESULTS: Compared with opportunistic screening, an organized program yielded on average additional 0.0118 undiscounted life-years (i.e., 4.3 days) and cost savings of €41 per woman. In the base-case analysis, the incremental cost-effectiveness ratio of organized screening was approximately €20,000 per LYG compared with no screening. Assuming a willingness-to-pay threshold of €50,000 per LYG, there was a 70% probability that organized screening would be considered cost-effective. The attendance rate, but not the test accuracy of mammography, was an influential factor for the cost-effectiveness. CONCLUSIONS: The decision to adopt organized screening is likely an efficient use of limited health care resources in Austria.

Shah, T. A. et Guraya, S. S. (2017). "Breast cancer screening programs: Review of merits, demerits, and recent recommendations practiced across the world." J Microsc Ultrastruct **5**(2): 59-69.

Breast cancer screening is defined as the evaluation of symptom free, otherwise healthy looking females of child bearing age or postmenopausal women for early detection of breast cancer. Screening mammography is the most common and widely practiced breast cancer screening modality across the world. The other modes of breast cancer screening being practiced across the world are: breast self-examination (BSE), clinical breast examination (CBE), digital breast tomosynthesis (DBT), ultrasonography (USG), magnetic resonance imaging (MRI), and identification of certain genetic oncogenes. The major merits of breast cancer screening programs are: early diagnosis, sorting out and prevention of risk factors, and timely treatment to lessen the morbidity (5 years localized stage survival rate is 99%, regional disease 84% while metastatic breast cancer 5 year survival rate is 23%); it also reduces overall 20% mortality rate. The major demerits of breast cancer screening are: overdiagnosis (19% from the perspective of a woman invited to screening), high cost, ionizing radiation (lifetime attributable risk to develop breast cancer is 3/10,000), false positive biopsy recommendation (about 8/1000), false negative results 11/10,000), and their consequences. Worldwide, most of the countries recommend biennial screening for breast cancer at 50-74 years of age. However, some countries recommend screening mammography earlier, starting at the age of 40 years until 70-74 years based on higher breast cancer incidence rate in those countries. This article provides a detailed review of merits, demerits, and recent recommendations for screening programs being practiced across the world.

Tepeš, B., Bracko, M., Novak Mlakar, D., et al. (2017). "Results of the FIT-based National Colorectal Cancer Screening Program in Slovenia." J Clin Gastroenterol **51**(6): e52-e59.

BACKGROUND: Colorectal cancer (CRC) is one of the most common malignancies in the western world. OBJECTIVE: We aimed to assess the first round of fecal immunochemical test (FIT)-based National CRC screening program (NCSP). METHODS: In the NCSP conducted in Slovenia, a FIT and colonoscopy for those tested positive was used. The NCSP central unit sent 536,709 invitations to Slovenian residents age 50 to 69 years old between 2009 and 2011. The adherence rate was 56.9% (303,343 participants). FIT was positive in 6.2% (15,310) of the participants (men, 7.8%; women, 5.0%; P<0.01). A total of 13,919 unsedated colonoscopies were performed with the cecal intubation rate of 97.8%. RESULTS: The overall adenoma detection rate was 51.3% [95% confidence interval (CI), 50.5%-52.1%] of which 61.0% (95% CI, 59.9%-62.1%) was in men, and 39.1% (95% CI, 37.8%-40.3%) in women (P<0.01). The mean number of adenoma per positive colonoscopy was 1.94 (95% CI, 1.90-1.97). Adenoma, advanced adenoma, or cancer were found in 7732 (55.5%) colonoscopies. A total of 862 (6.2%) CRC cases were found. Only 161 (18.7%) carcinomas were situated in the right colon. A total of 597 (70.2%) patients with cancer were in the early clinical stages (N, negative; 194 22.8%) of all cancers were cured with only endoscopic resection. CONCLUSIONS: In the NCSP, CRC was found in 6.2% of those participants attending colonoscopy, with 81.3% of carcinomas found in the left colon. A localized clinical stage was found in 70.2% participants. In 22.8% of CRC patients, cancer was cured with endoscopic resection only.

Toledo-Chávarri, A., Rué, M., Codern-Bové, N., et al. (2017). "A qualitative study on a decision aid for breast cancer screening: Views from women and health professionals." Eur J Cancer Care (Engl) **26**(3).

This qualitative study evaluates a decision aid that includes the benefits and harms of breast cancer screening and analyses women's perception of the information received and healthcare professionals' perceptions of the convenience of providing it. Seven focus groups of women aged 40-69 years (n = 39) and two groups of healthcare professionals (n = 23) were conducted in Catalonia and the Canary Islands. The focus groups consisted of guided discussions regarding decision-making about breast cancer screening, and acceptability and feasibility of the decision aid. A content analysis was performed. Women positively value receiving information regarding the benefits and harms of breast cancer screening. Several women had difficulties understanding some concepts, especially those regarding overdiagnosis. Women preferred to share the decisions on screening with healthcare professionals. The professionals noted the lack of inclusion of some harms and benefits in the decision aid, and proposed improving the clarity of the statistical information. The information on overdiagnosis generates confusion among women and controversy among professionals. Faced with the new information presented by the decision aid, the majority of women prefer shared decision-making; however, its feasibility might be limited by a lack of knowledge and attitudes of rejection from healthcare professionals.

van Luijt, P. A., Heijnsdijk, E. A. et de Koning, H. J. (2017). "Cost-effectiveness of the Norwegian breast cancer screening program." Int J Cancer **140**(4): 833-840.

The Norwegian Breast Cancer Screening Programme (NBCSP) has a nation-wide coverage since 2005. All women aged 50-69 years are invited biennially for mammography screening. We evaluated breast cancer mortality reduction and performed a cost-effectiveness analysis, using our microsimulation model, calibrated to most recent data. The microsimulation model allows for the comparison of mortality and costs between a (hypothetical) situation without screening and a situation with screening. Breast cancer incidence in Norway had a steep increase in the early 1990s. We calibrated the model to simulate this increase and included recent costs for screening, diagnosis and treatment of breast cancer and travel and productivity loss. We estimate a 16% breast cancer mortality reduction for a cohort of women, invited to screening, followed over their complete lifetime. Cost-effectiveness is estimated at NOK 112,162 per QALY gained, when taking only direct medical costs into account (the cost of the buses, examinations, and invitations). We used a 3.5% annual discount rate. Cost-effectiveness estimates are substantially below the threshold of NOK 1,926,366 as recommended by the WHO guidelines. For the Norwegian population, which has been gradually exposed to screening, breast cancer mortality reduction for women exposed to screening is increasing and is estimated to rise to ∼30% in 2020 for women aged 55-80 years. The NBCSP is a highly cost-effective measure to reduce breast cancer specific mortality. We estimate a breast cancer specific mortality reduction of 16-30%, at the cost of 112,162 NOK per QALY gained.

van Luijt, P. A., Heijnsdijk, E. A., van Ravesteyn, N. T., et al. (2017). "Breast cancer incidence trends in Norway and estimates of overdiagnosis." J Med Screen **24**(2): 83-91.

Objective Fluctuations in the incidence of breast cancer in Norway in the last three decades are partly explained by the use of hormone replacement therapy and mammography screening, but overdiagnosis has also been suggested as a cause. We assessed the trends in breast cancer incidence and overdiagnosis in Norway. Methods We calibrated our microsimulation model to Norwegian Cancer Registration data. The model takes into account the use of mammography (both within and outside the Norwegian Breast Cancer Screening Programme) and of hormone replacement therapy. We obtained a proper fit of breast cancer incidence in recent years, when assuming an increase in the background risk for breast cancer, and estimated overdiagnosis. Results We estimated a 2% overdiagnosis rate as a fraction of all cancers diagnosed in women aged 50-100, and a 3% overdiagnosis rate as a fraction of all cancers diagnosed in women aged 50-70 (i.e. screening age). If all of the increased incidence would be the result of the detection of slow growing tumours, these estimates were 7% and 11%, respectively. Conclusion Besides mammography and hormone replacement therapy use, additional risk factors contributed to the sudden increase in breast cancer incidence in Norway. Overdiagnosis estimates due to screening were within the range of international plausible estimates.

Vanaclocha-Espi, M., Ibáñez, J., Molina-Barceló, A., et al. (2017). "Factors influencing participation in colorectal cancer screening programs in Spain." Prev Med **105**: 190-196.

To analyze the sociodemographic and organizational factors influencing participation in population-based colorectal cancer screening programs (CRCSP) in Spain, a retrospective study was conducted in a cohort of people invited to participate in the first 3 screening rounds of 6 CRCSP from 2000 to 2012. Mixed logistic regression models were used to analyze the relationship between sociodemographic and organizational factors, such as the type of fecal occult blood test (FOBT) used and the FOBT delivery type. The analysis was performed separately in groups (Initial screening-first invitation, Subsequent invitation for previous never-responders, Subsequent invitation-regular, Subsequent invitation-irregular intervals). The results showed that, in the Initial screening-first invitation group, participation was higher in women than in men in all age groups (OR 1.05 in persons aged 50-59years and OR 1.12 in those aged 60-69years). Participation was also higher when no action was required to receive the FOBT kit, independently of the type of screening (Initial screening-first invitation [OR 2.24], Subsequent invitation for previous never-responders [OR 2.14], Subsequent invitation-regular [OR 2.03], Subsequent invitation-irregular intervals [OR 9.38]) and when quantitative rather than qualitative immunological FOBT (FIT) was offered (Initial screening-first invitation [OR 0.70], Subsequent invitation for previous never-responders [OR 0.12], Subsequent invitation-regular [OR 0.20]) or guaiac testing (Initial screening-first invitation [OR 0.81], Subsequent invitation for previous never-responders [OR 0.88], Subsequent invitation-regular [OR 0.73]). In conclusion, the results of this study show that screening participation could be enhanced by inclusion of the FOBT kit with the screening invitation and the use of the quantitative FIT.

Waade, G. G., Moshina, N., Sebuødegård, S., et al. (2017). "Compression forces used in the Norwegian Breast Cancer Screening Program." Br J Radiol **90**(1071): 20160770.

OBJECTIVE: Compression is used in mammography to reduce breast thickness, which is claimed to improve image quality and reduce radiation dose. In the Norwegian Breast Cancer Screening Program (NBCSP), the recommended range of compression force for full-field digital mammography (FFDM) is 11-18 kg (108-177 N). This is the first study to investigate the compression force used in the programme. METHODS: The study included information from 17,951 randomly selected females screened with FFDM at 14 breast centres in the NBCSP, during January-March 2014. We investigated the applied compression force on the left breast in craniocaudal and mediolateral oblique views for breast centres, mammography machines within the breast centres and for the radiographers. RESULTS: The mean compression force for all mammograms in the study was 116 N and ranged from 91 N to 147 N between the breast centres. The variation in compression force was wider between the breast centres than that between mammography machines (range 137-155 N) and radiographers (95-143 N) within one breast centre. Approximately 59% of the mammograms in the study complied with the recommended range of compression force. CONCLUSION: A wide variation in applied compression force was observed between the breast centres in the NBCSP. This variation indicates a need for evidence-based recommendations for compression force aimed at optimizing the image quality and individualizing breast compression. Advances in knowledge: There was a wide variation in applied compression force between the breast centres in the NBCSP. The variation was wider between the breast centres than that between mammography machines and radiographers within one breast centre.

2016

Armstrong, K., Kim, J. J., Halm, E. A., et al. (2016). "Using lessons from breast, cervical, and colorectal cancer screening to inform the development of lung cancer screening programs." Cancer **122**(9): 1338-1342.

Multiple advisory groups now recommend that high-risk smokers be screened for lung cancer by low-dose computed tomography. Given that the development of lung cancer screening programs will face many of the same issues that have challenged other cancer screening programs, the National Cancer Institute-funded Population-based Research Optimizing Screening through Personalized Regimens (PROSPR) consortium was used to identify lessons learned from the implementation of breast, cervical, and colorectal cancer screening that should inform the introduction of lung cancer screening. These lessons include the importance of developing systems for identifying and recruiting eligible individuals in primary care, ensuring that screening centers are qualified and performance is monitored, creating clear communication standards for reporting screening results to referring physicians and patients, ensuring follow-up is available for individuals with abnormal test results, avoiding overscreening, remembering primary prevention, and leveraging advances in cancer genetics and immunology. Overall, this experience emphasizes that effective cancer screening is a multistep activity that requires robust strategies to initiate, report, follow up, and track each step as well as a dynamic and ongoing oversight process to revise current screening practices as new evidence regarding screening is created, new screening technologies are developed, new biological markers are identified, and new approaches to health care delivery are disseminated. Cancer 2016;122:1338-1342. © 2016 American Cancer Society.

Arrospide, A., Rue, M., van Ravesteyn, N. T., et al. (2016). "Economic evaluation of the breast cancer screening programme in the Basque Country: retrospective cost-effectiveness and budget impact analysis." BMC Cancer **16**: 344.

BACKGROUND: Breast cancer screening in the Basque Country has shown 20 % reduction of the number of BC deaths and an acceptable overdiagnosis level (4 % of screen detected BC). The aim of this study was to evaluate the breast cancer early detection programme in the Basque Country in terms of retrospective cost-effectiveness and budget impact from 1996 to 2011. METHODS: A discrete event simulation model was built to reproduce the natural history of breast cancer (BC). We estimated for lifetime follow-up the total cost of BC (screening, diagnosis and treatment), as well as quality-adjusted life years (QALY), for women invited to participate in the evaluated programme during the 15-year period in the actual screening scenario and in a hypothetical unscreened scenario. An incremental cost-effectiveness ratio was calculated with the use of aggregated costs. Besides, annual costs were considered for budget impact analysis. Both population level and single-cohort analysis were performed. A probabilistic sensitivity analysis was applied to assess the impact of parameters uncertainty. RESULTS: The actual screening programme involved a cost of 1,127 million euros and provided 6.7 million QALYs over the lifetime of the target population, resulting in a gain of 8,666 QALYs for an additional cost of 36.4 million euros, compared with the unscreened scenario. Thus, the incremental cost-effectiveness ratio was 4,214€/QALY. All the model runs in the probabilistic sensitivity analysis resulted in an incremental cost-effectiveness ratio lower than 10,000€/QALY. The screening programme involved an increase of the annual budget of the Basque Health Service by 5.2 million euros from year 2000 onwards. CONCLUSIONS: The BC screening programme in the Basque Country proved to be cost-effective during the evaluated period and determined an affordable budget impact. These results confirm the epidemiological benefits related to the centralised screening system and support the continuation of the programme.

Artama, M., Heinävaara, S., Sarkeala, T., et al. (2016). "Determinants of non-participation in a mass screening program for colorectal cancer in Finland." Acta Oncol **55**(7): 870-874.

BACKGROUND: For an effective colorectal cancer (CRC) screening program, high participation rate is essential. However, non-participation in CRC screening program has increased in Finland. MATERIAL

AND METHODS: The study was based on a population-based nationwide cohort of persons invited for CRC screening in 2004-2011. Information on the first round of the CRC screening participation and related background factors was obtained from the Finnish Cancer Registry, and information about health behavior factors from the Health Behavior Survey (HBS) in 1978-1999. Non-participation in CRC screening was analyzed with Poisson regression as incidence rate ratios (IRR) with 95% confidence intervals (95% CI). RESULTS: Of all persons invited for CRC screening (79 871 men and 80 891 women) 35% of men and 21% of women refused. Of those invited for screening, 2456 men (3.1%) and 2507 women (3.1%) were also invited to the HBS. Persons, who declined HBS, were also more likely to refuse CRC screening (men IRR 1.40, 95% CI 1.26-1.56, women 1.75, 1.52-2.02) compared to HBS participants. Never married persons had about a 75% higher risk for refusing than married ones. The youngest age group (60 years) was more likely to refuse screening than the older age groups (62 or >64 years). Smoking was associated with non-participation in screening (current smokers, men: IRR 1.32, 95% CI 1.05-1.67, women: 2.10, 1.61-2.73). CONCLUSIONS: Participation in CRC screening was affected by gender, age, and marital status. Persons, who refused the HBS, were also more likely to refuse CRC screening. Smoking was a risk factor for non-participation in CRC screening.

Banković Lazarević, D., Krivokapić, Z., Barišić, G., et al. (2016). "Organized colorectal cancer screening in Serbia - the first round within 2013-2014." Vojnosanit Pregl **73**(4): 360-367.

BACKGROUND/AIM: The National Organized Colorectal Cancer Screening Program was conducted in the Republic of Serbia during 2013-2014 covering the population of both genders, aged 50 to 74 years, in 28 municipalities out of 180, with the target population of 651,445 people. This organized colorectal cancer screening aims to reduce mortality from colorectal cancer in the target population. The aim of this study was to show the results of organized screening for colorectal cancer during the first biannual round in Serbia. METHODS: General practitioners from the primary health centers, invited target population by letters and by phone to perform immunochemical fecal occult blood test. Persons with a positive test results were referred to the colonoscopy. The database of health insurance and other citizens of the target population was used for invitation for screening in primary health centers. Descriptive statistical analysis of the results in organized colorectal cancer screening in the first round was performed for the key screening indicators. RESULTS: In the first round, a total of 99,592 persons were invited. The participation rate was 62.5%. Colonoscopy was performed in 1,554 persons. Adenomas were found in 586 persons (0.9% of all the tested), e.g. 37.7 % of all colonoscopied. In 129 persons colorectal cancer was diagnosed (0.2% of all the tested), e.g. 8.3% of all the colonoscopied. In the left half of the colon (rectum, sigmoid and descending colon) there were 70.4% diagnosed polyps and 77.3% carcinomas, while 29.6% of polyps and 22.7% carcinomas were found in the proximal parts of the colon. CONCLUSION: In the first round of the organized colorectal cancer screening in Serbia the participation rate of the targeted population was high and gave encouraging result. It was expected that in the forthcoming rounds even higher coverage of the target population would be accomplished. A positive predictive value of the completed colonoscopies showed that further work on observing the stages of diagnosed adenomas and carcinomas would reach the goals of the expected improvement in early detection of colorectal cancer in Serbia.

Binefa, G., Garcia, M., Milà, N., et al. (2016). "Colorectal Cancer Screening Programme in Spain: Results of Key Performance Indicators After Five Rounds (2000-2012)." Sci Rep **6**: 19532.

Effective quality assurance is essential in any screening programme. This article provides a unique insight into key quality indicators of five rounds of the first population-based colorectal cancer screening programme implemented in Spain (2000-2012), providing the results according to the type of screening (prevalent or first screen and incident or subsequent screen) and test (guaiac or immunochemical). The total crude participation rate increased from 17.2% (11,011) in the first round to 35.9% (22,988) in the last one. Rescreening rate was very high (88.6% in the fifth round). Positivity rate was superior with the faecal immunochemical test (6.2%) than with the guaiac-based test (0.7%) ($p < 0.0001$) and detection rates were also better with the immunochemical test. The most significant rise in detection rate was observed for high risk adenoma in men (45.5 per 1,000 screened). Most cancers were diagnosed at an early stage (61.4%) and there was a statistically significant difference between those detected in first or subsequent screening (52.6% and 70.0% respectively; p = 0.024). The availability of these results substantially improves data comparisons and the exchange of experience between screening programmes.

Chou, C. K., Chen, S. L., Yen, A. M., et al. (2016). "Outreach and Inreach Organized Service Screening Programs for Colorectal Cancer." Plos One **11**(5): e0155276.

BACKGROUND: Outreach (i.e., to invite those who do not use, or who under use screening services) and inreach (i.e., to invite an existing population who have already accessed the medical system) approaches may influence people to increase their use of screening test; however, whether their outcomes would be equivalent remains unclear. METHODS: A total of 3,363,896 subjects, 50-69 years of age, participated in a colorectal cancer (CRC) screening program using biennial fecal immunochemical tests; 34.5% participated during 2004-2009 when the outreach approach alone was used, and 65.5% participated from 2010-2013 when outreach was integrated with an inreach approach. We compared the outcomes of the two approaches in delivery of screening services. RESULTS: Coverage rates increased from 21.4% to 36.9% and the positivity rate increased from 4.0% to 7.9%, while referral for confirmatory diagnostic examinations declined from 80.0% to 53.3%. The first period detected CRC in 0.20% of subjects screened, with a positive predictive value (PPV) of 6.1%, and the second detected CRC in 0.34% of subjects, with a PPV of 8.0%. After adjusting for confounders, differences were observed in the PPV for CRC (adjusted relative risk, 1.50; 95% confidence interval [CI], 1.41-1.60), cancer detection rate (1.20; 95% CI, 1.13-1.27), and interval cancer rate (0.72; 95% CI, 0.65-0.80). When we focused on the comparison between two approaches during the same study period of 2010-2013, the positivity rate of fecal testing (8.2% vs. 7.6%) and the PPV for CRC detection remained higher (1.07; 95% CI, 1.01-1.12) in subjects who were recruited from the inreach approach. CONCLUSIONS: Outcomes of screening were equivalent or better after integration of outreach and inreach approaches. IMPACT: The results will encourage makers of health-care policy to adopt the integration approach to deliver screening services.

Deandrea, S., Molina-Barceló, A., Uluturk, A., et al. (2016). "Presence, characteristics and equity of access to breast cancer screening programmes in 27 European countries in 2010 and 2014. Results from an international survey." Prev Med **91**: 250-263.

The European Union Council Recommendation of 2 December 2003 on cancer screening suggests the implementation of organised, population-based breast cancer screening programmes based on mammography every other year for women aged 50 to 69years, ensuring equal access to screening, taking into account potential needs for targeting particular socioeconomic groups. A European survey on coverage and participation, and key organisational and policy characteristics of the programmes, targeting years 2010 and 2014, was undertaken in 2014. Overall, 27 countries contributed to this survey, 26 of the 28 European Union member states (92.9%) plus Norway. In 2014, 25 countries reported an ongoing population-based programme, one country reported a pilot programme and another was planning a pilot. In eight countries, the target age range was broader than that proposed by the Council Recommendation, and in three countries the full range was not covered. Fifteen countries reported not reaching some vulnerable populations, such as immigrants, prisoners and people without health insurance, while 22 reported that participation was periodically monitored by socioeconomic variables (e.g. age and territory). Organised, population-based breast cancer screening programmes based on routine mammograms are in place in most EU member states. However, there are still differences in the way screening programmes are implemented, and participation by vulnerable populations should be encouraged.

Domingo, L., Hofvind, S., Hubbard, R. A., et al. (2016). "Cross-national comparison of screening mammography accuracy measures in U.S., Norway, and Spain." Eur Radiol **26**(8): 2520-2528.

OBJECTIVE: To compare accuracy measures for mammographic screening in Norway, Spain, and the US. METHODS: Information from women aged 50-69 years who underwent mammographic screening 1996-2009 in the US (898,418 women), Norway (527,464), and Spain (517,317) was included. Screen-detected cancer, interval cancer, and the false-positive rates, sensitivity, specificity, positive predictive value (PPV) for recalls (PPV-1), PPV for biopsies (PPV-2), 1/PPV-1 and 1/PPV-2 were computed for each country. Analyses were stratified by age, screening history, time since last screening, calendar year, and mammography modality. RESULTS: The rate of screen-detected cancers was 4.5, 5.5, and 4.0 per 1000 screening exams in the US, Norway, and Spain respectively. The highest sensitivity and lowest specificity were reported in the US (83.1 % and 91.3 %, respectively), followed by Spain (79.0 % and 96.2 %) and Norway (75.5 % and 97.1 %). In Norway, Spain and the US, PPV-1 was 16.4 %, 9.8 %, and 4.9 %, and PPV-2 was 39.4 %, 38.9 %, and 25.9 %, respectively. The number of women needed to recall to detect one cancer was 20.3, 6.1, and 10.2 in the US, Norway, and Spain, respectively. CONCLUSIONS: Differences were found across countries, suggesting that opportunistic screening may translate into higher sensitivity at the cost of lower specificity and PPV. KEY POINTS: • Positive predictive value is higher in population-based screening programmes in Spain and Norway. • Opportunistic mammography screening in the US has lower positive predictive value. • Screening settings in the US translate into higher sensitivity and lower specificity. • The clinical burden may be higher for women screened opportunistically.

Douma, L. N., Uiters, E. et Timmermans, D. R. (2016). "The Dutch public are positive about the colorectal cancer-screening programme, but is this a well-informed opinion?" BMC Public Health **16**(1): 1208.

BACKGROUND: Population-based colorectal cancer (CRC) screening is widely recommended, and members of the eligible screening population seem to be positive about it. However, it is not well known how people outside the eligible screening population view CRC screening, and whether they are supportive of the government providing this. Public opinion may affect people's personal views and their screening decision. The aim of our study was to examine the opinion of the Dutch general public regarding the national CRC screening programme. METHOD: An online survey was carried out in a Dutch population sample of adults aged 18 and older, assessing level of support, personal attitude, collective attitude, perceived social norm, awareness, and knowledge regarding the CRC screening programme. RESULTS: The response rate was 56% (n = 1679/3000). Generally, the Dutch public are positive about and supportive of the CRC screening programme. We found the biggest proportion of support (86%) when people were asked directly. A smaller proportion (48%) was supportive when people had to choose between other options concerning how the government could possibly deal with CRC. People report knowing more about the benefits of CRC screening than about its possible harms and risks. Many people found it difficult to answer the knowledge questions that asked about numerical information concerning CRC screening correctly. CONCLUSION: People were less supportive of the CRC screening programme when having to choose between other options concerning dealing with CRC, and their support may not be based on a full comprehension of what CRC screening entails. Further research is needed to establish what knowledge people need in order to form a well-founded opinion.

Greuter, M. J., Demirel, E., Lew, J. B., et al. (2016). "Long-Term Impact of the Dutch Colorectal Cancer Screening Program on Cancer Incidence and Mortality-Model-Based Exploration of the Serrated Pathway." Cancer Epidemiol Biomarkers Prev **25**(1): 135-144.

BACKGROUND: We aimed to predict the long-term colorectal cancer incidence, mortality, and colonoscopy demand of the recently implemented Dutch colorectal cancer screening program. METHODS: The Adenoma and Serrated pathway to Colorectal Cancer model was set up to simulate the Dutch screening program consisting of biennial fecal immunochemical testing combined with the new Dutch surveillance guidelines, between 2014 and 2044. The impact of screening and surveillance was evaluated under three sets of natural history assumptions differing in the contribution of the serrated pathway to colorectal cancer incidence. In sensitivity analyses, other assumptions concerning the serrated pathway were varied. Model-predicted outcomes were yearly colorectal cancer incidence, mortality, and colonoscopy demand per year. RESULTS: Assuming an aging population, colorectal cancer incidence under 30 years of screening is predicted to decrease by 35% and 31% for a contribution of 0% and 30% of the serrated pathway to colorectal cancer, respectively. For colorectal cancer mortality, reductions are 47% and 45%. In 2044, 110,000 colonoscopies will be required annually assuming no contribution of the serrated pathway (27 per 1,000 individuals in the screening age range). Including the serrated pathway influences predicted screening effectiveness if serrated lesions are neither detected nor treated at colonoscopy, and/or if colorectal cancers arising from serrated lesions have substantially lower survival rates than those arising from adenomas. CONCLUSIONS: The Dutch screening program will markedly decrease colorectal cancer incidence and mortality but considerable colonoscopy resources will be required. IMPACT: Predictions of long-term screening effectiveness are preferably based on both pathways to colorectal cancer to transparently describe the impact of uncertainties regarding the serrated pathway on long-term predictions.

Guessous, I., Cullati, S., Fedewa, S. A., et al. (2016). "Prostate cancer screening in Switzerland: 20-year trends and socioeconomic disparities." Prev Med **82**: 83-91.

BACKGROUND: Despite important controversy in its efficacy, prostate cancer (PCa) screening has become widespread. Important socioeconomic screening disparities have been reported. However, trends in PCa screening and social disparities have not been investigated in Switzerland, a high risk country for PCa. We used data from five waves (from 1992-2012) of the population-based Swiss Health Interview Survey to evaluate trends in PCa screening and its association with socioeconomic indicators. METHODS: We used multivariable Poisson regression to estimate prevalence ratios (PR) and 95% Confidence Intervals (CI) adjusting for demographics, health status, and use of healthcare. RESULTS: The study included 12,034 men aged ≥50 years (mean age: 63.9). Between 1992 and 2012, ever use of PCa screening increased from 55.3% to 70.0% and its use within the last two years from 32.6% to 42.4% (p-value <0.05). Income, education, and occupational class were independently associated with PCa screening. PCa screening within the last two years was greater in men with the highest (>$6,000/month) vs. lowest income (≤$2,000) (46.5% vs. 38.7% in 2012, PR for overall period =1.29, 95%CI: 1.13-1.48). These socioeconomic disparities did not significantly change over time. CONCLUSIONS: This study shows that about half of Swiss men had performed at least one PCa screening. Men belonging to high socioeconomic status are clearly more frequently screened than those less favored. Given the uncertainty of the usefulness of PCa screening, men, including those with high socioeconomic status, should be clearly informed about benefits and harms of PCa screening, in particular, the adverse effect of over-diagnosis and of associated over-treatment.

Jacklyn, G., Glasziou, P., Macaskill, P., et al. (2016). "Meta-analysis of breast cancer mortality benefit and overdiagnosis adjusted for adherence: improving information on the effects of attending screening mammography." Br J Cancer **114**(11): 1269-1276.

BACKGROUND: Women require information about the impact of regularly attending screening mammography on breast cancer mortality and overdiagnosis to make informed decisions. To provide this information we aimed to meta-analyse randomised controlled trials adjusted for adherence to the trial protocol. METHODS: Nine screening mammography trials used in the Independent UK Breast Screening Report were selected. Extending an existing approach to adjust intention-to-treat (ITT) estimates for less than 100% adherence rates, we conducted a random-effects meta-analysis. This produced a combined deattenuated prevented fraction and a combined deattenuated percentage risk of overdiagnosis. RESULTS: In women aged 39-75 years invited to screen, the prevented fraction of breast cancer mortality at 13-year follow-up was 0.22 (95% CI 0.15-0.28) and it increased to 0.30 (95% CI 0.18-0.42) with deattenuation. In women aged 40-69 years invited to screen, the ITT percentage risk of overdiagnosis during the screening period was 19.0% (95% CI 15.2-22.7%), deattenuation increased this to 29.7% (95% CI 17.8-41.5%). CONCLUSIONS: Adjustment for nonadherence increased the size of the mortality benefit and risk of overdiagnosis by up to 50%. These estimates are more appropriate when developing quantitative information to support individual decisions about attending screening mammography.

Jensen, L. F., Pedersen, A. F., Bech, B. H., et al. (2016). "Psychiatric morbidity and non-participation in breast cancer screening." Breast **25**: 38-44.

BACKGROUND: Organised breast cancer screening is currently one of the best strategies for early-stage breast cancer detection. However, early detection has proven challenging for women with psychiatric disease. This study aims to investigate psychiatric morbidity and non-participation in breast cancer screening. METHODS: We conducted an observational cohort study including women invited to the first organised screening round in the Central Denmark Region. Data on psychiatric diagnosis, psychoactive prescription medicine and consultation with private psychiatrists were obtained from Danish registries and assessed for a period of up to 10 years before the screening date. RESULTS: The cohort comprised 144,264 women whereof 33.0% were registered with an indication of psychiatric morbidity. We found elevated non-participation propensity among women with a psychiatric diagnosis especially for women with schizophrenia and substance abuse. Also milder psychiatric morbidity was associated with higher non-participation likelihood as women who had redeemed psychoactive prescription medicine or have had minimum one consultation with a private psychiatrist were more likely not to participate. Finally, we found that the chronicity of psychiatric morbidity was associated with non-participation and that woman who had a psychiatric morbidity defined as 'persistent' had higher likelihood of non-participation than women with recently active morbidity or inactive psychiatric morbidity. CONCLUSION: This study showed a strong association between psychiatric morbidity and an increased likelihood of non-participation in breast cancer screening in a health care system with universal and tax-funded health services. This knowledge may inform interventions targeting women with psychiatric morbidity as they have poorer breast cancer prognosis.

Landy, R., Pesola, F., Castañón, A., et al. (2016). "Impact of cervical screening on cervical cancer mortality: estimation using stage-specific results from a nested case-control study." Br J Cancer **115**(9): 1140-1146.

BACKGROUND: It is well established that screening can prevent cervical cancer, but the magnitude of the impact of regular screening on cervical cancer mortality is unknown. METHODS: Population-based case-control study using prospectively recorded cervical screening data, England 1988-2013. Case women had cervical cancer diagnosed during April 2007-March 2013 aged 25-79 years (N=11 619). Two cancer-free controls were individually age matched to each case. We used conditional logistic regression to estimate the odds ratio (OR) of developing stage-specific cancer for women regularly screened or irregularly screened compared with women not screened in the preceding 15 years. Mortality was estimated from excess deaths within 5 years of diagnosis using stage-specific 5-year relative survival from England with adjustment for age within stage based on SEER (Surveillance, Epidemiology and End Results, USA) data. RESULTS: In women aged 35-64 years, regular screening is associated with a 67% (95% confidence interval (CI): 62-73%) reduction in stage 1A cancer and a 95% (95% CI: 94-97%) reduction in stage 3 or worse cervical cancer: the estimated OR comparing regular (⩽5.5yearly) screening to no (or minimal) screening are 0.18 (95% CI: 0.16-0.19) for cancer incidence and 0.08 (95% CI: 0.07-0.09) for mortality. It is estimated that in England screening currently prevents 70% (95% CI: 66-73%) of cervical cancer deaths (all ages); however, if everyone attended screening regularly, 83% (95% CI: 82-84%) could be prevented. CONCLUSIONS: The association between cervical cancer screening and incidence is stronger in more advanced stage cancers, and screening is more effective at preventing death from cancer than preventing cancer itself.

Lönnberg, S., Andreassen, T., Engesæter, B., et al. (2016). "Impact of scheduled appointments on cervical screening participation in Norway: a randomised intervention." BMJ Open **6**(11): e013728.

BACKGROUND: The main barrier to optimal effect in many established population-based screening programmes against cervical cancer is low participation. In Norway, a routine health service integrated population-based screening programme has been running since 1995, using open invitations and reminders. The aim of this randomised health service study was to pilot scheduled appointments and assess their potential for increased participation. METHODS: Within the national screening programme, we randomised 1087 women overdue for screening to receive invitations with scheduled appointments (intervention) or the standard open reminders (control). Letters were sent 2-4 weeks before the scheduled appointments at three centres: a midwife clinic, a public healthcare centre and a general practitioner centre. The primary outcome was participation at 6 months of follow-up. Secondary outcomes were participation at 1 and 3 months. Risk ratios (RRs) overall, and stratified by screening centre, age group and previous participation, were calculated using log-binomial regression. RESULTS: At 6 months, 20% of the 510 women in the control group and 37% of the 526 women in the intervention group had participated in screening, excluding 51 women in total from analysis due to participation just before invitation and therefore not yet visible in the central records. The RR for participation at 6 months was 1.9 (95% CI 1.5 to 2.3). There was no significant heterogeneity between centres or age groups. Participation increased among women both with (RR 1.7; 95% CI 1.4 to 2.1) and without (RR 3.5; 95% CI 1.3 to 9.2) previous participation. The RRs for participation at 1 and 3 months were 4.0 (95% CI 2.6 to 6.2) and 2.7 (95% CI 2.1 to 3.5), respectively. CONCLUSIONS: Scheduled appointments increased screening participation consistently across all target ages and screening centres among women overdue for screening. Participation increased also among women with no previous records of cervical screening.

Posso, M., Carles, M., Rué, M., et al. (2016). "Cost-Effectiveness of Double Reading versus Single Reading of Mammograms in a Breast Cancer Screening Programme." Plos One **11**(7): e0159806.

OBJECTIVES: The usual practice in breast cancer screening programmes for mammogram interpretation is to perform double reading. However, little is known about its cost-effectiveness in the context of digital mammography. Our purpose was to evaluate the cost-effectiveness of double reading versus single reading of digital mammograms in a population-based breast cancer screening programme. METHODS: Data from 28,636 screened women was used to establish a decision-tree model and to compare three strategies: 1) double reading; 2) double reading for women in their first participation and single reading for women in their subsequent participations; and 3) single reading. We calculated the incremental cost-effectiveness ratio (ICER), which was defined as the expected cost per one additionally detected cancer. We performed a deterministic sensitivity analysis to test the robustness of the ICER. RESULTS: The detection rate of double reading (5.17‰) was similar to that of single reading (4.78‰; P = .768). The mean cost of each detected cancer was €8,912 for double reading and €8,287 for single reading. The ICER of double reading versus single reading was €16,684. The sensitivity analysis showed variations in the ICER according to the sensitivity of reading strategies. The strategy that combines double reading in first participation with single reading in subsequent participations was ruled out due to extended dominance. CONCLUSIONS: From our results, double reading appears not to be a cost-effective strategy in the context of digital mammography. Double reading would eventually be challenged in screening programmes, as single reading might entail important net savings without significantly changing the cancer detection rate. These results are not conclusive and should be confirmed in prospective studies that investigate long-term outcomes like quality adjusted life years (QALYs).

Posso, M. C., Puig, T., Quintana, M. J., et al. (2016). "Double versus single reading of mammograms in a breast cancer screening programme: a cost-consequence analysis." Eur Radiol **26**(9): 3262-3271.

OBJECTIVES: To assess the costs and health-related outcomes of double versus single reading of digital mammograms in a breast cancer screening programme. METHODS: Based on data from 57,157 digital screening mammograms from women aged 50-69 years, we compared costs, false-positive results, positive predictive value and cancer detection rate using four reading strategies: double reading with and without consensus and arbitration, and single reading with first reader only and second reader only. Four highly trained radiologists read the mammograms. RESULTS: Double reading with consensus and arbitration was 15 % (Euro 334,341) more expensive than single reading with first reader only. False-positive results were more frequent at double reading with consensus and arbitration than at single reading with first reader only (4.5 % and 4.2 %, respectively; p < 0.001). The positive predictive value (9.3 % and 9.1 %; p = 0.812) and cancer detection rate were similar for both reading strategies (4.6 and 4.2 per 1000 screens; p = 0.283). CONCLUSIONS: Our results suggest that changing to single reading of mammograms could produce savings in breast cancer screening. Single reading could reduce the frequency of false-positive results without changing the cancer detection rate. These results are not conclusive and cannot be generalized to other contexts with less trained radiologists. KEY POINTS: • Double reading of digital mammograms is more expensive than single reading. • Compared to single reading, double reading yields a higher proportion of false-positive results. • The cancer detection rate was similar for double and single readings. • Single reading may be a cost-effective strategy in breast cancer screening programmes.

Sebuødegård, S., Sagstad, S. et Hofvind, S. (2016). "[Attendance in the Norwegian Breast Cancer Screening Programme]." Tidsskr Nor Laegeforen **136**(17): 1448-1451.

BACKGROUND: A high rate of attendance among women invited to the Norwegian Breast Cancer Screening Programme (NBCSP) is essential to achieve optimal effect, including reduction in breast cancer mortality. This article describes attendance in the programme by county, period and women's age at invitation. MATERIAL AND METHOD: All women in the age group 50 – 69 years who are registered in the National Population Register are invited to attend the NBCSP every second year. In the study period 2007 – 2014, 2 142 369 invitations were sent, and 1 600 293 screening examinations were performed for 710 169 women. Use of the data is pursuant to the Cancer Registry Regulations. RESULTS: Altogether 84 % of the women invited attended at least once in the study period. The average attendance rate per screening round was 75 %. In Rogaland, Nordland and Sogn og Fjordane counties more than 80 % attended, while in Oslo the figure was 62 %. The highest rate of attendance recorded was for women in the age group 62 – 67 years. The attendance in the prior screening round was of influence for reattendance. INTERPRETATION: The mammography screening programme has a high level of acceptance among women in the target group. Possible reasons for the variation in attendance among the county districts should be identified.

Steele, R. J., Stanners, G., Lang, J., et al. (2016). "Interval cancers in a national colorectal cancer screening programme." United European Gastroenterol J **4**(4): 587-594.

BACKGROUND: Little is known about interval cancers (ICs) in colorectal cancer (CRC) screening. OBJECTIVE: The purpose of this study was to identify IC characteristics and compare these with screen-detected cancers (SCs) and cancers in non-participants (NPCs) over the same time period. DESIGN: This was an observational study done in the first round of the Scottish Bowel Screening Programme. All individuals (772,790), aged 50-74 years, invited to participate between 1 January 2007 and 31 May 2009 were studied by linking their screening records with confirmed CRC records in the Scottish Cancer Registry (SCR). Characteristics of SC, IC and NPC were determined. RESULTS: There were 555 SCs, 502 ICs and 922 NPCs. SCs were at an earlier stage than ICs and NPCs (33.9% Dukes' A as against 18.7% in IC and 11.3% in NPC), screening preferentially detected cancers in males (64.7% as against 52.8% in IC and 59.7% in NPC): this was independent of a different cancer site distribution in males and females. SC in the colon were less advanced than IC, but not in the rectum. CONCLUSION: ICs account for 47.5% of the CRCs in the screened population, indicating approximately 50% screening test sensitivity: guaiac faecal occult blood testing (gFOBT) sensitivity is less for women than for men and gFOBT screening may not be effective for rectal cancer.

Zhero, S. V., Hotko, Y. S., Tsyhyka, D. Y., et al. (2016). "Peculiarities of breast cancer incidence rate in urban population and implementation of screening programs in health care system." Wiad Lek **69**(1 Pt 2): 61-63.

INTRODUCTION: In the structure of illnesses connected with malignant tumors (MT) among women's population of Ukraine breast cancer (BC) holds a leading position and was at the level of 19.3% in 2014. THE AIM: The aim of research is a comparative analysis of BC illnesses among women's population in regional centers of Prydniprovsk-Donetsk which is an intensive industrial zone (Dnipropetrovsk city) and Transcarpathian region, clean natural area (Uzhgorod city). The latter belongs to a recreational area because of its natural and climatic features. Also, the aim is to estimate an influence of screening program implementation on mortality of women from BC within one year period from diagnosis date. O bject and methods: We have used data of state statistics records as per F-7 and F-35 forms, which were received while processing the primary medical documentation (№ 090/o, № 027-1/o and № 30-6/o). The said was carried out by means of regional branches of National Cancer Register of Ukraine. Rough indexes of BC incidence rate and part of lethal outcomes among BC patients before one year after diagnosis in regional centers were considered. RESULTS: A considerable increase of incidence rate of BC has been detected in administrative centers of both regions. This incidence rate has reached 90 cases out of 100,000 female population. Substantial change in gender behavior due to influence of urban surrounding is a possible factor of high BC incidence rate of urban population. CONCLUSIONS: Mammography screening implementation contributes to general and annual decrease of BC mortality among women's population.

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Altobelli, E. et Lattanzi, A. (2015). "Cervical carcinoma in the European Union: an update on disease burden, screening program state of activation, and coverage as of March 2014." Int J Gynecol Cancer **25**(3): 474-483.

OBJECTIVE: Cervical cancer (CC) is defined as a disease of disparity. This is due to marked differences in CC incidence and mortality between developed and developing countries. As a continent, Europe is no exception. This study examines the state of activation of CC screening in the European Union as of March 2014, reviews CC incidence and mortality data, and highlights the initiatives adopted to extend program coverage to nonresponders. METHODS: The present study is based on the most recent data available from PubMed-indexed journals, the Web sites of the health ministries of each member state, and the Web sites of national cancer observatories; failing these sources, information was sought in scientific journals published in the local language. RESULTS: In 2003, the European Council recommended that priority be given to organized screening program activation. Nonetheless, a number of European Union member states still lack population-based organized screening programs, and few have implemented programs directed at disadvantaged populations. CONCLUSIONS: Several investigations have demonstrated that the women at higher CC risk are unscreened and underscreened ones. Since then, several member states have made significant efforts to set up effective prevention programs by adopting international quality standards and centralizing screening organization and result evaluation. Several developed countries and some new central-eastern European member states have poorly organized prevention programs that result in poor women's health. Diagnosis of CC is emotionally traumatic, but it is highly preventable. When CC is found early, it is highly treatable and associated with long survival and good quality of life.

Auer, R., Selby, K., Bulliard, J. L., et al. (2015). "[Shared decision making in the colorectal cancer screening program in the canton of Vaud]." Rev Med Suisse **11**(496): 2209-2215.

The colorectal cancer screening program of the canton of Vaud aims to facilitate screening for this cancer for the population aged 50 to 69 years old. The two screening modalities offered are fecal immunochemical testing (FIT) and colonoscopy. The decision to undergo screening and the screening modality is based on an individual medical encounter with a primary care physician. Both screening modalities are reimbursed through basic health coverage in Switzerland. The participation to the screening program allows the exemption of the deductible for the medical encounter and the chosen screening modality. A copay of 10% is maintained for all costs. Communication tools were developed on the basis of recommendations in the literature to facilitate shared decision-making in a medical encounter.

Benito-Aracil, L., Binefa-Rodriguez, G., Milà-Diaz, N., et al. (2015). "[Impact of an informative intervention on the colorectal cancer screening program in primary care professionals]." Enferm Clin **25**(5): 223-231.

OBJECTIVE: To evaluate the impact of an intervention in primary care professionals on their current knowledge about colorectal cancer screening, subsequent surveillance recommendations and referral strategies. METHODS DESIGN: Cluster randomized controlled trial. LOCATION: Primary Care Centers in L'Hospitalet de Llobregat (Barcelona). PARTICIPANTS: Primary Care Professionals (doctors and nurses). INTERVENTION: Training session in six of the 12 centers (randomly selected) about the colorrectal cancer screening program, and three emails with key messages. MAIN MEASUREMENTS: Professionals and centers characteristics and two contextual variables; involvement of professionals in the screening program; information about colorectal cancer knowledge, risk factors, screening procedures, surveillance recommendations and referral strategies. RESULTS: The total score mean on the first questionnaire was 8.07 (1.38) and the second 8.31 (1.39). No statistically significant differences between the intervention and control groups were found, however, in 9 out of 11 questions the percentage of correct responses was increased in the intervention group, mostly related to the surveillance after the diagnostic examination. CONCLUSIONS: The intervention improves the percentage of correct answers, especially in those in which worst score obtained in the first questionnaire. This study shows that professionals are familiar with colorectal cancer screening, but there's a need to maintain frequent communication in order to keep up to date the information related to the colorectal cancer screening.

Bento, M. J., Gonçalves, G., Aguiar, A., et al. (2015). "Performance indicators evaluation of the population-based breast cancer screening programme in Northern Portugal using the European Guidelines." Cancer Epidemiol **39**(5): 783-789.

OBJECTIVE: To evaluate the first 10 years of operation of the population-based breast cancer screening programme implemented in the Northern Region of Portugal, using selected recommended standard performance indicators. METHODS: Data from women aged 50-69 screened with two-view mammography, biennially, in the period 2000-2009, were included. Main performance indicators were compared with the recommended levels of the European Guidelines. RESULTS: A total of 202,039 screening examinations were performed, 71,731 (35.5%) in the initial screening and 130,308 (64.5%) in the subsequent screening. Coverage rate by examination reached 74.3% of the target population, in the last period evaluated. Recall rates were 8.1% and 2.4% and cancer detection rates were 4.4/1000 and 2.9/1000 respectively, for initial and subsequent screenings. The breast cancer detection rate, expressed as a multiple of the background expected incidence was 3.1 in initial screen and 2.2 in subsequent screen. The incidence of invasive interval cancers met the desirable recommended levels both the first and second years since last screening examination, in the initial and subsequent screenings. Invasive tumours <15mm were 50.4% and 53.8% of the invasive cancers detected in initial and subsequent screenings. Less favourable size, grading and biomarkers expression were found in interval cancers compared to screen-detected cancers. CONCLUSIONS: Breast cancer screening programme in the Northern Region of Portugal was well accepted by the population. Most of the performance indicators were consistent with the desirable levels of the European Guidelines, which indicate an effective screening programme. Future research should verify the consistency of some of these results by using updated information from a larger population.

Bouckaert, N. et Schokkaert, E. (2015). "Differing types of medical prevention appeal to different individuals." The European Journal of Health Economics **17**(3): 317-337.
http://dx.doi.org/10.1007/s10198-015-0709-6

We analyze participation in medical prevention with an expected utility model that is sufficiently rich to capture diverging features of different prevention procedures. The predictions of the model are not rejected with data from SHARE. A decrease in individual health decreases participation in breast cancer screening and dental prevention and increases participation in influenza vaccination, cholesterol screening, blood pressure screening, and blood sugar screening. Positive income effects are most pronounced for dental prevention. Increased mortality risk is an important predictor in the model for breast cancer screening, but not for the other procedures. Targeted screening and vaccination programs increase participation.

Castagno, R., Canuti, D., Petrella, M., et al. (2015). "Information provided by Italian breast cancer screening programmes: a comparison between 2001 and 2014." Epidemiol Prev **39**(3 Suppl 1): 48-51.

Debate on efficacy, benefits, and risks of breast cancer screening continues to rage, and scientific controversy surrounding overdiagnosis, false positives/false negatives, raises questions about communication to women attending screening programmes. The study compares information provided by invitation letters and leaflets of Italian breast screening programmes in 2001 (N=47) and

2014 (N=80). At both times, nearly all programmes provided adequate practical information and details about screening objectives and test procedures. Information regarding epidemiology/figures was scarce or absent in 2001, while in 2014 a number of programmes began to inform women about screening risks (false negative and positive results and overdiagnosis, 65%, 16%, and 21% respectively) although actual figures were rarely supplied. Despite this small improvement, Italian programmes are still far from giving balanced information. Further efforts should be addressed to providing accurate and transparent information, enabling women to make an informed choice.

Devaux, M. (2015). "Income-related inequalities and inequities in health care services utilisation in 18 selected OECD countries." Eur J Health Econ **16**(1): 21-33.
http://link.springer.com/article/10.1007%2Fs10198-013-0546-4

A key policy objective in OECD countries is to achieve adequate access to health care for all people on the basis of need. Previous studies have shown that there are inequities in health care services utilisation (HCSU) in the OECD area. In recent years, measures have been taken to enhance health care access. This paper re-examines income-related inequities in doctor visits among 18 selected OECD countries, updating previous results for 12 countries with 2006-2009 data, and including six new countries. Inequalities in preventive care services are also considered for the first time. The indirect standardisation procedure is used to estimate the need-adjusted HCSU and concentration indexes are derived to gauge inequalities and inequities. Overall, inequities in HCSU remain present in OECD countries. In most countries, for the same health care needs, people with higher incomes are more likely to consult a doctor than those with lower incomes. Pro-rich inequalities in dental visits and cancer screening uptake are also found in nearly all countries, although the magnitude of these varies among countries. These findings suggest that further monitoring of inequalities is essential in order to assess whether country policy objectives are achieved on a regular basis.

Gale, C. R., Deary, I. J., Wardle, J., et al. (2015). "Cognitive ability and personality as predictors of participation in a national colorectal cancer screening programme: the English Longitudinal Study of Ageing." J Epidemiol Community Health **69**(6): 530-535.

BACKGROUND: The English NHS Bowel Cancer Screening Programme has offered biennial faecal occult blood testing to people aged 60-69 years since 2006, and to those aged 60-74 years since 2010. Analysis of the first 2.6 million screening invitations found that 54% of eligible people took up the invitation. The reasons for this low uptake are unclear. We investigated whether participation in screening varies according to cognitive ability and personality. METHODS: Participants were members of The English Longitudinal Study of Ageing. In 2010-2011, respondents were asked about participation in bowel cancer screening, and cognitive ability and the 'Big Five' personality traits were assessed. Logistic regression was used to examine the cross-sectional relationships between cognitive ability and personality and screening participation in 2681 people aged 60-75 years who were eligible to have been invited to take part in the UK national screening programme for bowel cancer. RESULTS: In age-adjusted and sex-adjusted analyses, better cognition and higher conscientiousness were associated with increased participation in cancer screening. ORs (95% CIs) per SD increase were 1.10 (1.03 to 1.18) for cognitive ability and 1.10 (1.01 to 1.19) for conscientiousness. After further adjustment for household wealth and health literacy-shown previously to be associated with participation-these associations were attenuated (ORs were 1.07 (1.00 to 1.15) and 1.07 (0.97 to 1.18), respectively). CONCLUSIONS: We found some indication that better cognitive function and greater conscientiousness may be linked with a slightly increased likelihood of participation in bowel cancer screening. These relationships need investigation in other cohorts of older people.

Geertse, T. D., Holland, R., Timmers, J. M., et al. (2015). "Value of audits in breast cancer screening quality assurance programmes." Eur Radiol **25**(11): 3338-3347.

OBJECTIVES: Our aim was to retrospectively evaluate the results of all audits performed in the past and to assess their value in the quality assurance of the Dutch breast cancer screening programme. METHODS: The audit team of the Dutch Reference Centre for Screening (LRCB) conducts triennial audits of all 17 reading units. During audits, screening outcomes like recall rates and detection rates are assessed and a radiological review is performed. This study investigates and compares the results of four audit series: 1996-2000, 2001-2005, 2003-2007 and 2010-2013. RESULTS: The analysis shows increased recall rates (from 0.66%, 1.07%, 1.22% to 1.58%), increased detection rates (from 3.3, 4.5, 4.8 to 5.4 per 1000) and increased sensitivity (from 64.5%, 68.7%, 70.5% to 71.6%), over the four audit series. The percentage of 'missed cancers' among interval cancers and advanced screen-detected cancers did not change (p = 0.4). CONCLUSIONS: Our audits not only provide an opportunity for assessing screening outcomes, but also provide moments of self-reflection with peers. For radiologists, an accurate understanding of their performance is essential to identify points of improvement. We therefore recommend a radiological review of screening examinations and immediate feedback as part of an audit. KEY POINTS: • Radiological review and immediate feedback are recommended as part of an audit. • For breast screening radiologists, audits provide moments of self-reflection with peers. • Radiological review of screening examinations provides insights in recall behaviour. • Accurate understanding of radiologists' performance is essential to identify points of improvement.

Hall, N. J., Rubin, G. P., Dobson, C., et al. (2015). "Attitudes and beliefs of non-participants in a population-based screening programme for colorectal cancer." Health Expect **18**(5): 1645-1657.

BACKGROUND: Uptake of colorectal cancer screening programmes needs to be improved or at least maintained in order to achieve projected reductions in mortality and morbidity. Understanding the origins of non-participation in screening is therefore important. OBJECTIVE: To explore the beliefs and experiences of individuals who had not responded either to their screening invitation or reminder. DESIGN: A qualitative study using in-depth interviews with non-participants from England's population-based colorectal cancer screening programme. Data collection and analysis were carried out using a grounded theory approach, with an emphasis on the constant comparison method, and continued until saturation (27 interviews). FINDINGS: The interviews provided an in-depth understanding of a range of reasons and circumstances surrounding non-participation in screening, including contextual and environmental influences as well as factors specific to the screening test. Non-participation in screening was not necessarily associated with negative attitudes towards screening or a decision to not return a kit. Reasons for non-participation in screening included not feeling that participation is personally necessary, avoiding or delaying decision making, and having some degree of intention to take part but failing to do so because of practicalities, conflicting priorities or external circumstances. Beliefs, awareness and intention change over time. DISCUSSION AND CONCLUSIONS: A range of approaches may be required to improve screening uptake. Some non-participants may already have a degree of intention to take part in screening in the future, and this group may be more responsive to interventions based on professional endorsement, repeat invitations, reminders and aids to making the test more practical.

Haug, U., Rösch, T., Hoffmeister, M., et al. (2015). "[Implementing an Organised Colorectal Cancer Screening Programme in Germany: Opportunities and Challenges]." Gesundheitswesen **77**(11): 869-874.

BACKGROUND: Each year in Germany, about 65,000 people are diagnosed with colorectal cancer (CRC) and more than 25,000 people die of the disease. The majority of these cases could be avoided by a more effective screening programme. Recently, a law came into force that offers a great opportunity in this regard. It calls for introducing an organised CRC screening programme in Germany, which includes an invitation system as well as further measures for quality assurance and programme evaluation. To realise this opportunity, challenges of implementation need to be considered. The aim of this review article is to elaborate the challenges of an organised CRC screening in Germany in order to derive the need for action regarding successful implementation. METHODS: This review article is based on a selective literature search, including current guidelines and recommendations. RESULTS AND CONCLUSION: In the context of CRC screening, but also by colonoscopies performed for other indications (e.g., due to symptoms), precancerous lesions (adenomas) are detected and removed in a relevant proportion of the target population, which requires a surveillance examination after 3 or 5 years according to current recommendations. Therefore, an efficient invitation system for CRC screening should be designed to allow for a flexible interval depending on previous findings, which differs from mammography screening with its fixed interval. A prerequisite would be the standardised documentation of all colonoscopies irrespective of the indication, given that a substantial proportion of colonoscopies in Germany are performed outside of the screening program. Still, the work load regarding documentation could be less than for mammography screening. Another challenge in terms of organisation results from the parallel offer of 2 different screening tools (colonoscopy and faecal occult blood test). To realise the potential of an organised CRC screening, it seems important to devote sufficient time and resources for developing an efficient and feasible concept, while there might be interim options to avoid further delay regarding the initial invitation of the target population. Given that expertise from, amongst others, gastroenterology, epidemiology, clinical chemistry and health communication is required, an interdisciplinary approach appears essential.

Hurtado, J. L., Bacigalupe, A., Calvo, M., et al. (2015). "Social inequalities in a population based colorectal cancer screening programme in the Basque Country." BMC Public Health **15**: 1021.

BACKGROUND: While it is known that a variety of factors (biological, behavioural and interventional) play a major role in the health of individuals and populations, the importance of the role of social determinants is less clear. The effect of social inequality on population-based screening for colorectal cancer (CRC) could limit the value of such programmes. The present study aims to determine whether such inequalities exist. METHODS: Data was obtained from the population-based screening programme administered in the Autonomous Community of the Basque Country, Spain, with a target population aged 50 to 69, first invited to participate between 2009 and 2011. The magnitude of inequality was analysed using the odds ratio (taking the least disadvantaged socioeconomic quintile as the reference population), the population attributable risk and the relative index of inequality, based on the regression, which is the ratio of the rates in the most and least disadvantaged socioeconomic groups. RESULTS: The target population comprised 242,394 people, with the test kit successfully sent to 95.1 % (230,510). The overall response rate was 64.3 % (67.1 in women and 61.4 % men). Among women, the highest participation was in the third quintile (71.5 %) and the lowest in the first - the least disadvantaged (65.7 %). The lowest and highest rates of people with identified lesions were in the second and fourth quintiles (14.7/1000 and 17.0/1000 respectively). Among men, the response rate was lowest in the fifth - most disadvantaged - quintile (60.2 %). The highest rate of identified lesions was in the fifth quintile; 38 % higher than the first (55.7/1000 compared to 41.0/1000). CONCLUSIONS: Sex and socioeconomic group influence the rate of participation in the CRC programme and the rate of lesions found in the participants. Any public health programme is morally and ethically obliged to strive for equity and effectiveness. Improving participation of men and socially disadvantaged groups should be taken in account.

Joyce, K. M., McInerney, N. M., Waters, P. S., et al. (2015). "Symptomatic breast cancer diagnosis and multimodal management in women aged 40 to 50 years; consequences of current mammographic screening programs." Clin Breast Cancer **15**(2): e125-130.

INTRODUCTION: Consensus exists that screening mammography is appropriate for women aged 50 to 69 years. However, the effectiveness of such screening for women aged 40 to 50 years is still questioned. The aim of our study was to analyze breast cancer management in the 40- to 50-year age group. We also wished to determine the proportion of patients with a significant family history and whether this was associated with more advanced disease. PATIENTS AND METHODS: All female patients with primary breast cancer diagnosed between 40 and 50 years of age were included over a 4-year period. The database of the National Breast Cancer Research Institute was interrogated, and a chart and radiology review carried out to obtain relevant details of clinical presentation, family history, radiological findings, and treatments undertaken. RESULTS: Three hundred thirty-four patients were diagnosed in this cohort during the study period. Twenty-two percent of those diagnosed had a family history of breast cancer with 1.8% having a genetically confirmed predisposition to breast cancer. A significant proportion of patients presented with advanced disease, with 50% of patients having nodal involvement and 3% who presented with distant metastases. The overall rate of mastectomy was 47%, with minimal variation between the surgeons who performed the surgeries. More than half of the patients in our analysis underwent axillary clearance (51%). CONCLUSION: Our results indicate that a large proportion of patients in the 40- to 50-year age group presented with advanced disease and required aggressive surgical and adjuvant treatment. The presence of a family history did not identify a subgroup with more advanced disease at presentation.

Klabunde, C., Blom, J., Bulliard, J. L., et al. (2015). "Participation rates for organized colorectal cancer screening programmes: an international comparison." J Med Screen **22**(3): 119-126.

OBJECTIVE: Participation, an indicator of screening programme acceptance and effectiveness, varies widely in clinical trials and population-based colorectal cancer (CRC) screening programmes. We aimed to assess whether CRC screening participation rates can be compared across organized guaiac fecal occult blood test (G-FOBT)/fecal immunochemical test (FIT)-based programmes, and what factors influence these rates. METHODS: Programme representatives from countries participating in the International Cancer Screening Network were surveyed to describe their G-FOBT/FIT-based CRC screening programmes, how screening participation is defined and measured, and to provide participation data for their most recent completed screening round. RESULTS: Information was obtained from 15 programmes in 12 countries. Programmes varied in size, reach, maturity, target age groups, exclusions, type of test kit, method of providing test kits and use, and frequency of reminders. Coverage by invitation ranged from 30-100%, coverage by the screening programme from 7-67.7%, overall uptake/participation rate from 7-67.7%, and first invitation participation from 7-64.3%. Participation rates generally increased with age and were higher among women than men and for subsequent compared with first invitation participation. CONCLUSION: Comparisons among CRC screening programmes should be made cautiously, given differences in organization, target populations, and interpretation of indicators. More meaningful comparisons are possible if rates are calculated across a uniform age range, by gender, and separately for people invited for the first time vs. previously.

Lemke, D., Berkemeyer, S., Mattauch, V., et al. (2015). "Small-area spatio-temporal analyses of participation rates in the mammography screening program in the city of Dortmund (NW Germany)." BMC Public Health **15**: 1190.

BACKGROUND: The population-based mammography screening program (MSP) was implemented by the end of 2005 in Germany, and all women between 50 and 69 years are actively invited to a free biennial screening examination. However, despite the expected benefits, the overall participation rates range only between 50 and 55%. There is also increasing evidence that belonging to a vulnerable population, such as ethnic minorities or low income groups, is associated with a decreased likelihood of participating in screening programs. This study aimed to analyze in more detail the intra-urban variation of MSP uptake at the neighborhood level (i.e. statistical districts) for the city of Dortmund in northwest Germany and to identify demographic and socioeconomic risk factors that contribute to non-response to screening invitations. METHODS: The numbers of participants by statistical district were aggregated over the three periods 2007/2008, 2009/2010, and 2011/2012. Participation rates were calculated as numbers of participants per female resident population averaged over each 2-year period. Bayesian hierarchical spatial models extended with a temporal and spatio-temporal interaction effect were used to analyze the participation rates applying integrated nested Laplace approximations (INLA). The model included explanatory covariates taken from the atlas of social structure of Dortmund. RESULTS: Generally, participation rates rose for all districts over the time periods. However, participation was persistently lowest in the inner city of Dortmund. Multivariable regression analysis showed that migrant status and long-term unemployment were associated with significant increases of non-attendance in the MSP. CONCLUSION: Low income groups and immigrant populations are clustered in the inner city of Dortmund and the observed spatial pattern of persistently low participation in the city center is likely linked to the underlying socioeconomic gradient. This corresponds with the findings of the ecological regression analysis manifesting socioeconomically deprived neighborhoods as risk factors for low attendance in the MSP. Spatio-temporal surveillance of participation in cancer screening programs may be used to identify spatial inequalities in screening uptake and plan spatially focused interventions.

Liles, E. G., Schneider, J. L., Feldstein, A. C., et al. (2015). "Implementation challenges and successes of a population-based colorectal cancer screening program: a qualitative study of stakeholder perspectives." Implement Sci **10**: 41.

BACKGROUND: Few studies describe system-level challenges or facilitators to implementing population-based colorectal cancer (CRC) screening outreach programs. Our qualitative study explored viewpoints of multilevel stakeholders before, during, and after implementation of a centralized outreach program. Program implementation was part of a broader quality-improvement initiative. METHODS: During 2008-2010, we conducted semi-structured, open-ended individual interviews and focus groups at Kaiser Permanente Northwest (KPNW), a not-for-profit group model health maintenance organization using the practical robust implementation and sustainability model to explore external and internal barriers to CRC screening. We interviewed 55 stakeholders: 8 health plan leaders, 20 primary care providers, 4 program managers, and 23 endoscopy specialists (15 gastroenterologists, 8 general surgeons), and analyzed interview transcripts to identify common as well as divergent opinions expressed by stakeholders. RESULTS: The majority of stakeholders at various levels consistently reported that an automated telephone-reminder system to contact patients and coordinate mailing fecal tests alleviated organizational constraints on staff's time and resources. Changing to a single-sample fecal immunochemical test (FIT) lessened patient and provider concerns about feasibility and accuracy of fecal testing. The centralized telephonic outreach program did, however, result in some screening duplication and overuse. Higher rates of FIT completion and a higher proportion of positive results with FIT required more colonoscopies. CONCLUSIONS: Addressing barriers at multiple levels of a health system by changing the delivery system design to add a centralized outreach program, switching to a more accurate and easier-to-use fecal test, and providing educational and electronic support had both benefits and problematic consequences. Other health care organizations can use our results to understand the complexities of implementing centralized screening programs.

Lo, S. H., Halloran, S., Snowball, J., et al. (2015). "Colorectal cancer screening uptake over three biennial invitation rounds in the English bowel cancer screening programme." Gut **64**(2): 282-291.

OBJECTIVE: To examine patterns of colorectal cancer (CRC) screening uptake over three biennial invitation rounds in the National Health Service (NHS) Bowel Cancer Screening Programme (BCSP) in England. METHODS: We analysed data from the BCSP's Southern Hub for individuals (n=62,099) aged 60-64 years at the time of first invitation to screening with a follow-up period that allowed for two further biennial invitations. Data on sex, age and a neighbourhood-level measure of socioeconomic deprivation were used in the analysis. Outcomes included uptake of guaiac-based faecal occult blood (gFOB) test screening, inadequate gFOB screening (≥1 test kit(s) returned but failed to complete further gFOB tests needed to reach a conclusive test result), test positivity, compliance with follow-up examinations (usually colonoscopy) and diagnostic outcomes. RESULTS: Overall gFOB uptake was 57.4% in the first, 60.9% in the second and 66.2% in third biennial invitation round. This resulted in 70.1% of the initial cohort having responded at least once, 60.7% at least twice and 44.4% three times. Participation in the first round was strongly predictive of participation in the second round ('Previous Responders': 86.6% vs. 'Previous Non-Responders': 23.1%). Participation in the third round was highest among 'Consistent Screeners' (94.5%), followed by 'Late Entrants' (78.0%), 'Dropouts' (59.8%) and 'Consistent Non-Responders' (14.6%). Socioeconomic inequalities in uptake were observed across the three rounds, but sex inequalities decreased over rounds. Inadequate gFOB screening was influenced by screening history and socioeconomic deprivation. Screening history was the only significant predictor of follow-up compliance. CONCLUSIONS: Screening history is associated with overall gFOB uptake, inadequate gFOB screening and follow-up compliance. Socioeconomic deprivation is also consistently associated with lower gFOB uptake and inadequate gFOB screening. Improving regular screening among identified 'at-risk' groups is important for the effectiveness of CRC screening programmes.

Massat, N. J., Douglas, E., Waller, J., et al. (2015). "Variation in cervical and breast cancer screening coverage in England: a cross-sectional analysis to characterise districts with atypical behaviour." BMJ Open **5**(7):

e007735.

OBJECTIVES: Reducing cancer screening inequalities in England is a major focus of the 2011 Department of Health cancer outcome strategy. Screening coverage requires regular monitoring in order to implement targeted interventions where coverage is low. This study aimed to characterise districts with atypical coverage levels for cervical or breast screening. DESIGN: Observational study of district-level coverage in the English Cervical and Breast screening programmes in 2012. SETTING: England, UK. PARTICIPANTS: All English women invited to participate in the cervical (age group 25-49 and 50-64) and breast (age group 50-64) screening programmes. OUTCOMES: Risk adjustment models for coverage were developed based on district-level characteristics. Funnel plots of adjusted coverage were constructed, and atypical districts examined by correlation analysis. RESULTS: Variability in coverage was primarily explained by population factors, whereas general practice characteristics had little independent effect. Deprivation and ethnicity other than white, Asian, black or mixed were independently associated with poorer coverage in both screening programmes, with ethnicity having the strongest effect; by comparison, the influence of Asian, black or mixed ethnic minority was limited. Deprivation, ethnicity and urbanisation largely accounted for the lower cervical screening coverage in London. However, for breast screening, being located in London remained a strong negative predictor. A subset of districts was identified as having atypical coverage across programmes. Correlates of deprivation in districts with relatively low adjusted coverage were substantially different from overall correlates of deprivation. DISCUSSION: These results inform the continuing drive to reduce avoidable cancer deaths in England, and encourage implementation of targeted interventions in communities residing in districts identified as having atypically low coverage. Sequential implementation to monitor the impact of local interventions would help accrue evidence on 'what works'.

O'Brien, K. M., Dwane, F., Kelleher, T., et al. (2015). "Interval cancer rates in the Irish national breast screening programme." J Med Screen **22**(3): 136-143.

OBJECTIVE: To compare interval cancer rates from the Irish breast screening programme, BreastCheck, for the period 2000-2007 with those from other European countries. METHODS: Data from BreastCheck was linked to National Cancer Registry breast cancer registrations, to calculate numbers of women screened, screen-detected cancers, and interval cancers, by year of screening, in the first and second years after screening, and by initial or subsequent screen. Estimated underlying cancer incidence from the period 1996-1999 inclusive was used to calculate proportionate incidence. We calculated the interval cancer ratio as an alternative measure of the burden of interval cancers. RESULTS: There were 372,658 screening records for 178,147 women in the period 2000-2007. The overall interval rate was 9.6 per 10,000 screens. In the first year after screening, the interval cancer rate was 5.8 per 10,000 screens and this increased to 13.4 in the second year after screening. The screen detection rate for the period was 53.6 per 10,000 screened for all screens combined. Initial screens produced a higher detection rate at 66.9 per 10,000 screened compared with subsequent screens with a screen-detected rate of 41.4 per 10,000 screens. CONCLUSION: Interval breast cancer rates for the first years of the programme are within acceptable limits and are comparable with those in other European programmes. Nationwide roll-out together with the adoption of digital mammography may have an impact on interval cancer rates in future years.

Poskus, T., Strupas, K., Mikalauskas, S., et al. (2015). "Initial results of the National Colorectal Cancer Screening Program in Lithuania." Eur J Cancer Prev **24**(2): 76-80.

The aim of the present study was to review the National Colorectal Cancer Screening Program (the Program) in Lithuania according to the criteria set by the European Union. In Lithuania, screening services are provided free of charge to the population. The National Health Insurance Fund (NHIF) reimburses the institutions for performing each service; each procedure within the Program has its own administrative code. All the information about the performance of the Program is collected in one institution - the NHIF. The results of the Program were retrieved from the database of NHIF from the start of the Program from 1 July 2009 to 1 July 2012. Descriptive analysis of epidemiological indicators was carried out. Results were compared with the references in the guidelines of the

European Union for quality assurance in colorectal cancer (CRC) screening and diagnosis. Information service [which involves fecal immunochemical test (FIT)] was provided to 271,396 of 890,309 50-74-year-old residents. The screening uptake was 46.0% over 3 years. During this period, 19,455 (7.2%) FITs were positive and 251,941 (92.8%) FITs were negative. Referral for colonoscopy was performed in 10,190 (52.4%) patients. Colonoscopy was performed in 12,864 (66.1%) patients. Colonoscopy did not indicate any pathological findings in 8613 (67.0%) patients. Biopsies were performed in 4251 (33.0%) patients. The rate of high-grade neoplasia reported by pathologists was 3.9%; the rate of cancer was 3.1% of all colonoscopies. The rate of CRC detected by the Program was 0.2%. The CRC screening program in Lithuania meets most of the requirements for standardized CRC screening programs. The invitation coverage and rate of referral for colonoscopy after positive FIT should be improved.

Ricardo-Rodrigues, I., Jiménez-García, R., Hernández-Barrera, V., et al. (2015). "Social disparities in access to breast and cervical cancer screening by women living in Spain." Public Health **129**(7): 881-888.

OBJECTIVES: To describe uptake of breast and cervical cancer screening by women living in Spain, analyse the possible associated social and health factors, and compare uptake rates with those obtained in previous surveys. STUDY DESIGN: Cross-sectional study using data from the 2011 Spanish national health survey. METHODS: Uptake of breast cancer screening was analysed by asking women aged 40-69 years whether they had undergone mammography in the previous two years. Uptake of cervical cancer screening was analysed by asking women aged 25-65 years whether they had undergone cervical cytology in the previous three years. Independent variables included sociodemographic characteristics, and variables related to health status and lifestyle. RESULTS: Seventy-two percent of women had undergone mammography in the previous two years. Having private health insurance increased the probability of breast screening uptake four-fold [odds ratio (OR) 3.96, 95% confidence interval (CI) 2.71-5.79], and being an immigrant was a negative predictor for breast screening uptake. Seventy percent of women had undergone cervical cytology in the previous three years. Higher-educated women were more likely to have undergone cervical cancer screening (OR 2.59, 95% CI 1.97-3.40), and obese women and women living in rural areas were less likely to have undergone cervical cancer screening. There have been no relevant improvements in uptake rates of either breast or cervical cancer screening since 2006. CONCLUSION: Uptake of breast and cervical cancer screening could be improved in Spain, and uptake rates have stagnated over recent years. Social disparities have been detected with regard to access to these screening tests, indicating that it is necessary to continue researching and optimizing prevention programmes in order to improve uptake and reduce these disparities.

Senore, C., Ederle, A., DePretis, G., et al. (2015). "Invitation strategies for colorectal cancer screening programmes: The impact of an advance notification letter." Prev Med **73**: 106-111.

AIM: To estimate the impact of an advance notification letter on participation in sigmoidoscopy (FS) and fecal immunochemical test (FIT) screening. METHODS: Eligible subjects, invited in 3 Italian population based programmes using FS and in 5 using FIT, were randomised (1:1:1), within GP, to: A) standard invitation letter; B) advance notification followed after 1month by the standard invitation; and C) B+indication to contact the general practitioner (GP) to get advice about the decision to be screened. We calculated the 9-month attendance and the incremental cost of each strategy. We conducted a phone survey to assess GP's utilization and predictors of participation. RESULTS: The advance notification was associated with a 20% increase in the attendance among 15,655 people invited for FS (B vs A - RR: 1.17, 95% CI: 1.10-1.25; C vs A - RR: 1.19, 95% CI: 1.12-1.27); the incremental cost ranged between 10 and 9 Euros. Participation in FIT screening (N=23,543) was increased only with simple pre-notification (B vs A - RR: 1.06, 95% CI: 1.02-1.10); the incremental cost was 22.5 Euros. GP consultation rate was not increased in group C. CONCLUSIONS: An advance notification represents a cost-effective strategy to increase participation in FS screening; its impact on the response to FIT screening was limited.

Seven, M., Akyüz, A. et Robertson, L. B. (2015). "Interventional Education Methods for Increasing Women's Participation in Breast Cancer Screening Program." J Cancer Educ **30**(2): 244-252.

The purpose of this study was to evaluate the impact of the three methods of education-individual, individual with an educational brochure for spouses, and group-on participation on breast cancer screening in Turkey. A total of 550 home visits were made and 446 women were interviewed to accrue 327 women for the study, 26.7% of whom reported receiving a screening mammogram within the past 2 years. Participants were divided into one of the three educational groups, and following the educational session, they were invited to attend a breast cancer screening program. The results indicated that the decision to have a screening mammogram was influenced by the method of education and the knowledge score. Women, who were educated, within a group scored the highest. These results demonstrate that group education is an effective method of increasing breast cancer knowledge and screening awareness.

Shokar, N. K., Byrd, T., Lairson, D. R., et al. (2015). "Against Colorectal Cancer in Our Neighborhoods, a Community-Based Colorectal Cancer Screening Program Targeting Low-Income Hispanics: Program Development and Costs." Health Promot Pract **16**(5): 656-666.

BACKGROUND: Colorectal cancer is the second leading cause of cancer-related death in the United States. Despite universal screening recommendations, screening rates in the United States remain suboptimal, especially among the poor, the uninsured, recent immigrants, and Hispanics. This article describes the development of a large community-based colorectal cancer screening program designed to address these disparities. METHOD: The Against Colorectal Cancer in our Neighborhoods program is a bilingual, evidence-based, theory-guided, multicomponent community screening intervention, targeting the uninsured and developed using a systematic planning process. It combines community health worker-led outreach, bilingual and culturally tailored community education, and no-cost screening with provision of the fecal immunochemical test or colonoscopy and navigation services. A detailed process and outcome evaluation is planned. Program development cost calculated prospectively (in 2011 dollars) using a societal perspective and micro-costing methods was $243,278, of which $180,344 was direct cost. DISCUSSION: The detailed description of the development processes and costs of this health promotion program targeting low-income Hispanics will inform health program decision makers about the resource requirements for planning and developing new programs to reduce disease burden in communities.

Topal, F., Van Roosbroeck, S., Van Hal, G., et al. (2015). "Factors contributing to the low participation rate of Turkish women to a breast cancer screening program in Antwerp, Belgium." Eur J Gynaecol Oncol **36**(5): 520-523.

OBJECTIVES: To explore possible factors explaining a low participation rate to breast cancer screening for Turkish women living in Antwerp, Belgium, and to develop ways to increase participation rate. MATERIAL AND METHODS: The authors used focus group discussions with Turkish women to explore their reasons to participate or not to participate in breast cancer screening. Groups consisted of four to six women. Inclusion criteria were: being female, having a Turkish origin, and age between 50 and 69 years. For each focus group, one Turkish women was invited and asked to invite five other women meeting the inclusion criteria. RESULTS: Three focus group discussions with in total 17 women have taken place. Six women had participated to all consecutive invitations for breast cancer screening. One woman had participated once, but not the next time she was invited. Ten women had never participated to screening mammography, although some of them had undergone diagnostic mammography. In all three focus groups, insufficient knowledge of the Dutch language, the unavailability of a professional interpreter, being careless about healthcare, and a negative influence of the husband, were the main reasons not to participate in breast cancer screening. Invitation letters are not read because they are in a language the woman does not understand. Less frequently mentioned obstacles were being on a holiday or being sick on the day of the scheduled mammography, fear of pain, considering an examination useless when not having any symptoms, being anxious for a positive result, and the physical distance to the screening center. Receiving an invitation in Turkish and knowing that a person speaking Turkish will be available at the screening center were proposed as possible measures to improve participation. CONCLUSION: The single most important reason why Turkish women living in Antwerp, Belgium, do not participate in breast cancer screening was a language problem; other reasons were a lack of knowledge concerning breast cancer screening and not worrying about breast cancer. The language barrier in this population of older women can possible be overcome by Turkish speaking personnel at the screening centers.

Zidar, M. N., Larm, P., Tillgren, P., et al. (2015). "Non-attendance of mammographic screening: the roles of age and municipality in a population-based Swedish sample." Int J Equity Health **14**: 157.

BACKGROUND: Inequality in health and health care is increasing in Sweden. Contributing to widening gaps are various factors that can be assessed by determinants, such as age, educational level, occupation, living area and country of birth. A health care service that can be used as an indicator of health inequality in Sweden is mammographic screening. The non-attendance rate is between 13 and 31 %, while the average is about 20 %. This study aims to shed light on three associations: between municipality and non-attendance, between age and non-attendance, and the interaction of municipality of residence and age in relation to non-attendance. METHODS: The study is based on data from the register that identifies attenders and non-attenders of mammographic screening in a Swedish county, namely the Radiological Information System (RIS). Further, in order to provide a socio-demographic profile of the county's municipalities, aggregated data for women in the age range 40-74 in 2012 were retrieved from Statistics Sweden (SCB), the Public Health Agency of Sweden, the National Board of Health and Welfare, and the Swedish Social Insurance Agency. The sample consisted of 52,541 women. Analysis conducted of the individual data were multivariate logistic regressions, and pairwise chi-square tests. RESULTS: The results show that age and municipality of residence associated with non-attendance of mammographic screening. Municipality of residence has a greater impact on non-attendance among women in the age group 70 to 74. For most of the age categories there were differences between the municipalities in regard to non-attendance to mammographic screening. CONCLUSIONS: Age and municipality of residence affect attendance of mammographic screening. Since there is one sole and pre-selected mammographic screening facility in the county, distance to the screening facility may serve as one explanation to non-attendance which is a determinant of inequity. From an equity perspective, lack of equal access to health and health care influences facility utilization.

2014

Altobelli, E., Lattanzi, A., Paduano, R., et al. (2014). "Colorectal cancer prevention in Europe: burden of disease and status of screening programs." Prev Med **62**: 132-141.

Colorectal cancer is a major public health challenge worldwide. In Europe it is the first malignancy in terms of incidence and the second in terms of mortality in both genders. Despite evidence indicating that removal of premalignant and early-stage cancer lesion scan greatly reduce mortality, remarkable differences are still found among countries both in terms of organized screening programs and of the tests used. In 2003 the European Council recommended that priority be given to activation of organized cancer screening programs, and various states have been making significant efforts to adopt effective prevention programs with international quality standards and centralizing screening organization and result evaluation. After a 2008 European Union report on the state of screening program, activation highlighted that little more than 50% (12/22) of Member States had colorectal cancer screening programs, Screening programs have been adopted or earlier pilot projects have been extended nationwide. This paper examines the state of activation and the screening strategies of colorectal cancer screening programs in EU States as of July 2013.

Arcas, M. M., Buron, A., Ramis, O., et al. (2014). "[Can a mobile phone short message increase participation in breast cancer screening programmes?]." Rev Calid Asist **29**(4): 188-196.

OBJECTIVE: To evaluate the impact of a mobile phone short message on women's uptake in a breast cancer screening programme. METHODS: A total of 703 women from a Basic Health Area of Barcelona,

and with a mobile phone number registered, were invited to participate in a breast cancer screening programme between 25 January 2011 and 22 March 2011. The control group (n=470) followed the usual appointment track, and the intervention group (n=233) received, after the first letter of invitation, a mobile phone short message reminder. The differences between the two groups were analysed, comparing the uptake rates according to age, educational level, and participation in previous round, as well as the number of re-invitation calls to non-attenders according to uptake, age and level of education;and the percentages of exclusions of both groups. RESULTS: The intervention group had a greater uptake than the control group (78.1% vs. 72.3%), with a significant trend observed in the 55-59 years age group (P=.036) and the low secondary educational level (P=.014).The intervention group mean of re-invitation calls of non-attenders lower than the control group (.41 vs. .65, P<.05), a pattern observed in all the categories of the independent variables, and among younger age groups, lower and middle educational levels, and previously participating women (.09 vs. .19, P=.012). CONCLUSIONS: The inclusion of a mobile phone short message in a breast cancer screening programme may increase uptake rates and lead to a management improvement.

Bairati, I., Turcotte, S., Doray, G., et al. (2014). "Development and validation of an instrument assessing women's satisfaction with screening mammography in an organized breast cancer screening program." BMC Health Serv Res **14**: 9.

BACKGROUND: The assessment of the quality of mammography services delivered in organized breast cancer screening programs should include measures centered on women's perceptions. The objective of this study was to develop and validate an instrument in French designed to evaluate the satisfaction of women having a screening mammography. METHODS: An instrument evaluating women's satisfaction with mammography services was developed using published research, the perceptions of screened women, the expertise of health professionals and a pilot study. Between November 9 and 21, 2011, the questionnaire was sent to 1500 consecutive women having had a screening mammography in eight radiologic facilities designated by the Québec Breast Cancer Screening Program, in Quebec City, Canada. Construct validity, convergent and discriminant validity, reliability and sensitivity of the instrument were examined. RESULTS: A total of 819 women (55%) participated in the validation study. The factor analysis retained four satisfaction dimensions: satisfaction with 1) the technician's skills (four items), 2) the physical environment (four items), 3) the staff's communication skills (three items) and 4) the information given by the program (3 items). The multitrait-scaling analysis showed good convergent and discriminant validity: scaling success was 100% for all subscales. All subscales had good internal consistency (Cronbach's alphas ≥ 0.86). The satisfaction scores were able to identify groups of women with lower levels of satisfaction, such as younger women or women with pain during breast compression. CONCLUSION: This brief satisfaction instrument, developed in French, showed good psychometric properties to evaluate satisfaction in women receiving mammographic services in an organized breast cancer screening program.

Belasco, E. J., Gong, G., Pence, B., et al. (2014). "The impact of rural health care accessibility on cancer-related behaviors and outcomes." Appl Health Econ Health Policy **12**(4): 461-470.

BACKGROUND: This research seeks to identify the relationship between economic factors related to the ability to receive and pay for health services and adverse cancer outcomes, as well as preventative screening and behavioral factors that influence the risk of cancer. We focus on the Northern High Plains region, where we are able to compare regions with extremely low access to health services with those with relatively high levels of access. OBJECTIVE: This study aims to identify health disparities in rural communities, particularly among Native American populations, and, thereby, begin to determine the most effective means by which to deliver health services to areas where geography, economics, and culture might prevent traditional models of health delivery from providing sufficient incentives for the prevention of adverse cancer-related outcomes. METHODS: The Health Care Accessibility Index (HCAI) is computed through the use of principal component analysis and includes economic variables as well as variables concerning institutional and geographic access to health care. Index values are then regressed onto cancer outcomes, cancer-prevention outcomes, and cancer-related risk, using weighted least squares and quantile regressions. RESULTS: Counties with relatively poor access to

health care (low HCAI) also have statistically (1) lower breast cancer screening rates, (2) higher smoking prevalence, (3) higher obesity prevalence, and (4) higher cancer-related mortality rates. Breast cancer screening is found to be especially sensitive to areas of low health accessibility. CONCLUSIONS: Empirical results provide support for policy efforts to increase the accessibility of health care services that are targeted to areas with low mammography screening rates, high obesity rates, high smoking prevalence, as well as areas near Native American reservation territories

Blanch, J., Sala, M., Ibáñez, J., et al. (2014). "Impact of risk factors on different interval cancer subtypes in a population-based breast cancer screening programme." Plos One **9**(10): e110207.

BACKGROUND: Interval cancers are primary breast cancers diagnosed in women after a negative screening test and before the next screening invitation. Our aim was to evaluate risk factors for interval cancer and their subtypes and to compare the risk factors identified with those associated with incident screen-detected cancers. METHODS: We analyzed data from 645,764 women participating in the Spanish breast cancer screening program from 2000-2006 and followed-up until 2009. A total of 5,309 screen-detected and 1,653 interval cancers were diagnosed. Among the latter, 1,012 could be classified on the basis of findings in screening and diagnostic mammograms, consisting of 489 true interval cancers (48.2%), 235 false-negatives (23.2%), 172 minimal-signs (17.2%) and 114 occult tumors (11.3%). Information on the screening protocol and women's characteristics were obtained from the screening program registry. Cause-specific Cox regression models were used to estimate the hazard ratios (HR) of risks factors for interval cancer and incident screen-detected cancer. A multinomial regression model, using screen-detected tumors as a reference group, was used to assess the effect of breast density and other factors on the occurrence of interval cancer subtypes. RESULTS: A previous false-positive was the main risk factor for interval cancer (HR = 2.71, 95%CI: 2.28-3.23); this risk was higher for false-negatives (HR = 8.79, 95%CI: 6.24-12.40) than for true interval cancer (HR = 2.26, 95%CI: 1.59-3.21). A family history of breast cancer was associated with true intervals (HR = 2.11, 95%CI: 1.60-2.78), previous benign biopsy with a false-negatives (HR = 1.83, 95%CI: 1.23-2.71). High breast density was mainly associated with occult tumors (RRR = 4.92, 95%CI: 2.58-9.38), followed by true intervals (RRR = 1.67, 95%CI: 1.18-2.36) and false-negatives (RRR = 1.58, 95%CI: 1.00-2.49). CONCLUSION: The role of women's characteristics differs among interval cancer subtypes. This information could be useful to improve effectiveness of breast cancer screening programmes and to better classify subgroups of women with different risks of developing cancer.

Blom, J., Kilpeläinen, S., Hultcrantz, R., et al. (2014). "Five-year experience of organized colorectal cancer screening in a Swedish population - increased compliance with age, female gender, and subsequent screening round." J Med Screen **21**(3): 144-150.

OBJECTIVE: To evaluate compliance by age, gender, and screening round in the population based Stockholm/Gotland colorectal cancer screening programme. METHODS: All individuals aged between 60 and 69 living in the counties of Stockholm and Gotland (Sweden) have, since 2008, successively been included in a colorectal cancer screening programme using biennial faecal occult blood tests (Hemoccult®). Personal invitations including test kits have been sent to home addresses, and individuals with a positive test result have been called to a defined clinic for an assessment colonoscopy. Descriptive statistics have been used to evaluate different aspects of compliance. RESULTS: Over the five-year period 2008-2012, more than 200,000 individuals from nine different birth cohorts have been invited, with a compliance rate of approximately 60%, which increased by age, female gender, and subsequent screening round. In total, 4,300 individuals (2.1%) with positive tests were referred to assessment colonoscopy, where 213 colorectal cancers were diagnosed. The compliance with the follow-up colonoscopies varied by year, and ranged from 85.6-92.4%. CONCLUSION: The strong organization of the programme contributed to a high compliance rate, that increased by screening round. The lower participation rate among men and among individuals at younger ages needs further attention.

Boguradzka, A., Wiszniewski, M., Kaminski, M. F., et al. (2014). "The effect of primary care physician counseling on participation rate and use of sedation in colonoscopy-based colorectal cancer screening program--a randomized controlled study." Scand J Gastroenterol **49**(7): 878-884.

OBJECTIVES: Physician recommendation is a strong predictor of colorectal cancer (CRC) screening adherence, but there are no sufficient data specific to primary colonoscopy screening programs. The primary objective was to compare the effect of primary care physician's (PCP) counseling with information leaflet about CRC screening on participation rate in opportunistic primary colonoscopy screening program. Secondary objective was to determine the impact of this counseling on a decision to choose unsedated colonoscopy. MATERIAL AND METHODS: Six hundred consecutive subjects 50-65 years of age visiting PCP group practice for routine medical consultation were randomly assigned in a 1:1 ratio either to discuss CRC screening with PCP or to receive an information leaflet on CRC screening only. The outcome measures were the participation rate and the proportion of unsedated colonoscopies assessed on subjects' self-reports collected six months after the intervention. Multivariate logistic regression model with backward selection was used to investigate the association between independent covariates and binary endpoints. RESULTS: Participation rate was 47.0% (141 subjects) in the counseling group and 13.7% (41 patients) in the information leaflet group. The rates of unsedated colonoscopies were 77.0% and 39.0%, respectively. In a multivariate analyses, PCP's counseling was associated with higher participation in CRC screening (adjusted odds ratio [OR] 5.33, 95% confidence intervals [95% CI] 3.55-8.00) and higher rate of unsedated colonoscopies (OR 7.75, 95% CI 2.94-20.45). CONCLUSION: In opportunistic primary colonoscopy screening, PCP's counseling significantly increases participation rate and decreases demand for sedation compared to recruitment with information materials only. NCT01688817.

Bulliard, J. L., Garcia, M., Blom, J., et al. (2014). "Sorting out measures and definitions of screening participation to improve comparability: the example of colorectal cancer." Eur J Cancer **50**(2): 434-446.

Participation is a key indicator of the potential effectiveness of any population-based intervention. Defining, measuring and reporting participation in cancer screening programmes has become more heterogeneous as the number and diversity of interventions have increased, and the purposes of this benchmarking parameter have broadened. This study, centred on colorectal cancer, addresses current issues that affect the increasingly complex task of comparing screening participation across settings. Reports from programmes with a defined target population and active invitation scheme, published between 2005 and 2012, were reviewed. Differences in defining and measuring participation were identified and quantified, and participation indicators were grouped by aims of measure and temporal dimensions. We found that consistent terminology, clear and complete reporting of participation definition and systematic documentation of coverage by invitation were lacking. Further, adherence to definitions proposed in the 2010 European Guidelines for Quality Assurance in Colorectal Cancer Screening was suboptimal. Ineligible individuals represented 1% to 15% of invitations, and variable criteria for ineligibility yielded differences in participation estimates that could obscure the interpretation of colorectal cancer screening participation internationally. Excluding ineligible individuals from the reference population enhances comparability of participation measures. Standardised measures of cumulative participation to compare screening protocols with different intervals and inclusion of time since invitation in definitions are urgently needed to improve international comparability of colorectal cancer screening participation. Recommendations to improve comparability of participation indicators in cancer screening interventions are made.

de Glas, N. A., de Craen, A. J., Bastiaannet, E., et al. (2014). "Effect of implementation of the mass breast cancer screening programme in older women in the Netherlands: population based study." Bmj **349**: g5410.

OBJECTIVE: To assess the incidence of early stage and advanced stage breast cancer before and after the implementation of mass screening in women aged 70-75 years in the Netherlands in 1998. DESIGN: Prospective nationwide population based study. SETTING: National cancer registry, the Netherlands. PARTICIPANTS: Patients aged 70-75 years with a diagnosis of invasive or ductal carcinoma in situ breast cancer between 1995 and 2011 (n=25,414). Incidence rates were calculated using population data from Statistics Netherlands. MAIN OUTCOME MEASURE: Incidence rates of early stage (I, II, or ductal carcinoma in situ) and advanced stage (III and IV) breast cancer before and after implementation of screening. Hypotheses were formulated before data collection. RESULTS: The incidence of early stage tumours significantly increased after the extension for implementation of screening (248.7 cases per 100,000 women before screening up to 362.9 cases per 100,000 women after implementation of screening, incidence rate ratio 1.46, 95% confidence interval 1.40 to 1.52, P<0.001). However, the incidence of advanced stage breast cancers decreased to a far lesser extent (58.6 cases per 100,000 women before screening to 51.8 cases per 100,000 women after implementation of screening, incidence rate ratio 0.88, 0.81 to 0.97, P<0.001). CONCLUSIONS: The extension of the upper age limit to 75 years has only led to a small decrease in incidence of advanced stage breast cancer, while that of early stage tumours has strongly increased.

Döbrőssy, L., Cornides, A., Kovács, A., et al. (2014). "[Implementation status of cervical screening in Europe]." Orv Hetil **155**(50): 1975-1988.

Following the recommendation of the Council of the European Union, almost all governments made a policy statement on the introduction of cytology-based cervical screening for the health care system. However, the status of implementation is uneven. In the majority of the developed countries an organised model of screening recommended by the relevant international professional organisations are in use, while occasional screening is applied in some other countries. Screening strategies (i.e. age range, screening intervals), coverage of the target population, and compliance rates vary significantly. The screening activities are in a planning phase is some less developed Central-Eastern and South European countries. In Hungary, the transition from the traditional "gynaecological cancer screening" into the recommended organised cervical screening is in progress; the active involvement of the district health visitors in the cervical screening would provide further improvement.

Döbrőssy, L., Kovács, A., Cornides, A., et al. (2014). "[Factors influencing the participation in colorectal screening]." Orv Hetil **155**(27): 1051-1056.

Participation of the target population in coloretal screening is generally low. In addition to demographic and socio-economic factors, the health care system and- in particular - family doctors play an important role. Further, the rate of participation is influenced by psychological, cognitive and behavioural factors, too. The paper analyses factors related to colorectal screening behaviour and potential interventions designed to screening uptake.

Dreier, M., Borutta, B., Seidel, G., et al. (2014). "[Leaflets and websites on colorectal cancer screening and their quality assessment from experts' views]." Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz **57**(3): 356-365.

In Germany, individuals who have statutory health insurance have free access to colorectal cancer (CRC) screening tests, and can choose between a fecal occult blood test and a screening colonoscopy. Evidence-based health information may support informed choices regarding whether or not to undergo CRC screening. The aim of this study was to assess whether the available German information materials on CRC screening meet evidence-based health information standards. A systematic search was made for print media and websites on CRC screening addressed to German people with average CRC risk (search period for print media August 2010, for websites January-March 2012). The identified information was assessed with a newly developed comprehensive list of criteria. In all, 41 print media, including 28 flyers and 13 brochures, and 36 websites were identified and assessed. These materials reported more often the benefits than the risks of CRC screening, and quantified presentations of benefits and risks were less frequently given. Most of the materials called for participation and did not indicate the option to decide whether or not to attend CRC screening. This bias in favor of screening was increased by fear-provoking or downplayed wording. Most materials included false and misleading information. The requirements for evidence-based patient information were currently not met by most of the leaflets and websites in Germany. Feedback was given to the producers of the leaflets including a discussion of the findings. The results may be used to revise existing leaflets or to develop new health information on CRC screening.

Goossens, M., Van Hal, G., Van der Burg, M., et al. (2014). "Quantifying independent risk factors for failing to rescreen in a breast cancer screening program in Flanders, Belgium." Prev Med **69**: 280-286.

BACKGROUND: Mammographic screening may reduce breast cancer mortality by about 20%, provided participation is high and women screen regularly. We quantified independent risk factors for failing to rescreen and built a model to predict how rescreening rates change if these risk factors would be modified. METHODS: Multivariate analysis was used to analyze data from a prospective study which included a self-administered questionnaire and rescreening status 30months after a t0 mammogram, using a random sample of women 50-67years (Belgium 2010-2013). RESULTS: A false positive result at the most recent past mammogram (Odds Ratio=5.0, 95% Confidence Interval 3.6-6.8), an interval until new invitation greater than 25months (Odds Ratio=4.8 for >29months, 95% Confidence Interval 2.9-8.1), waiting times in the mammography unit >1h (Odds Ratio=2.1, 95% Confidence Interval 1.2-3.7) and difficulties in reaching the unit (Odds Ratio=2.5, 95% Confidence Interval 1.4-4.4) were the strongest independent predictors for failing to rescreen. The area under the curve of the receiver operating characteristic analysis was 0.705 for the model development stage and 0.717 for the validation stage and goodness-of-fit was good. CONCLUSIONS: Maintaining an invitation cycle of maximum 25months, limiting waiting time in the mammography unit and lowering the number of false positives could increase breast cancer screening compliance.

Gorini, G., Zappa, M., Cortini, B., et al. (2014). "Breast cancer mortality trends in Italy by region and screening programme, 1980-2008." J Med Screen **21**(4): 189-193.

OBJECTIVES: To describe trends in breast cancer mortality in 14 Italian regions representing 90% of the Italian population, and in the country overall, in relation to the diffusion of organized or opportunistic breast cancer screening programmes. Settings : Breast cancer mortality figures from 1980-2008 in Italy and 14 Italian regions were retrieved from the National Statistics Institute. METHODS: Estimated annual percent change (EAPC) was calculated for three time-periods (1980-1989, 1990-1999, 2000-2008). To estimate the age-adjusted and age-specific EAPC, trends in mortality based on annual data were examined using a log-linear regression model, and the year of death as a regressor variable. RESULTS: In the period 1980-1989 an increasing trend was observed in Italy overall (EAPC = +1.1%; 95% confidence interval [95%CI]: + 0.9%; + 1.3%) and in the 14 regions. In the second decade a decreasing trend was recorded both overall in Italy (EAPC = -1.6%; 95CI:-1.8%;-1.4%) and in all the regions. Between 2000-2008 a slightly decreasing trend was observed in Italy overall (EAPC = -0.8%; 95%CI:-1.0%;-0.5%). A steeper and earlier decrease compared with the rest of Italy was observed in 1990-1999 in Liguria (EAPC = -3.1%; 95%CI:-4.0%,-2.1%), Lombardy (EAPC = -2.3%; 95%CI:-2.8%;-1.9%), and Tuscany (EAPC = -3.0%; 95%CI:-3.7%;-2.2%), mainly due to the 55-64 age-group. There were significant EAPCs between -4.1% and -3.7% in these three regions, 2.5-3.0 times greater than in the rest of Italy (EAPC = -1.4%). CONCLUSIONS: This earlier decline in three Italian regions could be partially attributable to local organized screening programmes implemented earlier than in the rest of Italy, and to opportunistic screening that became more common in 1990s.

Kristensson, J. H., Sander, B. B., von Euler-Chelpin, M., et al. (2014). "Predictors of non-participation in cervical screening in Denmark." Cancer Epidemiol **38**(2): 174-180.

PURPOSE: The aims of this study were to identify demographic and socio-economic predictors of non-participation in cervical screening in Denmark, and to evaluate the influence of health care use on screening participation. METHODS: A population based register study was undertaken using data from the Central Population Register, the national Patobank, and Statistics Denmark. The study included women aged 25-54 years on 1st of January 2002, living in Denmark during the next 5 years, and without a history of total hysterectomy, N=1,052,447. Independent variables included age, civil status, nationality, level of education, and use of health care. Associations with non-participation in screening were determined with logistic regression. RESULTS: Main predictors of non-participation were limited or no contact with dental services (odds ratio (OR)=2.36), general practitioners (OR=1.75), and high age (OR=1.98). Other important factors for non-participation were primary school education only (OR=1.53), not being married (OR=1.49), and foreign nationality (OR=1.32). CONCLUSION: A 2-1.5-fold difference in non-participation in cervical screening in Denmark was found across various population sub-groups. Increased screening compliance among women with primary school education only, and limited or no use of primary health care services in general could potentially diminish the current social inequalities in cervical cancer incidence, and thus decrease the overall high incidence of this disease in Denmark.

Májek, O., Bartoňková, H., Daneš, J., et al. (2014). "[Implementation of performance indicators in the Czech Breast Cancer Screening Programme - results of the regular monitoring]." Klin Onkol **27 Suppl 2**: 113-123.

The Czech organised breast cancer screening programme was initiated in 2002. Collection of data on screening mammography examinations, subsequent diagnostic procedures, and final dia-gnosis is an indispensable part of the programme. Data collection is obligatory for all accredited centres, in accordance with regulations issued by the Czech Ministry of Health. This contribution aims to demonstrate the recent results of quality monitoring of the accredited centres. Quality indicators, whose definition complies with international standards, involve the women's participation, the volume of performed examinations, the accuracy of screening mammography, the use of preoperative diagnostics, and the proportion of early detected tumours. Our evaluation documents a continuous improvement in quality of the Czech mammography screening programme, which is thereby in full agreement with international recommendations on quality assurance.

Majstorović, N., Simić, S., Matejić, B., et al. (2014). "[Assessment of required resources for implementation of national breast cancer screening program in Serbia]." Srp Arh Celok Lek **142**(1-2): 59-66.

INTRODUCTION: High values of standardized mortality and morbidity rates of standardized cancer mortality in Serbia, especially colorectal, cervical and breast cancer led to creation of national programs for their early detection and engagement of the international support for their implementation. OBJECTIVE: Assessment of required resources (time, personnel, financial) to implement the National program for screening of breast cancer in the Republic of Serbia. METHODS: Three possible scenarios have been prepared (optimistic, realistic and pessimistic) based on the expected coverage by screening of women aged 45 to 69 years, and time, personnel and financial feasibility estimates were made for a two-year screening cycle. RESULTS: Time aspect of feasibility even under conditions of "relaxation" of the assumption on the number of working days during the year did not question feasibility of any of the scenarios. Personnel feasibility is only possible in the pessimistic scenario, while the financial feasibility only makes sense in optimistic scenario as the least unfavorable solution due to economies of scale. CONCLUSION: Establishment of the initial base of skilled radiologists and radiology technicians and the system for their continuous medical education as well as allocation of specific MoH budget line for screening program expenditures, along with donated mammographs and good organization and coordination, may provide unobstructed implementation of the National program for early detection of breast cancer in the Republic of Serbia.

Molina-Barceló, A., Salas-Trejo, D., Peiró-Pérez, R., et al. (2014). "Reasons for participating in the Valencian Community Colorectal Cancer Screening Programme by gender, age, and social class." Rev Esp Enferm Dig **106**(7): 439-447.

OBJECTIVE: To know the reasons to participate or not in a colorectal cancer (CCR) screening programme and to analyze the differences by sex, age and social class. METHODS: Cross-sectional study by a telephone survey directed to a sample of men and women aged between 50-74 year old,participants (n = 383) and non participants (n = 383) in the CCR screening programme of Valencian Community. Descriptive analysis and logistic regression models estimating the Odds Ratio ($p < 0.05$). RESULTS: The main reasons to participate are "it is important for health" (97.9 %) and "the test is easy" (97.6 %); and to nonparticipate are "no CCR symptoms" (49.7 %) and "didn't receive invitation letter" (48.3 %). Women are more likely not to participate if the reason was to consider the "test unpleasant" (OR: 1.82; IC: 1.00-3.28), and men if the reason was "lack of time" (OR 0.51;IC: 0.27-0.97); persons 60 or more years old if the reason was "diagnostic fear" (OR: 2.31; IC: 1.11-4.80), and persons

50-59 years old if was "lack of time" (OR 0.44; IC: 0.23-0.85); non manual social class persons if the reason was "lack of time" (OR: 2.66; IC: 1.40-5.10); manual women if the reason was "embarrassment to perform the test" (OR: 0.37; IC: 0.14-0.97); and non manual men if was "lack of time" (OR: 4.78; IC: 1.96-11.66). CONCLUSIONS: There are inequalities in the reasons for not participating in CCR screening programmes by sex, age and social class. It would be advisable to design actions that incorporate specific social group needs in order to reduce inequalities in participation.

Ouédraogo, S., Dabakuyo-Yonli, T. S., Amiel, P., et al. (2014). "Breast cancer screening programmes: challenging the coexistence with opportunistic mammography." Patient Educ Couns **97**(3): 410-417.

OBJECTIVE: This study investigated predictive factors of women's participation in organized mammography screening (OrgMS) and/or opportunistic mammography screening (OppMS) when the two screening modes coexist. METHODS: Questionnaires were sent to 6,000 women aged 51-74 years old invited to attend an OrgMS session between 2010 and 2011 in France. Data collected concerned the women's healthcare behaviour and their socioeconomic characteristics. Women without a personal or family history of breast cancer that could explain their participation in OppMS were retained in the generalized logits analysis. RESULTS: The data of 1,202 women were analysed. Of these, 555 (46.2%) had attended OrgMS only, 105 (8.7%) OppMS only and 542 (45.1%) had performed both OrgMS and OppMS. Multivariable analyses showed that women who had regular gynaecological check-ups were more likely to perform OppMS only or both OrgMS and OppMS, OR 95% CI were 2.1 [1.1-3.9], 1.9 [1.4-2.6], respectively. Being employed also increased participation in OppMS only [OR: 2.1 (1.2-3.7)] or both OrgMS and OppMS [OR: 1.5 (1.1-2.05)]. CONCLUSION AND PRACTICE IMPLICATIONS: In countries where OrgMS and OppMS coexist, strategies involving gynaecologists, referring doctors or company doctors and the organization of healthcare services to promote adequate screening round may help to reduce the overuse of mammography.

Pornet, C., Denis, B., Perrin, P., et al. (2014). "Predictors of adherence to repeat fecal occult blood test in a population-based colorectal cancer screening program." Br J Cancer **111**(11): 2152-2155.

BACKGROUND: Socio-economic, environmental factors and general practitioner (GP) involvement may influence adherence to repeat faecal occult blood testing (FOBT) of organised colorectal cancer (CRC) screening. The aim of the study was to identify predictors of adherence to repeat testing. METHODS: The populationcomprised people eligible for the third round of a CRC screening programme in a French district (n=118,905). Multilevel logistic regression analysis was performed to identify individual and area-level characteristics associated with 'compliant participants' participating in the all three rounds vs 'occasional participants' participating in one or two rounds. RESULTS: Compared to 'occasional participants', 'compliant participants' were more likely to participate after receiving a FOBT kit from their GP (odds ratio (OR), 10.7; 95% CI, 10.01-11.5) vs FOBT received at home, and were less likely to live in socio-economically deprived areas (OR, 0.75; 0.70-0.80) and urban areas (OR, 0.94; 0.88-1.00). CONCLUSIONS: As for a screening round participation, strategies aimed at improving the participation to a screening programme should target GPs and people living in socially deprived areas.

Skovajsová, M., Májek, O., Daneš, J., et al. (2014). "[Results of the Czech National Breast Cancer screening programme]." Klin Onkol **27 Suppl 2**: 69-78.

INTRODUCTION: Breast cancer screening based on mammography is an effective tool for lowering mortality rates from this disease. The organised and nationwide Breast Cancer Screening Programme has been underway in the Czech Republic since 2002. MATERIAL AND METHODS: Monitoring of the programme is based on data from the Czech National Cancer Registry (CNCR), Breast Cancer Screening Registry, and the Czech National Reference Centre (CNRC). These data sources make it possible to evaluate early performance indicators according to international standards, and to monitor the cancer burden in the Czech population. The CNRC data allow us to document the high validity of the available data as well as to map non-organised mammography examinations (so-called opportunistic screening). RESULTS: Until the mid-1990s, breast cancer incidence and mortality rates saw a slight but continuous increase. In the last 15 years, however, incidence rates have grown more substantially; by contrast, mortality rates have stalled and even started to decline since the 2000s. In the mid-1990s, the proportion of cancers diagnosed at stage I was below 20%; this situation has dramatically improved since then, as more than 40% cases of breast cancer were diagnosed at stage I in 2011. Breast cancer screening coverage currently amounts to 50%; this value reached a plateau in the period 2007-2008, and unfortunately has not shown any further significant increase. CONCLUSION: Over the last few decades, the breast cancer burden among the Czech population has been significantly reduced - despite the growing incidence rates, mortality rates have decreased, which can be largely attributed to earlier detection of breast cancer based on the screening programme. Further improvements in the programmes effectiveness can only be achieved if the population coverage becomes higher; the programme of personalised invitations to mammography examinations, which was introduced in early 2014, should contribute to the accomplishment of this goal.

Tinmouth, J., Baxter, N. N., Paszat, L. F., et al. (2014). "Using physician-linked mailed invitations in an organised colorectal cancer screening programme: effectiveness and factors associated with response." BMJ Open **4**(3): e004494.

OBJECTIVES: A central tenet of organised cancer screening is that all persons in a target population are invited. The aims of this study were to identify participant and physician factors associated with response to mailed physician-linked invitations (study 1) and to evaluate their effectiveness in an organised colorectal cancer (CRC) screening programme (study 2). DESIGN AND SETTING: 2 studies (study 1-cohort design and study 2-matched cohort design, comprising study 1 participants and a matched control group) were conducted in the context of Ontario's organised province-wide CRC screening programme. PARTICIPANTS: 102 family physicians and 11 302 associated eligible patients from a technical evaluation ('the Pilot') of large-scale mailed invitations for CRC screening were included. Matched controls were randomly selected using propensity scores from among eligible patients associated with family physicians in similar practice types as the Pilot physicians. INTERVENTION: Physician-linked mailed invitation to have CRC screening. OUTCOMES: Uptake of faecal occult blood test (FOBT) within 6 months of mailed invitation (primary) and uptake of FOBT or colonoscopy within 6 months of mailed invitation (secondary). RESULTS: Factors significantly associated with uptake of FOBT included prior FOBT use, older participant age, greater participant comorbidity and having a female physician. In the matched analysis, Pilot participants were more likely to complete an FOBT (22% vs 8%, p<0.0001) or an FOBT or colonoscopy (25% vs 11%, p<0.0001) within 6 months of mailed invitation than matched controls. The number needed to invite to screen one additional person was 7. CONCLUSIONS: Centralised large-scale mailing of physician-linked invitations is feasible and effective in the context of organised CRC screening.

Vidal, C., Garcia, M., Benito, L., et al. (2014). "Use of text-message reminders to improve participation in a population-based breast cancer screening program." J Med Syst **38**(9): 118.

To analyze the effect of a cell text message reminder service on participation in a mammogram screening program in Catalonia, Spain. A quasi-experimental design was used with women aged 50 to 69 years who had been scheduled mammogram appointments in June or July 2011. Women were personally invited by letter to attend to the breast cancer screening program (n = 12,786). Prior to the invitation, 3,719 (29.1 %) of them had provided their cell telephone number to the National Health Service. These women received a text message reminder 3 days before their scheduled appointment. Logistic regression models were used to analyze whether the text message reminder was associated with participation in screening. Cost-effectiveness of adding a text message reminder to the invitation letter was also analyzed. The overall rate of participation in breast cancer screening was 68.4 %. The participation rate was significantly higher in the text messaging group, with an age-adjusted OR of 1.56 (95 %CI: 1.43-1.70). A detailed analysis showed that the increase in participation related to the text message reminder was higher among women without previous screening who lived in areas where access to postal mail was limited (OR=2.85; 95 %CI: 2.31-3.53) compared to those who lived in areas of easier postal mail access (OR=1.66; 95 %CI: 1.36-2.02). The invitation letter+text message reminder was a cost-effective strategy. Text message reminders are an efficient cost-effective approach to improve participation in difficult-to-reach populations, such as rural areas and newly developed suburbs.

Vogt, V., Siegel, M. et Sundmacher, L. (2014). "Examining regional variation in the use of cancer screening in Germany." Social Science & Medicine **In press**.

The detection of cancer in its early latent stages can improve a patient's chances of recovery and thereby reduce the overall burden of the disease. Cancer screening services are, however, only used by a small part of the population and utilization rates vary widely amongst the 402 German districts. This study examines to which extent geographic variation in the use of cancer screening can be explained by accessibility of these services and by spillover effects between adjacent areas, while controlling for a wide range of covariates. District level data on cancer screening utilization rates were calculated for breast, cervical, prostate, skin, and colorectal cancers using German data provided by the National Association of Statutory Health Insurance Physicians (Kassen„rztliche Bundesvereinigung - KBV) between 2008 and 2011. We estimated the impact of health service variables on cancer screening utilization using spatial and non-spatial regression models. Spatial autocorrelation in the residuals was estimated using Moran's I statistic. After controlling for socioeconomic and other regional covariates, screening rates for breast, prostate, skin, and colorectal cancers are significantly higher in areas with higher physician density. The utilization of Pap-tests, skin cancer screening and colonoscopies is inversely related with average travel time to physicians. The coefficients for the spatial lag are significant and positive in all models. The positive spatial lags indicate that screening utilization rates are determined by knowledge spillovers between neighboring districts. In terms of public policy, our study demonstrates the potential to increase the use of cancer screening services through improving knowledge regarding cancer screening and by ensuring patient access to cancer screening services.

Wübker, A. (2014). "Explaining variations in breast cancer screening across European countries." The European Journal of Health Economics **15**(5): 497-514.
https://doi.org/10.1007/s10198-013-0490-3

In this study I aim to explore the statistical causes of country differences in mammography screening among women aged 50–69 years in 13 European countries. I focus on the relative importance of individual (e.g. age, education, etc.) and institutional (e.g. public screening programmes) factors in explaining these differences.

Zani, A., De Masi, S., Maffei, C., et al. (2014). "The colorectal cancer screening program in the local health unit n. 6 of Livorno: evaluation of the screening activity in the period 2000-2011." J Prev Med Hyg **55**(1): 4-9.

INTRODUCTION: The colorectal cancer screening program in the Local Health Unit n. 6 of Livorno is running since July 2000 and is meant to residents, aged between 50 and 70, who are invited to perform the test for faecal occult blood every 2 years. The aim of this work is an evaluation of the screening activity in the period 2000-2011. METHODS: The evaluation is based on the analysis of the main quality indicators formulated by GISCoR (Italian Group for Colorectal screening). RESULTS: The screening activity extension reached 93% in 2006 and 100% in 2009. The compliance level was maintained above the acceptable GISCoR value (> 45%) with a maximum of 54.9%. Values around 80% were recorded for the compliance to colonoscopy. The detection rate (DR) for cancer and advanced adenoma showed, as expected, the highest values in the early years and then move on values consistently lower than the regional average. In 2011, the raw DR for cancer was 0.9 x 1000 and the raw DR for advanced adenoma 5.3 x 1000. The distribution by stage at diagnosis of screen-detected carcinomas shows that 58.1% of these were identified at stage I while the proportion of cases in stage III+ is 19.5%. CONCLUSIONS: The overall analysis shows a good performance of the program. The proportion of colonoscopies performed on the total number of positive subjects remains a critical point of the system. The distribution by stage of screen-detected cancers shows an excellent diagnostic anticipation of the screening program.

2013

Boncz, I., Döbrőssy, L., Péntek, Z., et al. (2013). "[Attendance of the fourth (2008-2009) screening round of the Hungarian organized, nationwide breast cancer screening program]." Orv Hetil **154**(50): 1975-1983.

INTRODUCTION: Organised, nationwide screening for breast cancer with mammography in the age group between 45 and 65 years with 2 years screening interval started in Hungary in January 2002. AIM: The aim of this study is to analyze the attendance rate of nationwide breast screening programme for the 2008-2009 years. METHOD: The data derive from the database of the National Health Insurance Fund Administration. The ratio of women in the age group 45-65 years was calculated having either a screening mammography or a diagnostic mammography in the 4th screening round of the programme. RESULTS: In the years 2000-2001, 7.6% of the women had an opportunistic screening mammography while in 2008-2009 31.2% of the target population had screening mammography within the organized programme. During the same periods 20.2% (2000-2001) and 20.4% (2008-2009) of women had a diagnostic mammography. Thus the total (screening and diagnostic) coverage of mammography increased from 26.6% (2000-2001) to 50.1% (2008-2009). The attendance rate failed to change between 2002 and 2009. CONCLUSIONS: In order to decrease the mortality due to breast cancer, the attendance rate of mammography screening programme should be increased. Orv. Hetil., 154(50), 1975-1983.

Boncz, I., Döbrõssy, L., Péntek, Z., et al. (2013). "[Participation rates in the third round (2006-2007) of the breast cancer screening program in Hungary]." Magy Onkol **57**(3): 140-146.

Organised, nationwide screening for breast cancer with mammography in the age group of 45-65 years with 2 years screening interval started in Hungary in January 2002. The aim of this study is to analyse the attendance rate of breast screening programme for the 2006/2007 years, including the analysis of the ratio of screening and diagnostic mammography examinations. The data derive from the financial database of the National Health Insurance Fund Administration (NHIFA) covering the 8 years period between 2000 and 2007. The ratio of women in the age group of 45-65 years was calculated having either a screening mammography or a diagnostic mammography. The analysis was carried out for the years 2000-2001 before and 2006-2007 after the implementation of nationwide organised programme. In the years 2000-2001 7.26% of the women aged 45-65 years had an opportunistic screening mammography while in 2006-2007 29.4% of the target population had screening mammography within the organised programme. During the same periods 19.8% (2000-2001) and 21.8% (2006-2007) of women aged 45-65 years had a diagnostic mammography. Thus the total (screening and diagnostic) coverage of mammography increased from 26.2% (2000-2001) to 49.7% (2006-2007). The attendance of the Hungarian organised breast cancer screening programme slightly declined in 2006-2007 compared to 2002-2003/2004-2005, and to achieve the expected results in mortality decrease a further improvement of the uptake is necessary.

Carrieri, V. et Wuebker, A. (2013). "Assessing inequalities in preventive care use in Europe." Health policy (Amsterdam, Netherlands) **113**(3): 247-257.
http://linkinghub.elsevier.com/retrieve/pii/S0168851013002492?showall=true

This paper presents new international evidence on the extent of inequalities in breast cancer screening and blood test (cholesterol and blood sugar test) in 13 European Countries using data from the 2009 wave of the Survey of Health, Ageing and Retirement in Europe (SHARE). One important contribution of the paper is the inclusion of preexisting health conditions in the needs standardization procedure with the aim of taking into account utilization due to diagnosis or follow-up reasons. We find evidence of pro-rich inequalities in blood test use in some countries while high inequalities emerge in virtually every country with respect to mammography use. Decomposition analysis reveals that inequalities in mammography use are mostly driven by income while preventive needs distribution is only slightly pro-rich. On the other side, richer individuals appear to be much more likely to do blood tests despite their substantially lower diagnostic needs for that care. Generally, inequalities in mammography use are higher in countries without national breast cancer screening programs or in countries with only regional or less participated programs. Inequalities in blood tests are higher in countries with a high share of out-of-pocket payments and/or non universalistic entitlement to insurance coverage

Cobigo, V., Ouellette-Kuntz, H., Balogh, R., et al. (2013). "Are cervical and breast cancer screening programmes equitable? The case of women with intellectual and developmental disabilities." J Intellect Disabil Res **57**(5): 478-488.

BACKGROUND: Effective cancer screening must be available for all eligible individuals without discrimination. Lower rates of cervical and breast cancer screening have been reported in certain groups compared with women from the general population, such as women with intellectual and developmental disabilities (IDD). Research on the factors explaining those observed differences is crucial to determine whether practices are unfair and could be improved. The aim of this population-based study was to describe cancer screening utilisation by women with IDD in Ontario, Canada compared with other women in Ontario. The specific objectives were (1) to estimate the rates of cervical and breast cancer screening among eligible women with IDD in Ontario; (2) to compare the rates of cervical and breast cancer screening between eligible women with and without IDD; and (3) to examine if any observed differences between women with and without IDD persist after factors such as age, socio-economic status, rurality and healthcare utilisation are accounted for. METHOD: This study draws women with IDD from an entire population, and draws a randomly selected comparison group from the same population. It controls for important confounders in cancer screening within the limitations of the data sources. The study was conducted using health administrative databases and registries in Ontario, Canada. Two cohorts were created: a cohort of all women identified as having an IDD and a cohort consisting of a random sample of 20% of the women without IDD. RESULTS: The proportion of women with IDD who are not screened for cervical cancer is nearly twice what it is in the women without IDD, and 1.5 times what it is for mammography. CONCLUSIONS: Findings suggest that women with IDD experience inequities in their access to cancer screening. Public health interventions targeting this population should be implemented.

Denters, M. J., Deutekom, M., Bossuyt, P. M., et al. (2013). "A feces collection paper does not enhance participation in a fecal immunochemical test-based colorectal cancer screening program: randomized clinical trial." Eur J Cancer Prev **22**(4): 299-304.

Discomfort with the collection of a stool sample is a frequently cited barrier for participation in fecal test-based colorectal cancer screening. The objective was to evaluate whether a feces collection paper enhances participation in a fecal immunochemical test (FIT)-based colorectal cancer screening program. Randomized clinical trial. Second round of a biannual Dutch FIT-based colorectal cancer screening program pilot. A random sample of 10 265 individuals from the general population, men and women aged 50-75 years at an average risk for colorectal cancer, was eligible for participation. Invitees were randomized to an FIT-only group (n=5136) or an FIT in combination with a feces collection paper group (n=5129). The main outcome measure was participation in screening. Overall, 5367 tests of 10 265 were returned (52%). In the FIT-only group, 2694 tests were returned [52%; 95% confidence interval (CI): 51-54%] versus 2673 tests in the collection paper group (52%; 95% CI: 51-54%). This difference in the participation rate was not significant (relative risk: 0.99; 95% CI: 0.97-1.04). A feces collection paper does not increase participation rates in FIT-based colorectal cancer screening. Future studies should explore other ways of facilitating participation in colorectal cancer screening programs.

Essink-Bot, M. L., Korfage, I. J. et de Koning, H. J. (2013). "[Informed choice: a challenge for the Dutch national breast cancer screening programme]." Ned Tijdschr Geneeskd **157**(9): A5756.

Debates about the Dutch national breast cancer screening programme sometimes lead to polarised opinions as to its usefulness. This article aims to clarify the perspectives related to this discussion. Supporters and opponents agree that the screening programme has advantages for the general population, but inevitably also disadvantageous aspects. They differ in the weighting of collective advantages and disadvantages. More importantly, every woman who is invited is free to accept the invitation to participate or not. Ideally, she makes a deliberate, informed choice based on sufficient knowledge. The real challenge for professionals is to provide good, honest, balanced information and adequate support to women when making their decision whether or not to participate in breast cancer screening.

Giorgi Rossi, P., Federici, A. et Zappa, M. (2013). "The cancer screening monitoring system: indicators for organised programmes and possible extension to spontaneous screening." Pathologica **105**(3): 83-85.

European Commission recommends the implementation of organized screening programs for cervical cancer based on active invitation of the target population and with a systematic monitoring system and quality assurance. Nevertheless, in many Member States opportunistic screening is still the only or the main way to access Pap test. In Italy, Pap test coverage in women aged 25-64 is close to 80%, about half of them are screened in organized programs and half by opportunistic screening. Organized programs are diffused in the vast majority of the country (78% in 2009) even if in some cases they are not able to actively invite all the target population every three years (actual extension 67%); furthermore, participation rate after invitation is quite low (39%). Organized screening programs showed performance indicators in line with most of the international standards: low referral rates (2.4%), low inadequate cytological results (4.7%), and high positive predictive value for high grade cervical intraepithelial neoplasia (16.2%). Opportunistic screening has no systematic monitoring system. The coexistence of the two screening models, organized programs and opportunistic, can be a source of inappropriate use of secondary prevention duplicating the tests and favoring deviations from recommended protocols. The Italian Ministry of Health recommends re-organizing cervical cancer prevention favoring organized programs or integrating spontaneous Pap testing in an organized system. To implement such integration it is necessary to have monitoring system and quality assurance for all providers and to integrate archives in order to avoid over-testing and deviation from protocols.

Hofvind, S., Ursin, G., Tretli, S., et al. (2013). "Breast cancer mortality in participants of the Norwegian Breast Cancer Screening Program." Cancer **119**(17): 3106-3112.

BACKGROUND: The Norwegian Breast Cancer Screening Program started in 1996. To the authors' knowledge, this is the first report using individual-based data on invitation and participation to analyze breast cancer mortality among screened and nonscreened women in the program. METHODS: Information on dates of invitation, attendance, breast cancer diagnosis, emigration, death, and cause of death was linked by using unique 11-digit personal identification numbers assigned all inhabitants of Norway at birth or immigration. In total, 699,628 women ages 50 to 69 years without prior a diagnosis of breast cancer were invited to the program from 1996 to 2009 and were followed for breast cancer through 2009 and death through 2010. Incidence-based breast cancer mortality rate ratios (MRRs) were compared between the screened and nonscreened cohorts using a Poisson regression model. The MRRs were adjusted for calendar period, attained age, years since inclusion in the cohorts, and self-selection bias. RESULTS: The crude breast cancer mortality rate was 20.7 per 100,000 women-years for the screened cohort compared with 39.7 per 100,000 women-years for the nonscreened cohort, resulting in an MRR of 0.52 (95% confidence interval, 0.47-0.59). The mortality reduction associated with attendance in the program was 43% (MRR, 0.57; 95% confidence interval, 0.51-0.64) after adjusting for calendar period, attained age, years after inclusion in the cohort, and self-selection bias. CONCLUSIONS: After 15 years of follow-up, a 43% reduction in mortality was observed among women who attended the national mammographic screening program in Norway.

Lund, E., Mode, N., Waaseth, M., et al. (2013). "Overdiagnosis of breast cancer in the Norwegian Breast Cancer Screening Program estimated by the Norwegian Women and Cancer cohort study." BMC Cancer **13**: 614.

BACKGROUND: There is increasing ambiguity towards national mammographic screening programs due to varying publicized estimates of overdiagnosis, i.e., breast cancer that would not have been diagnosed in the women's lifetime outside screening. This analysis compares the cumulative incidence of breast cancer in screened and unscreened women in Norway from the start of the fully implemented Norwegian Breast Cancer Screening Program (NBCSP) in 2005. METHODS: Subjects were 53 363 women in the Norwegian Women and Cancer (NOWAC) study, aged 52-79 years, with follow-up through 2010. Mammogram and breast cancer risk factor information were taken from the most recent questionnaire (2002-07) before the start of individual follow-up. The analysis differentiated screening into incidence (52-69 years) and post screening (70-79 years). Relative risks (RR) were estimated by Poisson regression. RESULTS: The analysis failed to detect a significantly increased cumulative incidence rate in screened versus other women 52-79 years. RR of breast cancer among women outside the NBCSP, the "control group", was non-significantly reduced by 7% (RR=0·93; 95% confidence interval 0·79 to 1·10) compared to those in the program. The RR was attenuated when adjusted for risk factors; RRadj=0·97 (0·82 to 1·15). The control group consisted of two subpopulations, those who only had a mammogram outside the program (RRadj =1·04; 0·86 to 1·26) and those who never had a mammogram (RRadj=0·77; 0·59 to 1·01). These groups differed significantly with respect to risk factors for breast cancer, partly as a consequence of the prescription rules for hormone therapy which indicate a mammogram. CONCLUSIONS: In the fully implemented NBCSP, no significant difference was found in cumulative incidence rates of breast cancer between NOWAC women screened and not screened. Naïve comparisons of screened and unscreened women may be affected by important differences in risk factors. The current challenge for the screening program is to improve the diagnostics used at prevalence screenings (ages 50-51).

Mansouri, D., McMillan, D. C., Grant, Y., et al. (2013). "The impact of age, sex and socioeconomic deprivation on outcomes in a colorectal cancer screening programme." Plos One **8**(6): e66063.

BACKGROUND: Population-based colorectal cancer screening has been shown to reduce cancer specific mortality and is used across the UK. Despite evidence that older age, male sex and deprivation are associated with an increased incidence of colorectal cancer, uptake of bowel cancer screening varies across demographic groups. The aim of this study was to assess the impact of age, sex and deprivation on outcomes throughout the screening process. METHODS: A prospectively maintained database, encompassing the first screening round of a faecal occult blood test screening programme in a single geographical area, was analysed. RESULTS: Overall, 395,096 individuals were invited to screening, 204,139 (52%) participated and 6079 (3%) tested positive. Of the positive tests, 4625 (76%) attended for colonoscopy and cancer was detected in 396 individuals (9%). Lower uptake of screening was associated with younger age, male sex and deprivation (all p<0.001). Only deprivation was associated with failure to proceed to colonoscopy following a positive test (p<0.001). Despite higher positivity rates in those that were more deprived (p<0.001), the likelihood of detecting cancer in those attending for colonoscopy was lower (8% most deprived vs 10% least deprived, p = 0.003). CONCLUSION: Individuals who are deprived are less likely to participate in screening, less likely to undergo colonoscopy and less likely to have cancer identified as a result of a positive test. Therefore, this study suggests that strategies aimed at improving participation of deprived individuals in colorectal cancer screening should be directed at all stages of the screening process and not just uptake of the test.

Olsen, A. H., Lynge, E., Njor, S. H., et al. (2013). "Breast cancer mortality in Norway after the introduction of mammography screening." Int J Cancer **132**(1): 208-214.

An organized mammography screening program was gradually implemented in Norway during the period 1996-2004. Norwegian authorities have initiated an evaluation of the program. Our study focused on breast cancer mortality. Using Poisson regression, we compared the change in breast cancer mortality from before to during screening in four counties starting the program early controlling for change in breast cancer mortality during the same time in counties starting the program late. A follow-up model included death in all breast cancers diagnosed during the follow-up period. An evaluation model included only breast cancers diagnosed in ages where screening was offered. The study group had been invited for screening one to three times and followed for on average of 5.9 years. In the follow-up model, 314 breast cancer deaths were observed in the study group, and 523, 404 and 638, respectively, in the four control groups. The ratio between the changes in breast cancer mortality between early and late starting counties was 0.93 (95% confidence interval [CI] 0.77-1.12). In the evaluation model, this ratio was 0.89 (95% CI: 0.71-1.12). In Norway, where 40% of women used regular mammography prior to the program, the implementation of the organized mammography screening program was associated with a statistically nonsignificant decrease in breast cancer mortality of around 11%.

Portillo, I., Idígoras, I., Ojembarrena, E., et al. (2013). "[Main results of the colorectal cancer screening program in the Basque Country (Spain)]." Gac Sanit **27**(4): 358-361.

OBJECTIVE: To describe the procedures of the colorectal cancer screening program in the Basque Country (Spain), and the main results of the first rounds in 2009-2011. METHOD: We carried out a retrospective study of invitations to attend screening between 2009 and 2011. Participation rates and the number of positive results of the fecal occult blood test (FOBT) were analyzed by sex and age group. RESULTS: There were 235.371 valid invitations (sent to the correct addresses), with an average participation rate of 64.3% (95%CI: 64.1-64.5%). Significant differences were found (p<0,001) between women (67.1%; 95%CI: 66.9-67.4) and men (61.4%; 95%CI: 61.1-61.7). The rate of positive FOBT results was higher (p<0,001) among men (9.1%; 95%CI: 8.9-9.2) than among women (4.8%; 95%CI: 4.7-4.9). CONCLUSIONS: Participation rates were adequate compared with those in the reviewed literature. These rates were probably affected by the invitation strategy and by cultural and social factors.

Ramos, M., Taltavull, M., Piñeiro, P., et al. (2013). "[Attitudes of primary health care users to a colorectal cancer screening program]." Gac Sanit **27**(6): 516-520.

OBJECTIVE: To describe the cultural, social and gender features that determine attitudes to colorectal cancer screening in a target group of patients aged 50 to 69 years old in the primary health care setting. METHODS: We performed a qualitative ethnographic study from a gender perspective. Participants consisted of men and women aged 50 to 69 years old in the Balearic Islands and Barcelona. Group discussion and a field diary were used. RESULTS: The key element was diagnosis at an early stage. Until recently, cancer was considered an incurable disease but is currently perceived as a serious health problem that can be cured if diagnosed promptly. The participants requested more information on cancer and felt they were at risk, mainly because of their age. Men tended to pay attention to symptoms while women tended to ignore them. Attitudes to colorectal cancer screening were generally positive, even to colonoscopy. Some barriers to screening were identified in women, such as a fear of having cancer. CONCLUSIONS: The opportunity for early diagnosis is the key element in promoting participation in a colorectal cancer screening program. Perceptions-and hence willingness to participate in screening-differ between men and women. Factors to be taken into account in the design of population-based colorectal cancer programs are health concerns in men and fear of a cancer diagnosis in women.

Rees, C. J. et Bevan, R. (2013). "The National Health Service Bowel Cancer Screening Program: the early years." Expert Rev Gastroenterol Hepatol **7**(5): 421-437.

The National Health Service Bowel Cancer Screening Program (NHS BCSP) was developed to improve outcomes from colorectal cancer, the third most frequent cancer and the second highest cause of cancer deaths in the UK. Screening pilot programs were developed after previous trials demonstrated a reduction in mortality with the use of fecal occult blood population screening. A successful pilot period led to the roll out of national biennial screening for all 60-69 year olds in 2006, and extended to 60-74 year olds in 2010. To the end of 2012, there have been over 16 million invitations to screening, with uptake of 55.35%. FOBt positivity was 2.08%. Almost 15,000 cancers have been identified; screen-detected cancers have been shown to be at an earlier stage than non-screen-detected, with 35% Dukes' stage A. The BCSP provides high quality colonoscopy with low adverse events rates. It is also a rich data source for research.

Serral, G., Puigpinós-Riera, R., Maydana, E., et al. (2013). "[Perception of healthcare professionals on the Breast Cancer Screening Programme in Barcelona]." Rev Calid Asist **28**(4): 244-253.

OBJECTIVE: A good communication plan is vital for optimal results in any screening programme. The objective of this study was to assess the knowledge, involvement and opinion of health professionals regarding the Breast Cancer Screening Programme in Barcelona in 2008. MATERIAL AND METHODS: A cross-sectional study using an anonymous and self-administered questionnaire. The study population (N = 960) were health professionals from Primary Health-care (PH), Programs for Sexual and Reproductive Health (PSRH), and Community Pharmacies (CP). The dependent variables were: knowledge of the Programme, professional involvement and opinion of the Programme. The independent variables were: sex, age, qualifications, employment status, and health team. A descriptive and bivariate analysis was performed. Using multivariate logistic regression models adjusted for age, an Odds Ratios (OR) were obtained along with the 95% confidence intervals (CI 95%). RESULTS: PSRH professionals know the target population better; 80.2% versus 26.1% PH, and 14.0% CP, respectively. Professional involvement was related to the health care team (ORCP/PH: 0.32, CI 95%: 0.22-0.43) being observed more in PH. The opinion on the Programme in reducing breast cancer mortality was similar in the three teams (61.6% PH, 59.3% PSRH, and 56.5% CP). CONCLUSIONS: Healthcare professionals are unaware of some aspects of Programme, such as age range or periodicity. There is great professional involvement and belief that the Programme has helped disseminate information and knowledge on the early detection of breast cancer.

Vaccarella, S., Franceschi, S., Engholm, G., et al. (2014). "50 years of screening in the Nordic countries: quantifying the effects on cervical cancer incidence." Br J Cancer **111**(5): 965-969.

BACKGROUND: Nordic countries' data offer a unique possibility to evaluate the long-term benefit of cervical cancer screening in a context of increasing risk of human papillomavirus infection. METHODS: Ad hoc-refined age-period-cohort models were applied to the last 50-year incidence data from Denmark, Finland, Norway and Sweden to project expected cervical cancer cases in a no-screening scenario. RESULTS: In the absence of screening, projected incidence rates for 2006-2010 in Nordic countries would have been between 3 and 5 times higher than observed rates. Over 60,000 cases or between 41 and 49% of the expected cases of cervical cancer may have been prevented by the introduction of screening in the late 1960s and early 1970s. CONCLUSIONS: Our study suggests that screening programmes might have prevented a HPV-driven epidemic of cervical cancer in Nordic countries. According to extrapolations from cohort effects, cervical cancer incidence rates in the Nordic countries would have been otherwise comparable to the highest incidence rates currently detected in low-income countries.

Waller, J., Douglas, E., Whitaker, K. L., et al. (2013). "Women's responses to information about overdiagnosis in the UK breast cancer screening programme: a qualitative study." BMJ Open **3**(4).

OBJECTIVES: To explore the influence of overdiagnosis information on women's decisions about mammography. DESIGN: A qualitative focus group study with purposive sampling and thematic analysis, in which overdiagnosis information was presented. SETTING: Community and university settings in London. PARTICIPANTS: 40 women within the breast screening age range (50-71 years) including attenders and non-attenders were recruited using a recruitment agency as well as convenience sampling methods. RESULTS: Women expressed surprise at the possible extent of overdiagnosis and recognised the information as important, although many struggled to interpret the numerical data. Overdiagnosis was viewed as less-personally relevant than the possibility of 'under diagnosis' (false negatives), and often considered to be an issue for follow-up care decisions rather than screening participation. Women also expressed concern that information on overdiagnosis could deter others from attending screening, although they rarely saw it as a deterrent. After discussing overdiagnosis, few women felt that they would make different decisions about breast screening in the future. CONCLUSIONS: Women regard it as important to be informed about overdiagnosis to get a complete picture of the risks and benefits of mammography, but the results of this study indicate that understanding overdiagnosis may not always influence women's attitudes towards participation in breast screening. The results also highlight the challenge of communicating the individual significance of information derived from population-level modelling.

2012

(2012). "The benefits and harms of breast cancer screening: an independent review." Lancet **380**(9855): 1778-1786.

Whether breast cancer screening does more harm than good has been debated extensively. The main questions are how large the benefit of screening is in terms of reduced breast cancer mortality and how substantial the harm is in terms of overdiagnosis, which is defined as cancers detected at screening that would not have otherwise become clinically apparent in the woman's lifetime. An independent Panel was convened to reach conclusions about the benefits and harms of breast screening on the basis of a review of published work and oral and written evidence presented by experts in the subject. To provide estimates of the level of benefits and harms, the Panel relied mainly on findings from randomised trials of breast cancer screening that compared women invited to screening with controls not invited, but also reviewed evidence from observational studies. The Panel focused on the UK setting, where women aged 50-70 years are invited to screening every 3 years. In this Review, we provide a summary of the full report on the Panel's findings and conclusions. In a meta-analysis of 11 randomised trials, the relative risk of breast cancer mortality for women invited to screening compared with controls was 0·80 (95% CI 0·73-0·89), which is a relative risk reduction of 20%. The Panel considered the internal biases in the trials and whether these trials, which were done a long time ago, were still relevant; they concluded that 20% was still a reasonable estimate of the relative risk reduction. The more reliable and recent observational studies generally produced larger estimates of benefit, but these studies might be biased. The best estimates of overdiagnosis are from three trials in which women in the control group were not invited to be screened at the end of the active trial period. In a meta-analysis, estimates of the excess incidence were 11% (95% CI 9-12) when expressed as a proportion of cancers diagnosed in the invited group in the long term, and 19% (15-23) when expressed as a proportion of the cancers diagnosed during the active screening period. Results from observational studies support the occurrence of overdiagnosis, but estimates of its magnitude are unreliable. The Panel concludes that screening reduces breast cancer mortality but that some overdiagnosis occurs. Since the estimates provided are from studies with many limitations and whose relevance to present-day screening programmes can be questioned, they have substantial uncertainty and should be regarded only as an approximate guide. If these figures are used directly, for every 10,000 UK women aged 50 years invited to screening for the next 20 years, 43 deaths from breast cancer would be prevented and 129 cases of breast cancer, invasive and non-invasive, would be overdiagnosed; that is one breast cancer death prevented for about every three overdiagnosed cases identified and treated. Of the roughly 307,000 women aged 50-52 years who are invited to begin screening every year, just over 1% would have an overdiagnosed cancer in the next 20 years. Evidence from a focus group organised by Cancer Research UK and attended by some members of the Panel showed that many women feel that accepting the offer of breast screening is worthwhile, which agrees with the results of previous similar studies. Information should be made available in a transparent and objective way to women invited to screening so that they can make informed decisions.

Blangiardi, F., Ferrera, G., Cilia, S., et al. (2012). "[Organization of colon-rectal cancer screening in the Provincial Health Agency of Ragusa]." Ann Ig **24**(1 Suppl 1): 53-58.

Cancer screening is a secondary prevention program that permits early diagnosis of neoplasias and precancerous lesions are in order to diminish mortality and morbidity for certain types of tumors (breast, colon-rectal, and cervical). In 2010, the Ragusa Provincial Health Agency began screening for colon-rectal cancer in an experimental phase that initially involved only the municipality of Ragusa but that was then extended to other municipalities of the province. Although the organizing model suffered from many managerial problems including lack of human resources and tools, there was good collaboration and involvement of the public health/hygiene offices and the general practitioners and volunteer associations. This type of networking was useful in that adhesion to screening was well above that expected. Another winning aspect of the project resulted in clear and pertinent communication to the population.

Burns, R., Walsh, B., O'Neill, S., et al. (2012). "An examination of variations in the uptake of prostate cancer screening within and between the countries of the EU-27." Health policy (Amsterdam, Netherlands) **108**(2-3): 268-276.

OBJECTIVES: Prostate specific antigen (PSA) testing as a part of a prostate cancer control strategy is the subject of much debate. This paper examines variations in the uptake of PSA testing across Europe and the role of individual and contextual variables in explaining this variation. METHODS: Data were taken from Eurobarometer 66.2 "Health in the European Union" 2006 on self-reported uptake of screening. Data related to men across the EU-27 and Croatia, aged 40 and over (N=6986). A logistic regression analysis examines the role of individual characteristics across and within the countries. RESULTS: A range of individual characteristics were found to be statistically significant predictors of uptake including education, marital status, and smoking status. Socio-economic status (SES) was also a statistically significant predictor of the likelihood of screening. Variation across countries in uptake was evident; importantly a significant role was accorded primary care in explaining variation in uptake. CONCLUSION: Uptake of PSA testing varies considerably within and across European countries. Differences within states relate to the characteristics of individuals offered tests and differences between states, to the system of primary care in operation. Given the significant welfare losses implicit in the evident variations the role of primary care warrants further investigation

Damery, S., Smith, S., Clements, A., et al. (2012). "Evaluating the effectiveness of GP endorsement on increasing participation in the NHS Bowel Cancer Screening Programme in England: study protocol for a randomized controlled trial." Trials **13**: 18.

BACKGROUND: The success and cost-effectiveness of bowel cancer screening depends on achieving and maintaining high screening uptake rates. The involvement of GPs in screening has been found to improve patient compliance. Therefore, the endorsement of screening by GPs may increase uptake rates amongst non-responders. METHODS/DESIGN: A two-armed randomised controlled trial will evaluate the effectiveness of a GP endorsed reminder in improving patient participation in the NHS Bowel Cancer Screening Programme (NHSBCSP). Up to 30 general practices in the West Midlands with a screening uptake rate of less than 50% will be recruited and patients identified from the patient lists of these practices. Eligible patients will be those aged 60 to 74, who have previously been invited to participate in bowel screening but who have been recorded by the Midlands and North West Bowel Cancer Screening Hub as non-responders. Approximately 4,380 people will be randomised in equal numbers to either the intervention (GP letter and duplicate FOBt kit) or control (no additional contact) arms of the trial. The primary outcome measure will be the difference in the uptake rate of FOBt screening for bowel cancer between the intervention and control groups at 13 weeks after the GP endorsed reminder and duplicate FOBt kit are sent. Secondary outcome measures will be subgroup analyses of uptake according to gender, age and deprivation quartile, and the validation of methods for collecting GP, NHSBCSP and patient costs associated with the intervention. Qualitative work (30 to 40 semi-structured interviews) will be undertaken with individuals in the intervention arm who return a FOBt kit, to investigate the relative importance of the duplicate FOBt kit, reminder to participate, and GP endorsement of that reminder in contributing to individuals' decisions to participate in screening. DISCUSSION: Implementing feasible, acceptable and cost-effective strategies to improve screening uptake amongst non-responders to invitations to participate is fundamentally important for the success of screening programmes. If this feasibility study demonstrates a significant increase in uptake of FOBt screening in individuals receiving the intervention, a definitive, appropriately powered future trial will be designed. TRIAL REGISTRATION NUMBER: ISRCTN: ISRCTN86784060.

de Wijkerslooth, T. R., de Haan, M. C., Stoop, E. M., et al. (2012). "Reasons for participation and

nonparticipation in colorectal cancer screening: a randomized trial of colonoscopy and CT colonography." Am J Gastroenterol **107**(12): 1777-1783.

OBJECTIVES: We compared reported reasons for participation and nonparticipation in colorectal cancer (CRC) screening between colonoscopy and computed tomographic (CT) colonography in a randomized controlled trial. METHODS: We randomly invited 8,844 people for screening by colonoscopy or CT colonography. On a questionnaire, invitees indicated reasons for participation or nonparticipation and indicated the most decisive reason. RESULTS: The most frequently cited reasons to accept screening were early detection of precursor lesions and CRC, and contribution to science. The most frequently cited reasons to decline were the unpleasantness of the examination, the inconvenience of the preparation, a lack of symptoms, and "no time/too much effort." Among colonoscopy nonparticipants, elderly invitees cited inconvenience less often, and absence of symptoms more often, than did the group overall. The reason reported most frequently as the most decisive reason not to participate was the unpleasantness of the examination among colonoscopy nonparticipants, and "no time/too much effort" and lack of symptoms among CT colonography nonparticipants. CONCLUSIONS: In light of these results, future screening programs could tailor the information provided to invitees.

Freitas, C., Tura, L. F., Costa, N., et al. (2012). "A population-based breast cancer screening programme: conducting a comprehensive survey to explore adherence determinants." Eur J Cancer Care (Engl) **21**(3): 349-359.

This research examines several important individual and environmental variables that can predict breast cancer screening practices among Portuguese women aged 45-69 years old, under a population-based programme. A cross-sectional study was conducted to a convenience sample with 805 women in Aveiro municipality. Survey interviews were applied to adherents and non-adherents in two different settings (health centre, home places). A combination of bivariate (chi-squared test) and multivariate analysis [decision tree by the chi-squared automatic interaction detection (CHAID) algorithm] was performed to determine differences between the groups and predict the variables. Findings showed that there is a significant association between almost all 29 indicators with adherence and non-adherence. Younger women (<50 years) with 'concordant' Behaviour Profile to the guidelines are those who adhere more in comparison with the other age groups. On the other hand, those with non-adherent behaviour need to have a 'good' attendance of healthcare providers for becoming adherents to the screening programme. Multiple strategies that combine enhancing primary health care access, individual behaviour and knowledge must be addressed to uptake adherence. In this way, the health teams must act in accordance with the guidelines, targeting more effective health education practices to achieve the goals of the breast cancer screening.

Geddie, H., Dobrow, M. J., Hoch, J. S., et al. (2012). "A prospective multiple case study of the impact of emerging scientific evidence on established colorectal cancer screening programs: a study protocol." Implement Sci **7**: 51.

BACKGROUND: Health-policy decision making is a complex and dynamic process, for which strong evidentiary support is required. This includes scientifically produced research, as well as information that relates to the context in which the decision takes place. Unlike scientific evidence, this "contextual evidence" is highly variable and often includes information that is not scientifically produced, drawn from sources such as political judgement, program management experience and knowledge, or public values. As the policy decision-making process is variable and difficult to evaluate, it is often unclear how this heterogeneous evidence is identified and incorporated into "evidence-based policy" decisions. Population-based colorectal cancer screening poses an ideal context in which to examine these issues. In Canada, colorectal cancer screening programs have been established in several provinces over the past five years, based on the fecal occult blood test (FOBT) or the fecal immunochemical test. However, as these programs develop, new scientific evidence for screening continues to emerge. Recently published randomized controlled trials suggest that the use of flexible sigmoidoscopy for population-based screening may pose a greater reduction in mortality than the

FOBT. This raises the important question of how policy makers will address this evidence, given that screening programs are being established or are already in place. This study will examine these issues prospectively and will focus on how policy makers monitor emerging scientific evidence and how both scientific and contextual evidence are identified and applied for decisions about health system improvement. METHODS: This study will employ a prospective multiple case study design, involving participants from Ontario, Alberta, Manitoba, Nova Scotia, and Quebec. In each province, data will be collected via document analysis and key informant interviews. Documents will include policy briefs, reports, meeting minutes, media releases, and correspondence. Interviews will be conducted in person with senior administrative leaders, government officials, screening experts, and high-level cancer system stakeholders. DISCUSSION: The proposed study comprises the third and final phase of an Emerging Team grant to address the challenges of health-policy decision making and colorectal cancer screening decisions in Canada. This study will contribute a unique prospective look at how policy makers address new, emerging scientific evidence in several different policy environments and at different stages of program planning and implementation. Findings will provide important insight into the various approaches that are or should be used to monitor emerging evidence, the relative importance of scientific versus contextual evidence for decision making, and the tools and processes that may be important to support challenging health-policy decisions.

Giordano, L., von Karsa, L., Tomatis, M., et al. (2012). "Mammographic screening programmes in Europe: organization, coverage and participation." J Med Screen **19 Suppl 1**: 72-82.

OBJECTIVES: To summarize participation and coverage rates in population mammographic screening programmes for breast cancer in Europe. METHODS: We used the European Network for Information on Cancer (EUNICE), a web-based data warehouse (EUNICE Breast Cancer Screening Monitoring, EBCSM) for breast cancer screening, to obtain information on programme characteristics, coverage and participation from its initial application in 10 national and 16 regional programmes in 18 European countries. RESULTS: The total population targeted by the screening programme services covered in the report comprised 26.9 million women predominantly aged 50-69. Most of the collected data relates to 2005, 2006 and/or 2007. The average participation rate across all programmes was 53.4% (range 19.4-88.9% of personally invited); or 66.4% excluding Poland, a large programme that initiated personal invitations in 2007. Thirteen of the 26 programmes achieved the European Union benchmark of acceptable participation (>70%), nine achieved the desirable level (>75%). Despite considerable invitation coverage across all programmes (79.3%, range 50.9-115.2%) only 48.2% (range 28.4-92.1%) of the target population were actually screened. The overall invitation and examination coverage excluding Poland was 70.9% and 50.3%, respectively. CONCLUSIONS: The results demonstrate the feasibility of European-wide screening monitoring using the EBCSM data warehouse, although further efforts to refine the system and to harmonize standards and data collection practices will be required, to fully integrate all European countries. The more than three-fold difference in the examination coverage should be taken into account in the evaluation of service screening programmes.

Giorgi, D., Giordano, L., Ventura, L., et al. (2012). "[Mammography breast cancer screening in Italy: 2010 survey]." Epidemiol Prev **36**(6 Suppl 1): 8-27.

This report is an update of similar previous papers that have been published by the ONS (Osservatorio nazionale screening, National Centre for Screening Monitoring) since 2002. Data for the survey come from several different programmes that may have changed over time, and may have different settings of organisation and management. During 2010, the first slight decrease in theoretical extension was recorded. Currently, all Italian regions have implemented screening programmes. In 2010, almost 2,496,000 women aged 50-69 years were invited to have a screening mammogram, and more than 1,382,000 were screened. Theoretical extension was 91.7%, while actual extension was 69.1%. An imbalance in extension is still present when comparing northern and central Italy to southern Italy, which only has a 75% coverage by organised screening. The Italian mean value (69%) of two-year extension (period 2009-2010) suggests that, at full capacity, Italian programmes are able to invite only three quarters of the target population. The percentage of women screened during 2010 was 36.7% of the national target population. During the last few years, participation rates were substantially stable, around 55-57% for crude rate, and 59-61% for adjusted rate, respectively. A decreasing trend towards the South of Italy is evident for this parameter, too. Many programmes work with low volumes of activity (below 10,000 or even 5,000 examinations per year), and only one region surpassed the desirable level of at least 20,000 examinations for each programme. Referral rates of 8.8% at first screening and 4.6% at repeat screening were recorded. Direct standardised detection rate was 6.2x1,000 at first screening and 4.3x1,000 at repeat screening, while benign to malignant ratio for first and repeat screening was 0.26 and 0.12, respectively. Detection rate of invasive cancers ≤10 mm was 1.36x1,000 at first screening and 1.49x1,000 at repeat screening; the proportion of in situ carcinomas was 13.9% and 13.4% for first and repeat screening, respectively. Indicators by 5-year age group confirm greater diagnostic problems at younger ages (50-54 years), with higher referral rates, higher frequency of surgical procedures with benign outcome (B/M ratio), and a substantially lower detection rate as compared to older age groups.

Giorgi Rossi, P., Camilloni, L., Cogo, C., et al. (2012). "[Methods to increase participation in cancer screening programmes]." Epidemiol Prev **36**(1 Suppl 1): 1-104.

OBJECTIVE: to synthesize scientific evidences about methods to increase cervical, breast and colorectal cancer screening participation. METHODS: a multidisciplinary working group has been set up to define the scope of the report and to conduct the evaluation. The scope and the final evaluation have been submitted to a stakeholder committee, including the Ministry of Health, the National Screening Observatory, regional screening program coordinators, scientific societies, and Lega Italiana Lotta ai Tumori, for comments and integrations. A systematic review of the principal biomedical and social literature databases was conducted to identify experimental and observational studies, updating the existing review by Jepson and coll. (Health Technol Assess. 2000;4(14):i-vii, 1-133). RESULTS: 5900 have been identified, 900 relevant for the topic.Among those, 148 reported quantitative information on intervention efficacy, other 90 came from the previous review. Organised screening programmes, based on invitation letter or on GP involvement,were consistently effective in increasing participation compared to spontaneous screening. Interventions are classified according to their target: individual, community, test simplification, health operators, health service organization. The report presents meta-analyses on efficacy, analyses of cost-effectiveness, impact on organisation and social inequality, and ethical and legal issues, of all the intervention reported in the literature. CONCLUSIONS: there are several interventions consistently effective in any context, some of them have minimal impact on costs and health service resources.

Jensen, L. F., Pedersen, A. F., Andersen, B., et al. (2012). "Identifying specific non-attending groups in breast cancer screening--population-based registry study of participation and socio-demography." BMC Cancer **12**: 518.

BACKGROUND: A population-based breast cancer screening programme was implemented in the Central Denmark Region in 2008-09. The objective of this registry-based study was to examine the association between socio-demographic characteristics and screening participation and to examine whether the group of non-participants can be regarded as a homogeneous group of women. METHOD: Participation status was obtained from a regional database for all women invited to the first screening round in the Central Denmark Region in 2008-2009 (n=149,234). Participation data was linked to registries containing socio-demographic information. Distance to screening site was calculated using ArcGIS. Participation was divided into 'participants' and 'non-participants', and non-participants were further stratified into 'active non-participants' and 'passive non-participants' based on whether the woman called and cancelled her participation or was a 'no-show'. RESULTS: The screening participation rate was 78.9%. In multivariate analyses, non-participation was associated with older age, immigrant status, low OECD-adjusted household income, high and low level education compared with middle level education, unemployment, being unmarried, distance to screening site >20 km, being a tenant and no access to a vehicle. Active and passive non-participants comprised two distinct groups with different socio-demographic characteristics, with passive non-participants being more socially deprived compared with active non-participants. CONCLUSION: Non-participation was associated with low social status e.g. low income, unemployment, no access to vehicle and status as tenant. Non-participants were also more likely than participants to be older, single, and of non-Danish origin. Compared to active non-participants, passive non-participants were characterized by e.g. lower income and lower educational level. Different interventions might be warranted to increase participation in the two non-participant groups.

Katičić, M., Antoljak, N., Kujundžić, M., et al. (2012). "Results of National Colorectal Cancer Screening Program in Croatia (2007-2011)." World J Gastroenterol **18**(32): 4300-4307.

AIM: To study the epidemiologic indicators of uptake and characteristic colonoscopic findings in the Croatian National Colorectal Cancer Screening Program. METHODS: Colorectal cancer (CRC) was the second leading cause of cancer mortality in men (n = 1063, 49.77/100,000), as well as women (n = 803, 34.89/100,000) in Croatia in 2009. The Croatian National CRC Screening Program was established by the Ministry of Health and Social Welfare, and its implementation started in September, 2007. The coordinators were recruited in each county institute of public health with an obligation to provide fecal occult blood testing (FOBT) to the participants, followed by colonoscopy in all positive cases. The FOBT was performed by hypersensitive guaiac-based Hemognost card test (Biognost, Zagreb). The test and short questionnaire were delivered to the home addresses of all citizens aged 50-74 years consecutively during a 3-year period. Each participant was required to complete the questionnaire and send it together with the stool specimen on three test cards back to the institute for further analysis. About 4% FOBT positive cases are expected in normal risk populations. A descriptive analysis was performed. RESULTS: A total of 1,056,694 individuals (born between 1933-1945 and 1952-1957) were invited to screening by the end of September 2011. In total, 210,239 (19.9%) persons returned the envelope with a completed questionnaire, and 181,102 of them returned it with a correctly placed stool specimen on FOBT cards. Until now, 12,477 (6.9%), FOBT-positive patients have been found, which is at the upper limit of the expected values in European Guidelines for Quality Assurance in CRC Screening and Diagnosis [European Union (EU) Guidelines]. Colonoscopy was performed in 8541 cases (uptake 66%). Screening has identified CRC in 472 patients (5.5% of colonoscopied, 3.8% of FOBT-positive, and 0.26% of all screened individuals). This is also in the expected range according to EU Guidelines. Polyps were found and removed in 3329 (39% of colonoscopied) patients. The largest number of polyps were found in the left half of the colon: 64% (19%, 37% and 8% in the rectum, sigma, and descendens, respectively). The other 36% were detected in the proximal part (17% in the transverse colon and 19% in ceco-ascending colon). Small polyps in the rectum (5-10 mm in diameter), sigmoid and descending colon were histologically found to be tubular adenomas in 60% of cases, with a low degree of dysplasia, and 40% were classified as hyperplastic. Polyps of this size in the transverse or ceco-ascending colon in almost 20% had a histologically villous component, but still had a low degree of dysplasia. Polyps sized 10-20 mm in diameter were in 43% cases tubulovillous, and among them, 32% had areas with a high degree of dysplasia, especially those polyps in the ceco-ascending or transverse part. The characteristics of the Croatian CRC Screening National Program in the first 3 years were as follows: relatively low percentage of returned FOBT, higher number of FOBT-positive persons but still in the range for population-based programs, and higher number of pathologic findings (polyps and cancers). CONCLUSION: These results suggest a need for intervention strategies that include organizational changes and educational activities to improve awareness of CRC screening usefulness and increase participation rates.

Keavey, E., Phelan, N., O'Connell, A. M., et al. (2012). "Comparison of the clinical performance of three digital mammography systems in a breast cancer screening programme." Br J Radiol **85**(1016): 1123-1127.

This study compares the clinical performance of three digital mammography system types in a breast cancer screening programme. 28 digital mammography systems from three different vendors were included in the study. The retrospective analysis included 238 182 screening examinations of females aged between 50 and 64 years over a 3-year period. All images were double read and assigned a result according to a 5-point rating scale to indicate the probability of cancer. Females with a positive result were recalled for further assessment imaging and biopsy if necessary. Clinical performance in terms of cancer detection rate was analysed and the results presented. No statistically significant difference was found between the three different mammography systems in a population-based screening programme, in terms of the overall cancer detection rate or in the detection of invasive cancer and ductal carcinoma in situ. This was shown in both prevalent and subsequent screening examination categories. The results demonstrate comparable cancer detection performance for the three imaging system types operational in the screening programme.

Lynge, E., Törnberg, S., von Karsa, L., et al. (2012). "Determinants of successful implementation of population-based cancer screening programmes." European Journal of Cancer **48**(5): 743-748.
https://www.sciencedirect.com/science/article/pii/S0959804911004898

To facilitate the future implementation of population-based cancer screening programmes in European countries, we summarised the experience gained from existing programmes across Europe. We listed points that citizens, advocacy groups, politicians, health planners, and health professionals should consider when planning, implementing and running population based cancer screening programmes. The list is general and is applicable to breast, cervical and colorectal cancer screening. It is based on evidence presented in the three European Union guidelines on quality assurance in cancer screening and diagnosis, supplemented with other literature and expert experience presented at a European Science Advisory Network for Health workshop. The implementation of a cancer screening programme should be divided into the following seven phases: (1) before planning, (2) planning, (3) feasibility testing, (4) piloting or trial implementation, (5) scaling up from pilot to service, (6) running of full-scale programme, and (7) sustainability. For each phase, a substantial number of specified conditions have to be met. Successful implementation of a cancer screening programme requires societal acceptance and local ownership along with the best evidence-based practise and verification of adequate performance in each phase of implementation.

Martín-López, R., Hernández-Barrera, V., de Andres, A. L., et al. (2012). "Trend in cervical cancer screening in Spain (2003-2009) and predictors of adherence." Eur J Cancer Prev **21**(1): 82-88.

Cervical cancer remains a public health problem in developed countries. Early detection of both premalignant lesions and cervical cancer through an appropriate screening programme may decrease its incidence and mortality. High rates of participation are essential to ensure the desired impact on the population. The aims of this study were to assess the use of Pap smears in Spain in 2009 to identify factors associated with screening adherence (predictors) and assess the trend from 2003 to 2009. We included women surveyed in the European Health Interview Survey for Spain. Cervical cancer screening included self-reported Pap smears over the last 3 years. The target age range was 25-64 years. The following independent variables were analysed: sociodemographic variables, chronic conditions, and lifestyle. Predictors of Pap smear adherence were explored using multivariate logistic regression. The screening coverage in the target population was 66.1% (95% confidence interval: 64.8-67.4). Undergoing Pap smears was associated positively with the following: being married, higher levels of education and income, having visited a general practitioner in previous weeks, and suffering from musculoskeletal disease. Belonging to an older age group (55-64 years) and obesity were associated with nonadherence to Pap smears. We did not find significant differences when we compared cervical cancer screening adherence over time since 2003. Adherence to cervical cancer screening in Spain does not seem to be improving. An effort must be made, and the implementation of population-based programmes instead of opportunistic screening could be considered, to recruit women who are less likely to undergo screening.

Milà, N., García, M., Binefa, G., et al. (2012). "[Adherence to a population-based colorectal cancer screening program in Catalonia (Spain), 2000-2008]." Gac Sanit **26**(3): 217-222.

OBJECTIVE: To analyze correlates of adherence to colorectal cancer screening with biennial fecal occult blood testing in asymptomatic individuals aged 50 to 69 years. METHODS: A cross-sectional telephone survey was conducted among people (n = 1,193) invited to participate in at least two successive rounds of a population-based colorectal cancer screening program in L'Hospitalet de Llobregat (Barcelona, Spain). Subjects were classified according to their adherence to colorectal cancer screening guidelines (non-adherent, irregular adherent and totally adherent). Independent variables were sociodemographic variables, self-perceived health, attitudes and beliefs regarding colorectal cancer and preventive activities. Binary and politomous logistic regression models were performed. RESULTS: Of the individuals invited to participate in the screening program, 14.4% were adherent to screening recommendations and 18.4% were occasionally adherent. Significant differences were found in beliefs and attitudes regarding colorectal cancer and its early detection among adherent and non-adherent individuals. Sharing the decision to participate in screening with a family member increased adherence by nine- and tweve-fold. A positive perception of the screening process was a facilitator to adherence. CONCLUSIONS: Attitudes and beliefs regarding colorectal cancer and its early detection, as well as familial support, are associated with initial participation in colorectal cancer screening but do not affect the persistence of preventive behavior over time.

Moss, S. M., Nyström, L., Jonsson, H., et al. (2012). "The impact of mammographic screening on breast cancer mortality in Europe: a review of trend studies." J Med Screen **19 Suppl 1**: 26-32.

OBJECTIVE: Analysing trends in population breast cancer mortality statistics appears a simple method of estimating the effectiveness of mammographic screening programmes. We reviewed such studies of population-based screening in Europe to assess their value. METHODS: A literature review identified 17 papers, of which 12 provided quantitative estimates of the impact of screening. Due to differences in comparisons and outcome measures, no pooled estimate of effectiveness was calculated. RESULTS: Comparisons included breast cancer mortality before and after the introduction of screening, trends in early and late starting areas and trends in age groups affected and unaffected by screening. Studies that calculated the percentage annual change after the start of screening found reductions of 1-9% per year (1%, 2.3-2.8% and 9% for those with adequate follow-up). Of studies that compared mortality in time periods before and after introduction of screening, three single country studies all had adequate follow-up and estimated mortality reductions ranging from 28% to 36%. Limitations of studies of population mortality rates include the inability to exclude deaths in women with breast cancer diagnosed before invitation to screening, diluting any observable impact of screening, and the gradual implementation of screening in a country or region. CONCLUSIONS: Although analysing population breast cancer mortality rates over time can be a first step in examining changes following the introduction of screening, this method is of limited value for assessment of screening impact. Other methods and individual data are necessary to properly quantify the effect.

Njor, S., Nyström, L., Moss, S., et al. (2012). "Breast cancer mortality in mammographic screening in Europe: a review of incidence-based mortality studies." J Med Screen **19 Suppl 1**: 33-41.

OBJECTIVES: To estimate the impact of service mammography screening on breast cancer mortality using European incidence-based mortality (IBM) studies (or refined mortality studies). IBM studies include only breast cancer deaths occurring in women with breast cancer diagnosed after their first invitation to screening. METHODS: We conducted a literature review and identified 20 publications based on IBM studies. They were classified according to the method used for estimating the expected breast cancer mortality in the absence of screening: (1) women not yet invited; (2) historical data from the same region as well as from historical and current data from a region without screening; and (3) historical comparison group combined with data for non-participants. RESULTS: The estimated effect of mammography screening on breast cancer mortality varied across studies. The relative risks were 0.76-0.81 in group 1; 0.75-0.90 in group 2; and 0.52-0.89 in group 3. Study databases overlapped in both Swedish and Finnish studies, adjustment for lead time was not optimal in all studies, and some studies had other methodological limitations. There was less variability in the relative risks after allowing for the methodological shortcomings. CONCLUSIONS: Based on evidence from the most methodologically sound IBM studies, the most likely impact of European service mammography screening programmes was a breast cancer mortality reduction of 26% (95% confidence interval 13-36%) among women invited for screening and followed up for 6-11 years.

Pons-Vigués, M., Puigpinós-Riera, R., Serral, G., et al. (2012). "Knowledge, attitude and perceptions of breast cancer screening among native and immigrant women in Barcelona, Spain." Psychooncology **21**(6): 618-629.

OBJECTIVE: Inequalities between immigrant and native populations in terms of access and use of health services have been described. The objective is to compare knowledge, attitudes, vulnerabilities, benefits and barriers related to breast cancer (BC) and screening mammography among women from different countries resident in Barcelona. METHODS: A cross-sectional survey carried out in Barcelona in 2009. The study population consisted of female residents in Barcelona between 45 and 69 years of age; participants were Spanish nationals or immigrants from low-income countries. 960 participants were asked 72 questions, mainly with Likert responses. The dependent variables were five quantitative scales: (1) knowledge of BC and early detection, (2) attitude towards health and BC, (3) vulnerability to BC, (4) barriers to mammography, (5) benefits of mammography. The independent variables were country of origin, social class, setting, cohabitation, age, mammography use, length of residence and fluency of the language. Analyses compared scale scores stratified by the independent variables. Multivariable linear regression models were fitted to determine the relationship between the scales and the independent variables. RESULTS: We observed inequalities according to country of origin on all scales after adjustment for independent variables. Chinese women presented the greatest differences with respect to native women, followed by Maghrebi and Filipino women. Inequalities exist on the vulnerability and barriers scales according to social class and urban/rural setting, and on the attitude scale according to social class. CONCLUSIONS: Country of origin, social class and urban/rural setting are key contributors to inequality in these scales.

Proulx, R., Mercier, C., Lemétayer, F., et al. (2012). "Access to breast cancer screening programs for women with disabilities." J Health Care Poor Underserved **23**(4): 1609-1619.

BACKGROUND: The goal of this study was to identify measures to facilitate access to the Quebec Breast Cancer Screening Program for women with activity limitations, considering the barriers to screening uptake in that population. METHODS: The study was carried out in three stages. First, 124 semi-structured interviews were conducted in five regions of Quebec with five groups of key informants. The content analysis lead to the identification of 64 proposals, which were submitted to 31 experts through a two-round Delphi survey process. Finally, consultations were held with 11 resource people to determine which decision-making levels (local, regional, provincial) could play a key role in implementing the proposals. RESULTS: A strong consensus (≥80%) was achieved for 25 proposals seen as highly relevant and feasible. DISCUSSION: The implementation of such proposals could substantially improve access to screening, given the prevalence of activity limitations in the age group targeted by the program.

Ronco, G., Giubilato, P., Naldoni, C., et al. (2012). "[Extension of organised cervical cancer screening programmes in Italy and their process indicators, 2010 activity]." Epidemiol Prev **36**(6 Suppl 1): 39-54.

Italian national guidelines recommend to regions the implementation of organised screening programmes for cervical cancer. As in previous years since 1998 we collected aggregated tables of data from Italian organised cervical screening programmes in order to centrally compute process indicators. Data on women invited during 2010 and screened up to April 2011 were considered. In 2010, the target population of Italian organised screening programmes included 13,538,080 women, corresponding to 80.1% of Italian women aged 25-64 years. Compliance to invitation was 39.8%, with a strong North-South decreasing trend. However, it should be considered that many women are screened outside organised programmes. Among screened women, 4.7% were referred for repeat cytology and 62.7% of them complied; 2.5% of screened women were referred to colposcopy. Compliance with colposcopy referral was 85.9% among women referred because of ASC-US or more severe cytology and 88.7% among those referred because of HSIL or more severe cytology. The positive predictive value (PPV) of referral because of ASC-US or more severe cytology for CIN2 or more severe histology was 16.0%. The unadjusted detection rate of CIN2 or more severe histology was 3.2 per 1,000 screened women (3.5 standardised on the Italian population, truncated 25-64).

Waller, J., Macedo, A., von Wagner, C., et al. (2012). "Communication about colorectal cancer screening in Britain: public preferences for an expert recommendation." Br J Cancer **107**(12): 1938-1943.

BACKGROUND: Informed decision-making approaches to cancer screening emphasise the importance of decisions being determined by individuals' own values and preferences. However, advice from a trusted source may also contribute to autonomous decision-making. This study examined preferences regarding a recommendation from the NHS and information provision in the context of colorectal cancer (CRC) screening. METHODS: In face-to-face interviews, a population-based sample of adults across Britain (n=1964; age 50-80 years) indicated their preference between: (1) a strong recommendation to participate in CRC screening, (2) a recommendation alongside advice to make an individual decision, and (3) no recommendation but advice to make an individual decision. Other measures included trust in the NHS and preferences for information on benefits and risks. RESULTS: Most respondents (84%) preferred a recommendation (47% strong recommendation, 37% recommendation plus individual decision-making advice), but the majority also wanted full information on risks (77%) and benefits (78%). Men were more in favour of a recommendation than women (86% vs 81%). Trust in the NHS was high overall, but the minority who expressed low trust were less likely to want a recommendation. CONCLUSION: Most British adults want full information on risks and benefits of screening but they also want a recommendation from an authoritative source. An 'expert' view may be an important part of autonomous health decision-making.

Walsh, B., Silles, M. et O'Neill, C. (2012). "The role of private medical insurance in socio-economic inequalities in cancer screening uptake in ireland." Health Econ **21**(10): 1250-1256.
http://onlinelibrary.wiley.com/doi/10.1002/hec.1784/abstract

Screening is seen by many as a key element in cancer control strategies. Differences in uptake of screening related to socio-economic status exist and may contribute to differences in morbidity and mortality across socio-economic groups. Although a number of factors are likely to underlie differential uptake, differential access to subsequent diagnostic tests and/or treatment may have a pivotal role. This study examines differences in the uptake of cancer screening in Ireland related to socio-economic status. Data were extracted from SLAN 2007 concerning uptake of breast, cervical, colorectal and prostate cancer screening in the preceding 12 months. Concentration indices were calculated and decomposed. Particular emphasis was placed in the decomposition upon the impact of private health insurance, evidenced in other work to impact on access to care within the mixed public-private Irish health system. This study found that significant differences related to socio-economic status exist with respect to uptake of cancer screening and that the main determinant of difference for breast, colorectal and prostate cancer screening was possession of private insurance. This may have profound implications for the design of cancer control strategies in countries where private insurance has a significant role, even where screening services are publicly funded and population based. Copyright (c) 2011 John Wiley & Sons, Ltd

2011

Autier, P., Boniol, M., Gavin, A., et al. (2011). "Breast cancer mortality in neighbouring European countries with different levels of screening but similar access to treatment: trend analysis of WHO mortality database." Bmj **343**: d4411.
https://www.bmj.com/content/bmj/343/bmj.d4411.full.pdf

Objective To compare trends in breast cancer mortality within three pairs of neighbouring European countries in relation to implementation of screening.Design Retrospective trend analysis.Setting Three country pairs (Northern Ireland (United Kingdom) v Republic of Ireland, the Netherlands v Belgium and Flanders (Belgian region south of the Netherlands), and Sweden v Norway).Data sources WHO mortality database on cause of death and data sources on mammography screening, cancer treatment, and risk factors for breast cancer mortality.Main outcome measures Changes in breast cancer mortality calculated from linear regressions of log transformed, age adjusted death rates. Joinpoint analysis was used to identify the year when trends in mortality for all ages began to change.Results From 1989 to 2006, deaths from breast cancer decreased by 29% in Northern Ireland

and by 26% in the Republic of Ireland; by 25% in the Netherlands and by 20% in Belgium and 25% in Flanders; and by 16% in Sweden and by 24% in Norway. The time trend and year of downward inflexion were similar between Northern Ireland and the Republic of Ireland and between the Netherlands and Flanders. In Sweden, mortality rates have steadily decreased since 1972, with no downward inflexion until 2006. Countries of each pair had similar healthcare services and prevalence of risk factors for breast cancer mortality but differing implementation of mammography screening, with a gap of about 10-15 years.Conclusions The contrast between the time differences in implementation of mammography screening and the similarity in reductions in mortality between the country pairs suggest that screening did not play a direct part in the reductions in breast cancer mortality.

Bennett, R. L., Sellars, S. J. et Moss, S. M. (2011). "Interval cancers in the NHS breast cancer screening programme in England, Wales and Northern Ireland." Br J Cancer **104**(4): 571-577.

BACKGROUND: The United Kingdom NHS Breast Screening Programme was established in 1988, and women aged between 50 and 70 are routinely invited at three yearly intervals. Expected United Kingdom interval cancer rates have been calculated previously, but this is the first publication from an exercise to collate individual-based interval cancer data at a national level. METHODS: Interval cancer case ascertainment is achieved by the regular exchange of data between Regional Breast Screening Quality Assurance Reference Centres and Cancer Registries. The present analysis includes interval cancers identified in women screened between 1st April 1997 and 31st March 2003, who were aged between 50 and 64 at the time of their last routine screen. RESULTS: In the periods >0-<12 months, 12-<24 months and 24-<36 months after a negative screen, we found overall interval cancer rates and regional ranges of 0.55 (0.43-0.76), 1.13 (0.92-1.47) and 1.22 (0.93-1.57) per 1000 women screened, respectively. Rates in the period 33-<36 months showed a decline, possibly associated with early re-screening or delayed presentation. CONCLUSIONS: Interval cancer rates were higher than the expected rates in the 24-month period after a negative screen, but were similar to published results from other countries. Increases in background incidence may mean that the expected rates are underestimated. It is also possible that, as a result of incomplete case ascertainment, interval cancers rates were underestimated in some regions in which rates were less than the expected.

Ciatto, S., Bernardi, D. et Caumo, F. (2011). "Evidence of interval cancer proportional incidence and review from mammography screening programs in Italy." Tumori **97**(4): 419-422.

PURPOSE: To summarize the existing evidence on the proportional incidence and review of interval cancers, as reported by Italian screening programs. MATERIAL AND METHODS: Literature search of published reports on: a) proportional incidence, determined according to breast cancers expected in the absence of screening and estimated on the basis of patients/year at risk and age-specific incidence; and b) review of screening mammograms preceding interval cancers. Results were compared with European Commission recommended standards. RESULTS: Evidence on proportional incidence or review of interval cancers was reported by 37 and 24 local health unit programs, respectively. Compared to European Commission standards, 94% and 87% of programs complied at first interval cancers survey with recommended standards for proportional incidence or screening error rate at review, respectively. Two programs initially below acceptable standards reached satisfactory results at repeat evaluation over time. CONCLUSIONS: Although they are a minority (20%) of all local health unit programs, which suggests a possible selection bias, Italian surveys reporting data on the proportional incidence or review of interval cancers show an overall good performance. Interval cancer survey appears feasible in any program and should become a routine procedure within the national quality control system.

Ciraj-Bjelac, O., Faj, D., Stimac, D., et al. (2011). "Good reasons to implement quality assurance in nationwide breast cancer screening programs in Croatia and Serbia: results from a pilot study." Eur J Radiol **78**(1): 122-128.

The purpose of this study is to investigate the need for and the possible achievements of a comprehensive QA programme and to look at effects of simple corrective actions on image quality in Croatia and in Serbia. The paper focuses on activities related to the technical and radiological aspects of QA. The methodology consisted of two phases. The aim of the first phase was the initial assessment of mammography practice in terms of image quality, patient dose and equipment performance in selected number of mammography units in Croatia and Serbia. Subsequently, corrective actions were suggested and implemented. Then the same parameters were re-assessed. Most of the suggested corrective actions were simple, low-cost and possible to implement immediately, as these were related to working habits in mammography units, such as film processing and darkroom conditions. It has been demonstrated how simple quantitative assessment of image quality can be used for optimisation purposes. Analysis of image quality parameters as OD, gradient and contrast demonstrated general similarities between mammography practices in Croatia and Serbia. The applied methodology should be expanded to larger number of hospitals and applied on a regular basis.

Langmár, Z., Németh, M. et Kornya, L. (2011). "[Cervical cancer screening in Hungary--epidemiologic, historical and methodologic aspects]." Orv Hetil **152**(51): 2063-2066.

The issue of cervical cancer has been raised again recently, as opposed to other states of the European Union our country shows a high incidence and mortality rate of cervical carcinoma. Although in the 21st century not a single woman should die of cervical cancer, cervical cancer claims the lives of approximately 500 women in Hungary annually until this day. The most typical point of development is where the columnar epithelium of the cervical canal and the squamous epithelium of the uterine cervix meet, the so called transformation zone (squamocolumnar junction). The disease is a several year long process of squamous epithelium metaplasia. This is what provides the opportunity for screening, as by recognizing the lesion in a precancerous state, treatment is possible prior to the development of a tumor. Authors review some epidemiological, historical and methodological issues related to cervical cancer screening.

Molina-Barceló, A., Salas Trejo, D., Peiró-Pérez, R., et al. (2011). "To participate or not? Giving voice to gender and socio-economic differences in colorectal cancer screening programmes." Eur J Cancer Care (Engl) **20**(5): 669-678.

This paper examines the influence of gender and socio-economic status (SES) on participation in colorectal cancer (CRC) screening. Qualitative study with eight focus groups comprised of participants and non-participants in a CRC screening programme in Valencia (Spain), structural sample design and discursive analysis by gender, SES and participation. Non-participants and those with lower SES tended to have less knowledge about both the disease and the programme. Reasons for participation varied according to gender: women were motivated because they value the importance of self-care and early detection in order to prevent personal and family suffering while men were encouraged by their partners. Reasons for non-participation were also influenced by gender: women feared the results and considered the test unpleasant whereas men showed carelessness and lack of concern. In population-based programmes, people with lower SES and men are those with the most obstacles to participation due to low health literacy and traditional gender roles respectively. To increase participation in CRC screening programmes based on informed decision making and taking into account social inequalities, information should be more accessible, comprehensible and adapted to gender and SES differences and emphasise the greater vulnerability of men for CRC and the benefits of early detection.

Parente, F., Marino, B., Ardizzoia, A., et al. (2011). "Impact of a population-based colorectal cancer screening program on local health services demand in Italy: a 7-year survey in a northern province." Am J Gastroenterol **106**(11): 1986-1993.

OBJECTIVES: In 2005, the National Health Service recommended a population-based colorectal cancer (CRC) screening program using biennial fecal occult blood testing (FOBT), followed by total colonoscopy in positive patients. So far, no studies have been performed to evaluate the impact of a mass-screening CRC campaign on the health system services at the community level in Italy. We have therefore assessed the workload generated by the first two biennial rounds of screening program on the activity of hospital services involved in CRC diagnosis in the Lecco province. METHODS: Routine data from all hospital services of our province were collected on activity levels related to CRC diagnosis from January 2003 to December 2009. This time span covered the 2 years prior to, as well as the two biennial rounds of the CRC screening program. In particular, we focused on the volume of outpatient FOBTs and colonoscopies (both diagnostic and interventional) performed among subjects outside the screening program. Joinpoint models were used to test whether an apparent change in trend of examination over time was statistically significant in different age cohorts of the population (<50 years, 50-69 years, and ≥70 years). RESULTS: The volume of "extra-screening" per-patient/FOBTs and colonoscopies increased significantly over the evaluated periods in all ages, until year 2008, when a steady trend was beginning; the AAPCs (average of the annual percent changes) values were 5.7, 3.1, and 8.4 for FOBT and 14.6, 13.4, and 16.7 for colonoscopy in the three age cohorts, respectively. However, the increase in both FOBT and colonoscopy demand was maximal in the cohort ≥70 years, where three statistically significant annual percent changes (APCs) were identified (in 2003-2005, 2005-2006, and 2006-2007 APCs were 12.3, 14.9, and 15.9 for FOBT, and 18.7, 36.8, and 25.4 for colonoscopy, respectively). CONCLUSIONS: After the implementation of a FOBT-based mass-screening program for CRC, careful consideration must be given to the significant increase in the workload of hospital services involved in CRC diagnosis, outside the screening campaign. The extra-work mainly involves gastroenterologists performing colonoscopy, whose activity increased over the 5-year period by 118%, as well as laboratory services, where the demand of FOBTs rose by 40%. This phenomenon, mainly attributable to a profound change in the attitude toward CRC screening by those age cohorts outside the program, covers a time span of two full rounds of screening, whereupon a steady trend for colonoscopy is apparent.

Saika, K. et Sobue, T. (2011). "Time trends in breast cancer screening rates in the OECD countries." Jpn J Clin Oncol **41**(4): 591-592.

Sala, M., Salas, D., Belvis, F., et al. (2011). "Reduction in false-positive results after introduction of digital mammography: analysis from four population-based breast cancer screening programs in Spain." Radiology **258**(2): 388-395.

PURPOSE: To evaluate the effect of the introduction of digital mammography on the recall rate, detection rate, false-positive rate, and rates of invasive procedures in a cohort of women from four population-based breast cancer screening programs in Spain. MATERIALS AND METHODS: The study was approved by the ethics committee; informed consent was not required. A total of 242,838 mammograms (171,191 screen film [screen-film mammography group] and 71,647 digital [digital mammography group]) obtained in 103,613 women aged 45-69 years were included. False-positive results for any additional procedure and for invasive procedures, the breast cancer rate, and the positive predictive value in each group were compared by using Pearson χ(2) test. The effect of the mammographic technology used (screen-film or digital) on the false-positive results and cancer detection risk was evaluated with multivariate logistic regression models, adjusted according to women's and the screening program's characteristics and time trends. RESULTS: The false-positive rate was higher for screen-film than for digital mammography (7.6% and 5.7%, respectively; P < .001). False-positive results after an invasive procedure were significantly higher for screen-film than for digital mammography (1.9% and 0.7%, respectively; P < .001). No significant differences were observed in the overall cancer detection rate between the two groups (0.45% and 0.43% in the screen-film and digital mammography groups, respectively; P = .59). The adjusted risk of a false-positive result was higher for screen-film than for digital mammography (odds ratio = 1.32). The adjusted risk was also lower for the digital mammography group when time trends were taken into account. CONCLUSION: The lower false-positive risk with use of digital mammography should be taken into account when balancing the risks and benefits of breast cancer screening.

Sanz-Barbero, B., Regidor, E. et Galindo, S. (2011). "Impact of geographic origin on gynecological cancer screening in Spain." Rev Saude Publica **45**(6): 1019-1026.

OBJECTIVE: To assess the association between geographic origin and the use of screening cervical smears and mammograms. METHODS: Data was obtained from the 2006 Spanish National Health Survey that included 13,422 females over 16 years of age. The dependent variable was use of screening mammograms and cervical smears in the past 12 months. The measure of association (odds ratio and its related 95% confidence interval) was estimated using logistic regression. RESULTS: African women were 0.36 (95% CI 0.21,0.62), Eastern European 0.40 (95%CI 0.22;0.74), Western European, American and Canadian 0.60 (95%CI 0.43,0.84), and Central and South American 0.64 times (95%CI 0.52, 0.81) less likely to undergo a mammogram compared with the general population of Spain. In regard to cervical cancer screening, Eastern European women were 0.38 (95%CI 0.28,0.50), African 0.47 (95%CI 0.33,0.67) and Western European, American and Canadian 0.61 times (95%CI 0.46, 0.81) less likely to undergo cervical smears. These associations were independent of age, socioeconomic condition, health status and health insurance coverage. CONCLUSIONS: Immigrant women use less screening programs than native Spanish women. This finding may suggest difficult access to prevention programs.

Simou, E., Tsimitselis, D., Tsopanlioti, M., et al. (2011). "Early evaluation of an organised mammography screening program in Greece 2004-2009." Cancer Epidemiol **35**(4): 375-380.

OBJECTIVE: The aim of the current study was to present early performance indicators of a breast cancer screening program in Greece. METHODS: Between March 2004 and July 2009, 9621 women aged between 40 and 69 years were recruited into programme on a voluntary basis. The participating women were residents of two adjacent administrative regions of Greece. Several performance indicators were calculated for the first and subsequent screen, separately. RESULTS: A total of 9621 mammograms were 1st screens and 4462 were subsequent screens. The attendance rate was almost 1.5%. The technical repeat rate was 1.7%. On the 1st screen, the recall rate was 11.4%, while the recall rate of the subsequent screens was 5.5%. The vast majority of detected cancers were invasive and only the 1/7 of cancers was identified as DCIS. As concerns tumour size of invasive cancers, the 1.9% and 16.7% was unknown, in the first and subsequent screen, respectively. Moreover, 38.5% and 44.4% of cancers detected in the 1st and subsequent screen, respectively, were less than 15 mm in diameter. Almost 1/5 of diagnosed cancers were interval cancers. CONCLUSIONS: This breast cancer screening programme is the first one in Greece and the attendance rate is extremely low. Taking into account that an organised screening programme may benefit women with a reduction in breast cancer mortality, there is an urgent need to develop a national-based screening programme, to increase participation and to improve the information system used to monitor programme performance.

Viguier, J., Calazel-Benque, A., Eisinger, F., et al. (2011). "Organized colorectal cancer screening programmes: how to optimize efficiency among general practitioners." Eur J Cancer Prev **20 Suppl 1**: S26-32.

Colorectal cancer (CRC) is an important public health issue in France, justifying a screening policy adapted to individual risk. The general practitioner (GP) is most commonly the initiator of CRC screening. The EDIFICE 2 survey, carried out in 2008 among 600 GPs, showed that 83% of GPs were convinced of the importance of screening, but that only 30% of GPs systematically recommended the procedure. The main underlying reasons were that only 50% of GPs declared themselves sufficiently trained, GPs needed clear guidelines and information supports for patients and a better implication in the programme's overall organization. This important role was confirmed by patients as the second most important reason for not undergoing screening: the absence of recommendation from their treating physician. The optimization of the screening procedure thus requires a stronger implication of GPs, by confirming their pivotal role in CRC screening and by relying on clear reference documentation guaranteeing quality assurance of a national organized screening programme.

von Wagner, C., Baio, G., Raine, R., et al. (2011). "Inequalities in participation in an organized national colorectal cancer screening programme: results from the first 2.6 million invitations in England." Int J Epidemiol **40**(3): 712-718.

BACKGROUND: An organized, population-based, colorectal cancer screening programme was initiated in England in 2006 offering biennial faecal occult blood testing (FOBT) to adults aged 60-69 years.

Organized screening programmes with no associated financial costs to the individual should minimize barriers to access for lower socio-economic status (SES) groups. However, SES differences in uptake were observed in the pilot centres of the UK programme, so the aim of this analysis was to identify the extent of inequalities in uptake by SES, ethnic diversity, gender and age in the first 28 months of the programme. Design Cross-sectional analysis of colorectal cancer screening uptake data. METHODS: Between October 2006 and January 2009, over 2.6 million adults aged 60-69 years were mailed a first FOBT kit by the five regional screening hubs. Uptake was defined as return of a test kit within 13 weeks. We used multivariate generalized linear regression to examine variation by area-based socioeconomic deprivation, area-based ethnicity, gender and age. RESULTS: Uptake was 54%, but showed a gradient across quintiles of deprivation, ranging from 35% in the most deprived quintile to 61% in the least deprived. Multivariate analyses confirmed an independent effect of deprivation, with stronger effects in women and older people. The most ethnically diverse areas also had lower uptake (38%) than other areas (52-58%) independent of SES, age, gender and regional screening hub. Ethnic disparities were more pronounced in men but equivalent across age groups. More women than men returned a kit (56 vs 51%), but there was also an interaction with age, with uptake increasing with age in men (49% at 60-64 years; 53% at 65-69 years) but not women (57 vs 56%). CONCLUSIONS: Overall uptake rates in this organized screening programme were encouraging, but nonetheless there was low uptake in the most ethnically diverse areas and a striking gradient by SES. Action to promote equality of uptake is needed to avoid widening inequalities in cancer mortality.

WÜBker, A. (2011). Who Gets a Mammogram Amongst European Women Aged 50-69 Years and Why are There Such Large Differences Across European Countries? Neue Discussion Paper No. 15. Witten Universität Witten/Herdecke**:** 27 , tabl.
https://www.econstor.eu/dspace/bitstream/10419/48715/1/VfS_2011_pid_412.pdf

On the basis of the Survey of Health, Ageing, and Retirement (SHARE), we analyse the determinants of who engages in mammography screening focusing on European women aged 50-69 years. A special emphasis is put on the measurement error of subjective life expectancy and on the measurement and impact of physician quality. Our main findings are that physician quality, better education, having a partner, younger age and better health are associated with higher rates of receipt. The impact of subjective life-expectancy on screening decision substantially increases after taking measurement error into account. In light of the enormous differences in mammography screening rates between the European countries that can be detected even if several individual characteristics are taken into account, we explore in a second step the causes of these screening differences using newly available data from the SHARELIFE. The results reveal that in countries with low screening rates (e.g. Denmark, Greece and Poland) many reasons (financial restrictions, time costs, access barriers, lack of information, ?not usual? and low perceived benefits of screening) are significant predictors of not receiving a mammogram. In contrast in countries with high screening rates such as the Netherlands only beliefs regarding the benefits of mammograms (?Not considered to be necessary?) and the cause ?Not usual to get this type of care? seem to be important screening barriers.

2010

Ascunce, N., Salas, D., Zubizarreta, R., et al. (2010). "Cancer screening in Spain." Annals of Oncology **21**: iii43-iii51.
https://www.sciencedirect.com/science/article/pii/S0923753419569800

Objective: To describe the current status of breast, colorectal and cervical cancer screening in Spain. Methodology: The situation was analysed on the basis of data drawn from surveys conducted in each autonomous region (Comunidad Autónoma). Results: Currently, breast cancer screening coverage is 100%. In 2007, overall participation was 67.0% with an adherence of 91.2%. The detection rate was 3.4‰, 15.1% intraductal and 30% invasive <1 cm in diameter, with 65% showing axilary node negative. Colorectal cancer screening had been implemented in six regions (4.5% of the target population). Participation ranged from 17.2% to 42.3%, with positive test percentages ranging from 1.7‰ (guaiac) to 9.5% (immunological). The invasive cancer detection rate was 1.7‰ (guaiac) and 3.4‰ (immunological). In most cases, cervical cancer screening was undertaken opportunistically, with an estimated coverage of 69.0%. Conclusions: In Spain, cancer screening is being conducted in accordance with national and international recommendations. The fact that screening programmes are operated as a network has led to a high degree of consensus as to the methodology and information systems to be used to enable joint evaluation.

Grau, J., Serradesanferm, A., Polbach, S., et al. (2010). "[Colorectal cancer screening programs in the population at average risk in the European Union and Spain]." Gastroenterol Hepatol **33**(2): 111-118.

There is broad international consensus on the need for colorectal cancer screening in men and women aged 50 years old or older with no personal or familial history of adenoma or colorectal cancer. The main problem is the disagreement among the various screening guidelines on the best screening method. The European Union (2003) extended the recommendation of implanting colorectal cancer screening using the fecal occult blood test (FOBT) in the population aged between 50 and 74 years. Seventy percent of the member states are introducing a program but there is wide heterogeneity. In Spain, 2-yearly FOBT is recommended in the target population aged 50 to 69 years. Currently, three autonomous communities have developed pilot programs and are extending the program to the entire population. Many other communities have announced they will commence programs shortly.

Kis, R. K. (2010). "[National colorectal cancer screening program in the Republic of Croatia--experiences, outcomes and obstacles in the program implementation in the Medimurje County]." Acta Med Croatica **64**(5): 363-374.

BACKGROUND: In the Medimurje County, colorectal cancer (CRC) poses a serious health problem. According to the incidence of CRC in men and women, and mortality in men, it is the second most common malignancy, and the leading one in women. Compared with the average in Croatia, the CRC mortality rate in Medimurje County is higher. CRC mortality can be reduced by repeat screening by fecal occult blood testing (FOBT). It is important to ensure successful implementation and continuous improvement of the national CRC program it Medimurje County. AIMS AND METHODS: This report describes the implementation of CRC screening in Medimurje County and performance indicators from the first 2.5 years. The main obstacles and suggestion for improvement are presented. Study results are compared with international references. The Institute of Public Health of Medimurje County has to collect data on the uptake, tests, lesions and key indicators needed for monitoring and epidemiologic evaluation of the program. RESULTS: Medimurje County is located in the northern part of the Republic of Croatia. The target group includes approximately 30,000 individuals suitable for CRC screening (aged 50-74 years). In the first screening round, between January 2008 and September 2010, 19,722 invitation letters with test kits (gFOBT) were sent to people born 1933-1945 and 1955-1957. The overall attendance to screening was 28.1%. Blood in the stool was detected in 12.6% of the individuals presenting for screening. The waiting time for follow up colonoscopy was too long (median 113 days). Colonoscopy rate reached 87.7/100 people with positive test. A total of 22 individuals were diagnosed with cancer and the percentage of cancer detected by colonoscopy was 6.4% (results were available for a total of 346 colonoscopies performed in people born between 1933 and 1942). The main limitations to program implementation are inappropriate software for data collection and the lack of a protocol for standardized data collection; the rate of positive test results is unacceptably high, local colonoscopy service is insufficient and waiting time for colonoscopy too long. Also, the inclusion of general practitioners (GPs) in the program has proved inadequate. The role of local public health institutes as coordinators is of crucial importance, but financial and human resources are inadequate. DISCUSSION: The participation rate in Medimurje County is higher than the national average, but lower in comparison with other neighboring countries that also use the same methods. Immunochemical FOBT had higher participation rate than guaiac test, so we should consider the choice of iFOBT in our program. Reminder letters had a significant impact on participation, so this strategy should be adopted. For better success of the program, the involvement of GPs should increase and it is important to make a strategic plan to improve the population and GP awareness of the screening program importance. CONCLUSION: The national program is tested in local conditions and it needs change based on the difficulties observed. The results of program implementation are quite satisfactory considering the conditions in which it is carried out, but less satisfactory than those reported from the neighboring countries. In the next period, the program should be allocated due financial and human resources, and it is important to agree upon a strategy that would yield the best results.

Lim, S. M., Lee, H. Y., Choi, K. S., et al. (2010). "Trends of mammography use in a national breast cancer screening program, 2004-2008." Cancer Res Treat **42**(4): 199-202.

PURPOSE: Korea started breast cancer screening as part of the National Cancer Screening Program (NCSP) in 1999. In order to identify under-served groups, we investigated mammography uptake in the National Breast Cancer Screening Program. MATERIALS AND METHODS: The study population was participants in the National Breast Cancer Screening Program from 2004 to 2008. We analyzed participation rates by insurance type, age group, and area of residence. RESULTS: Total participation rates for breast cancer screening increased from 18.2% in 2004 to 35.0% in 2008. The participation rate in the group aged 60 to 69 years showed the greatest increase, 21.3%, among the four age groups. Although the screening rate increased continuously, the participation rate of the Medical Aid Program (MAP) group was low compared to the National Health Insurance (NHI) group. Moreover, the increasing trend of mammography uptake in the MAP group was much lower than that of the NHI group. CONCLUSION: The participation rate for breast cancer screening in the NCSP in Korea has increased. However, the participation rate in mammography among MAP recipients is still lower than that of NHI beneficiaries. To increase mammography uptake, it is important to make it available to everyone by ensuring inclusion of all population subgroups.

Lind, H., Svane, G., Kemetli, L., et al. (2010). "Breast Cancer Screening Program in Stockholm County, Sweden - Aspects of Organization and Quality Assurance." Breast Care (Basel) **5**(5): 353-357.

The population-based breast cancer screening program in Stockholm County was initiated in 1989. The program follows the recommendations issued by the Swedish Board of Health and Welfare, and is in agreement with guidelines from the European Commission. Individual data is available for all women in Stockholm County aged 40-69 years since initiation of the program in 1989. The participation rate exceeds 70%, the recall rate averages 3%, and the detection rate is 0.5%. The introduction of the breast cancer screening program in Stockholm County has reduced breast cancer mortality by 29% and among participants by 52%. The breast screening program is well organized and functioning, and well adapted to its purpose. Follow-up ensures a good quality process with the aim of reducing breast cancer mortality.

Madan, J., Rawdin, A., Stevenson, M., et al. (2010). "A rapid-response economic evaluation of the UK NHS Cancer Reform Strategy breast cancer screening program extension via a plausible bounds approach." Value Health **13**(2): 215-221.

OBJECTIVES: The 2007 National Health Service Cancer Reform Strategy includes a proposed extension of the UK breast screening program to women aged 47 to 49 years. The aim of this study is to undertake a preliminary assessment of this proposal to identify the key factors determining its cost-effectiveness and to determine whether there is sufficient uncertainty that requires more thorough analyses. METHODS: An economic model was constructed. For simplicity, the health impact of screening was estimated by calculating the lives saved through shifts in prognostic group. A "plausible bounds" approach was used to derive distributions for model parameters for probabilistic sensitivity analysis. UK data were used to populate the model. RESULTS: The cost-effectiveness of the extension is estimated to be pound27,400 per quality-adjusted life-year (QALY) with a 29% probability of cost-effectiveness at a threshold of pound20,000 per QALY. The deterministic estimate of benefit becomes negative if the anxiety due to a false-positive result is set at 0.028 QALYs. Including a small positive benefit from a negative screen has a dramatic impact on the cost-effectiveness of screening. The impact of other factors appears less marked. CONCLUSIONS: Because the vast majority of women aged 47 to 49 years will test negative when screened for breast cancer and most of those who test positive will actually be free of the disease, the psychological impacts of screening are likely to drive cost-effectiveness for this age group. Therefore, a research priority should be to better understand and quantify these effects.

Martín-López, R., Hernández-Barrera, V., De Andres, A. L., et al. (2010). "Breast and cervical cancer screening in Spain and predictors of adherence." Eur J Cancer Prev **19**(3): 239-245.

Gynecological cancers are an important cause of morbidity and mortality. Secondary prevention programmes attempt to improve their prognosis. High participation rates are needed to ensure the desired population impact. We sought to assess the use of mammography and Pap smear and analyze predictors of screening adherence. We included women surveyed in the Spanish National Health Survey 2006. Cancer screening included mammography in the last 2 years and Pap smear in the last 3 years. The target age range of the screening programmes was 50-69 years in breast cancer screening and 25-64 years in cervical cancer screening. Independent variables included: sociodemographics, chronic diseases and lifestyles. Predictors of mammography or Pap smear adherence were explored using logistic regression. The screening coverage for the target age range was 84.1% (95% confidence interval=82.9-85.2) in breast cancer and 67.4% (95% confidence interval=66.5-68.4) in cervical cancer. Mammography uptake was positively associated with age, being married, higher educational level, having visited a physician or gynecologist, supplementary private health coverage and osteomuscular disease. Some unhealthy lifestyles were associated with nonadherence to mammography. Positive predictors of Pap smear adherence behaved in the same way as for mammography and also higher monthly incomes and eating a healthy diet were associated with higher screening compliance. In conclusion, adherence to breast cancer screening in Spain is acceptable in the target age group; nevertheless Pap smear screening must be improved. In both cases, an effort must be made to recruit those women who are less likely to undergo screening, as they are those who are at higher risk of suffering these diseases.

Serral Cano, G., Puigpinós, I. R. R., Robles Garrido, I., et al. (2010). "[Satisfaction and expectations of the women participants and not participants in the breast cancer screening programme in Barcelona after 10 years of operation]." Rev Esp Salud Publica **84**(6): 717-729.

BACKGROUND: In order to improve the strategies of communication and to increase the participation in the screening program, one considers to describe the sociodemographic characteristics of participants and nonparticipants of the Breast Cancer Screening Program (BCSP) in Barcelona (2007), to analyse the degree of satisfaction and knowledge with the programme, and to know the expectations of nonparticipants with respect to the programme. METHODS: Cross-sectional study in a sample of 600 women between 50 and 69 years of age registered in Barcelona. A telephone interview was carried out using a questionnaire composed of 35 questions, grouped in: knowledge of the disease and the programme, satisfaction with the programme, expectations (characteristics which might increase participation) and sociodemographic characteristics. The association between knowledge and satisfaction with the sociodemographic characteristics was analysed by means of bivariate and multivariate analysis (robust poisson models). A descriptive analysis of the expectations of nonparticipants was carried out. RESULTS: Among the 244 nonparticipants interviewed, 160 (65,6%) had middle or superior studies, and 163 (66,8%) were of a privileged social class. Of 356 women that indicated to be participants in the PDPCM 340 (95,5 %) were satisfied with the PDPCM in global. CONCLUSIONS: The degree of satisfaction and knowledge with the programme is very high. The expectations indicated suggest that women receive contradictory messages with regard to periodicity (annual respect biannual) and age range (40-69 respect 50-69).

Tscheulin, D. K. et Drevs, F. (2010). "The relevance of unrelated costs internal and external to the healthcare sector to the outcome of a cost-comparison analysis of secondary prevention: the case of general colorectal cancer screening in the German population." European Journal of Health Economics (the) **11**(2): 141-150, 143 tabl., 141 fig.

The potential of secondary prevention measures, such as cancer screening, to produce cost savings in the healthcare sector is a controversial issue in healthcare economics. Potential savings are calculated by comparing treatment costs with the cost of a prevention program. When survivorssubsequent unrelated health care costs are included in the calculation, however, the overall cost of disease prevention rises. What have not been studied to date are the secondary effects of fatal disease prevention measures on social security systems. From the perspective of a policy maker responsible for a social security system budget, it is not only future healthcare costs that are relevant for budgeting, but also changes in the contributions to, and expenditures from, statutory pension insurance and health insurance systems. An examination of the effect of longer life expectancies on these insurance systems can be justified by the fact that European social security systems are regulated by the state, and there is no clear separation between the financing of individual insurance systems due to cross-subsidisation. This paper looks at how the results of cost-comparison analyses vary depending on the inclusion or exclusion of future healthcare and non-healthcare costs, using the example of colorectal cancer screening in the German general population. In contrast to previous studies, not only are future unrelated medical costs considered, but also the effects on the social security system. If a German colorectal cancer screening program were implemented, and unrelated future medical care were excluded from the cost-benefit analysis, savings of up to ?548 million per year would be expected. The screening program would, at the same time, generate costs in the healthcare sector as well as in the social security system of 2,037 million per year. Because the amount of future contributions and expenditures in the social security system depends on the age and gender of the recipients of the screening program (i.e. survivors of a typically fatal condition), the impact of age and gender on the results of a cost-comparison analysis of colorectal cancer screening are presented and discussed. Our study shows that colorectal cancer screening generates individual cost savings in the social security system up to a life expectancy of 60 years. Beyond that age, the balance between a recipient's social security contributions and insurance system expenditure is negative. The paper clarifies the relevance of healthcare costs not related to the prevented disease to the economic evaluation of prevention programs, particularly in the case of fatal diseases such as colorectal cancer. The results of the study imply that, from an economic perspective, the participation of at-risk individuals in disease prevention programs should be promoted.

van Dam, L., Hol, L., de Bekker-Grob, E. W., et al. (2010). "What determines individuals' preferences for colorectal cancer screening programmes? A discrete choice experiment." Eur J Cancer **46**(1): 150-159.

INTRODUCTION: In many countries uptake of colorectal cancer (CRC) screening remains low. AIM: To assess how procedural characteristics of CRC screening programmes determine preferences for participation and how individuals weigh these against the perceived benefits from participation in CRC screening. METHODS: A discrete choice experiment was conducted among subjects in the age group of 50-75 years, including both screening-naïve subjects and participants of a CRC screening programme. Subjects were asked on their preferences for aspects of CRC screening programmes using scenarios based on pain, risk of complications, screening location, preparation, duration of procedure, screening interval and risk reduction of CRC-related death. RESULTS: The response was 31% (156/500) for screening-naïve and 57% (124/210) for CRC screening participants. All aspects proved to significantly influence the respondents' preferences. For both groups combined, respondents required an additional relative risk reduction of CRC-related death by a screening programme of 1% for every additional 10 min of duration, 5% in order to expose themselves to a small risk of complications, 10% to accept mild pain, 10% to undergo preparation with an enema, 12% to use 0.75l of oral preparation combined with 12h fasting and 32% to use an extensive bowel preparation. Screening intervals shorter than 10 years were significantly preferred to a 10-year screening interval. CONCLUSION: This study shows that especially type of bowel preparation, risk reduction of CRC related death and length of screening interval influence CRC screening preferences. Furthermore, improving awareness on CRC mortality reduction by CRC screening may increase uptake.

Dépistage d'autres types de cancers : poumon, prostate….

ÉTUDES FRANÇAISES

2019

Berchi, C. et Launoy, G. (2019). "[Participation in organized screening for bowel cancer and screening for prostate cancer]." Sante Publique **S2**(Hs2): 19-32.

Prostate and bowel cancers are with lung cancer the most frequent and most deadly cancers in men in France. Despite evidence of the effectiveness of screening for bowel cancer, the rates of population participation in organized screening programs remain low. Conversely, many men have a PSA blood test to detect prostate cancer, although this technique is not recommended by French health authorities. OBJECTIVE: The aim of this work was to identify among the characteristics of screening programs for prostate and bowel cancers those which constituted brakes or, on the contrary, engines to the participation of men in order to try to explain the differences participation between these screenings. METHOD: 1,008 men aged 50-74 were questioned on their preferences for participating in cancers screening using a discrete choice experiment. Responses were analyzed using qualitative regression models with random effects. RESULTS: The results did not show any major differences between the participation processes in these two screenings. They confirmed the central role of information provided by the physician in decision-making. They also revealed a surprising attitude of men with regard to the risk of overdiagnosis which invites to think about the understanding and the perception by the population of this notion of overdiagnosis in the cancer screening.

2018

Gendarme, S., Perrot, E., Reskot, F., et al. (2017). "[Economic impact of lung cancer screening in France: A modeling study]." Rev Mal Respir **34**(7): 717-728.

INTRODUCTION: The National Lung Screening Trial found that, in a selected population with a high risk of lung cancer, an annual low-dose CT-scan decreased lung cancer mortality by 20% and overall mortality by 7% compared to annual chest X-Ray. In France, a work group stated that individual screening should be considered in this setting. However, the economic impact of an organized and generalized (to all eligible individuals) screening in France was never reported. METHODS: This is a modeling study using French population demographic data and published data from randomized screening trials. We used the same selection criteria as NLST: 55-74-year-old smokers for at least 30 pack-years, current smoker or quit less than 15 years. We computed a second model including also 50-54-year-old individuals. Then, we used different participation rates: 65%, 45%, and 32%. RESULTS: According to the considered model, there would be 1,650,588 to 2,283,993 subjects eligible to screening in France. According to the model and participation rate, lung cancer screening would diagnose 3600 to 10,118 stages 1/2 lung cancer each year. There would be 5991 to 16,839 false-positives, of whom 1416 to 3981 would undergo unnecessary surgery. Screening policy would cost 105 to 215 euro million per year. However, increasing the price of a cigarette pack by 0.05 to 0.10 euro would fully cover the screening costs. CONCLUSION: Participation rate is a key point for screening impact. Screening could be easily funded by a small increase in cigarette prices.

Jéhannin-Ligier, K., Dejardin, O., Lapôtre-Ledoux, B., et al. (2017). "Oral cancer characteristics in France: Descriptive epidemiology for early detection." J Stomatol Oral Maxillofac Surg **118**(2): 84-89.

Despite the frequency and lethality of oral cancers in France, there are no detailed general population data regarding the characteristics of these patients to fuel the public health authorities' reflections about early detection policies. Thus, the objective of this study was to determine, in the general population, the characteristics of both patients and tumours at the time of the diagnosis. A high-resolution, population-based study using 13 French registries was conducted on 1089 tumours diagnosed in 2010. Men accounted for 75% of cases. The most frequent sites were tonsil (28.4%) and oral tongue (21.1%). The median age varied from 56.7 years for floor of mouth to 66.4 years for gum.

The lesions were mainly diagnosed on pain and those diagnosed after routine clinical examination were scarce (2.6%). There were 65.5% stage III and IV at diagnosis. Oral tongue, floor of mouth and palate presented tumours less than 2cm only in 34 to 40% of cases. Advanced stage was associated with the presence of comorbidities, and tonsil or base of tongue topography. Stage was not associated with Département, deprivation index or gender. This study provided a picture of the characteristics of oral cancer patients and their tumours and showed that diagnoses are often made late, even for those tumours most easily accessible to direct visual and tactile examination. Nevertheless, it remains to define the target population of an early detection and to evaluate the benefit of such detection on the mortality rate.

Leleu, O., Auquier, M., Carre, O., et al. (2017). "[Lung cancer screening with low-dose thoracic CT-scan in the Somme area]." Rev Mal Respir **34**(3): 262-267.

RATIONALE: This feasibility trial proposes to set up in the department of the Somme an annual screening for lung cancer with low-dose thoracic CT. It responds to the first objective of the third cancer plan and follows the publication of the results of the National Lung Screening Trial in 2011. METHODS: The method of this study is to use the existing networks among and between healthcare professionals and the departmental cancer screening structure. The inclusion criteria will be those of the National Lung Screening Trial. Screening will be proposed by treating physicians and chest physicians. The CT-scan will be performed in radiological centers that adhere to the good practice charter for low radiation scanning. A copy of CT results will be sent to the departmental structure of cancer screening (ADEMA80) which will ensure traceability and will perform statistical analysis. The study received funding from the Agence régionale de santé de la Picardie and la ligue contre le cancer. EXPECTED RESULTS: The primary endpoints of this screening will be the number of cancers diagnosed and the survival of the patients. The follow-up of positive examinations, delays in management and the level of participation will also be assessed.

2017

Vivien, A., Kowalski, V., Chatellier, A., et al. (2017). "[Information quality in general public French-speaking websites dedicated to oral cancer detection]." J Stomatol Oral Maxillofac Surg **118**(1): 20-28.

INTRODUCTION: The goal set by the French highest national authorities in the 2014-2019 Cancer Plan is to "heal more sick persons by promoting early diagnosis through screening". Screening requires information. Nowadays, Internet allows for access to information "in one click". The aim of our study was to evaluate the quality of information found on the Internet. MATERIALS AND METHODS: Several sites dedicated to oral cavity cancer screening were selected on Google. The quality of health information found in these sites was evaluated by the DISCERN questionnaire. The quality of decision support provided by the sites was evaluated by the IPDAS checklist. RESULTS: Twenty-seven sites were selected. The average DISCERN score was 25.1/75 (15/75 to 40/75). Eighteen sites (66.6%) had very poor, 8 sites (29.6%) had poor and 1 site had average information quality. IPDAS scores ranged from 11.1 to 38.1. Eight sites (29.6%) had less than 20%, 14 sites (51.9%) had between 20 and 30% and 5 sites (18.5%) had 30% or more validated criteria. No site achieved the pass mark. DISCUSSION: The quality of general public French-speaking website dedicated to oral cancer detection is very bad. The role of health professionals such as general practitioners and head and neck surgeons, remains essential.

2016

Tuppin, P., Rebillard, X., Descotes, J. L., et al. (2016). "Dépistage individuel du cancer de la prostate chez les hommes de 40 ans et plus, France, 2009-2015. Données du système national d'information inter-régimes de l'Assurance maladie." Bull Epidemiol Hebd(39-40): 700-706.

[BDSP. Notice produite par InVS DsrsR0xp. Diffusion soumise à autorisation]. Objectifs : l'objectif principal de l'étude était de décrire les tendances récentes des prescriptions de dosage du PSA et de réalisation de biopsies de la prostate chez des hommes sans cancer de la prostate (CaP) connu et, en corollaire, celles des CaP nouvellement pris en charge. L'évolution de l'utilisation de l'IRM chez les hommes sans CaP connu est également décrite. Méthodes : grâce aux informations provenant du système national d'information inter-régimes de l'Assurance maladie (Sniiram), ces données ont été analysées chez les hommes d'âge supérieur ou égal à 40 ans et couverts par le régime général d'Assurance maladie (73% de la population masculine de cet âge, 11 millions d'hommes). Résultats : la proportion des hommes sans CaP repérable dans le Sniiram et avec au moins un dosage de PSA dans l'année était stable, autour de 30%, entre 2009 et 2011, diminuait à 26,9% en 2014, puis remontait à 28,9% en 2015, représentant 3,4 millions d'hommes. Cette proportion demeurait toujours élevée (33%) pour les hommes de 85 ans et plus. Entre 2013 et 2015,48% des hommes de 40 ans et plus avaient eu au moins un dosage du PSA ; ils étaient environ 90% entre 65 et 79 ans. La proportion d'hommes avec au moins une biopsie de la prostate diminuait de 0,57% en 2009 à 0,38% en 2014 et atteignait 0,41% en 2015, soit 48 700 hommes. La proportion d'hommes présentant un CaP nouvellement pris en charge demeurait stable, légèrement inférieure à 0,4% entre 2009 et 2015, mais le nombre d'hommes augmentait (41 704 en 2014,45 046 en 2015). La proportion d'hommes ayant eu une IRM de l'abdomen et du petit bassin avec injection intraveineuse de produit de contraste et une biopsie augmentait entre 2013 (18%) et 2015 (27%). Discussion conclusion : les résultats de cette étude montrent que le nombre de dosages annuels du PSA reste encore élevé en France. Une évolution des pratiques visant à limiter le sur-diagnostic et le sur-traitement semble amorcée. Ce type d'analyse est amené à être renouvelé et à se prolonger par le suivi de ces indicateurs, en corollaire avec les informations disponibles dans les registres de cancers.

ÉTUDES ETRANGERES

2020

Getaneh, A. M., Heijnsdijk, E. A. M., Roobol, M. J., et al. (2020). "Assessment of harms, benefits, and cost-effectiveness of prostate cancer screening: A micro-simulation study of 230 scenarios." Cancer Med **9**(20): 7742-7750.

BACKGROUND: Prostate cancer screening incurs a high risk of overdiagnosis and overtreatment. An organized and age-targeted screening strategy may reduce the associated harms while retaining or enhancing the benefits. METHODS: Using a micro-simulation analysis (MISCAN) model, we assessed the harms, benefits, and cost-effectiveness of 230 prostate-specific antigen (PSA) screening strategies in a Dutch population. Screening strategies were varied by screening start age (50, 51, 52, 53, 54, and 55), stop age (51-69), and intervals (1, 2, 3, 4, 8, and single test). Costs and effects of each screening strategy were compared with a no-screening scenario. RESULTS: The most optimum strategy would be screening with 3-year intervals at ages 55-64 resulting in an incremental cost-effectiveness ratio (ICER) of €19 733 per QALY. This strategy predicted a 27% prostate cancer mortality reduction and 28 life years gained (LYG) per 1000 men; 36% of screen-detected men were overdiagnosed. Sensitivity analyses did not substantially alter the optimal screening strategy. CONCLUSIONS: PSA screening beyond age 64 is not cost-effective and associated with a higher risk of overdiagnosis. Similarly, starting screening before age 55 is not a favored strategy based on our cost-effectiveness analysis.

Jensen, M. D., Siersma, V., Rasmussen, J. F., et al. (2020). "Direct and indirect healthcare costs of lung cancer CT screening in Denmark: a registry study." BMJ Open **10**(1): e031768.

INTRODUCTION: A study based on the Danish Randomised Controlled Lung Cancer Screening Trial (DLCST) calculated the healthcare costs of lung cancer screening by comparing costs in an intervention group with a control group. Participants in both groups, however, experienced significantly increased negative psychosocial consequences after randomisation. Substantial participation bias has also been documented: The DLCST participants reported fewer negative psychosocial aspects and experienced better living conditions compared with the random sample. OBJECTIVE: To comprehensively analyse the costs of lung cancer CT screening and to determine whether invitations to mass screening alter the utilisation of the healthcare system resulting in indirect costs. Healthcare utilisation and costs are analysed in the primary care sector (general practitioner psychologists, physiotherapists, other specialists, drugs) and the secondary care sector (emergency room contacts, outpatient visits, hospitalisation days, surgical procedures and non-surgical procedures). DESIGN: To account for bias in the original trial, the costs and utilisation of healthcare by participants in DLCST were compared with a new reference group, selected in the period from randomisation (2004-2006) until 2014. SETTING: Four Danish national registers. PARTICIPANTS: DLCST included 4104 current or former heavy smokers, randomly assigned to the CT group or the control group. The new reference group comprised a random sample of 535 current or former heavy smokers in the general Danish population who were never invited to participate in a cancer screening test. MAIN OUTCOME MEASURES: Total healthcare costs including costs and utilisation of healthcare in both the primary and the secondary care sector. RESULTS: Compared with the reference group, the participants in both the CT group (offered annual CT screening, lung function test and smoking counselling) and the control group (offered annual lung function test and smoking counselling) had significantly increased total healthcare costs, calculated at 60% and 48% respectively. The increase in costs was caused by increased use of healthcare in both the primary and the secondary sectors. CONCLUSION: CT screening leads to 60% increased total healthcare costs. Such increase would raise the expected annual healthcare cost per participant from EUR 2348 to EUR 3756. Cost analysis that only includes costs directly related to the CT scan and follow-up procedures most likely underestimates total costs. Our data show that the increased costs are not limited to the secondary sector. TRIAL REGISTRATION NUMBER: NCT00496977.

Ulyte, A., Wei, W., Dressel, H., et al. (2020). "Variation of colorectal, breast and prostate cancer screening activity in Switzerland: Influence of insurance, policy and guidelines." Plos One **15**(4): e0231409.

Variation in utilization of healthcare services is influenced by patient, provider and healthcare system characteristics. It could also be related to the evidence supporting their use, as reflected in the availability and strength of recommendations in clinical guidelines. In this study, we analyzed the geographic variation of colorectal, breast and prostate cancer screening utilization in Switzerland and the influence of available guidelines and different modifiers of access. Colonoscopy, mammography and prostate specific antigen (PSA) testing use in eligible population in 2014 was assessed with administrative claims data. We ran a multilevel multivariable logistic regression model and calculated Moran's I and regional level median odds ratio (MOR) statistics to explore residual geographic variation. In total, an estimated 8.1% of eligible persons received colonoscopy, 22.3% mammography and 31.3% PSA testing. Low deductibles, supplementary health insurance and enrollment in a managed care plan were associated with higher screening utilization. Cantonal breast cancer screening programs were also associated with higher utilization. Spatial clustering was observed in the raw regional utilization of all services, but only for prostate cancer screening in regional residuals of the multilevel model. MOR was highest for prostate cancer screening (1.24) and lowest for colorectal cancer screening (1.16). The reasons for the variation of the prostate cancer screening utilization, not recommended routinely without explicit shared decision-making, could be further investigated by adding provider characteristics and patient preference information. This first cross-comparison of different cancer screening patterns indicates that the strength of recommendations, mediated by specific health policies facilitating screening, may indeed contribute to variation.

Willems, B., Cullati, S., Prez, V., et al. (2020). "Cancer Screening Participation and Gender Stratification in Europe." J Health Soc Behav **61**(3): 377-395.

The current study examines whether the extent of macrolevel gender inequality affects the association between women's educational attainment and their participation in cervical and breast cancer screening and how this relationship is moderated by a country's cancer screening strategy (organized vs. opportunistic). A multilevel design with women (N(cervical) = 99,794; N(breast) = 55,021) nested in 30 European countries was used to analyze data from the European Health Interview Survey (2013-2015). Results of multilevel logistic regression models demonstrate that higher macrolevel gender inequality is associated with (a) a lower overall likelihood that women have had a mammography and Pap smear and (b) a larger gap in participation between women with low and high levels of education, regardless of a country's screening strategy (i.e., no moderation by a country's screening strategy was found). We conclude that macrolevel gender stratification should not be neglected when designing cancer screening policy.

2019

Balata, H., Evison, M., Sharman, A., et al. (2019). "CT screening for lung cancer: Are we ready to implement in Europe?" Lung Cancer **134**: 25-33.

Lung cancer screening with low-dose CT (LDCT) is already available in certain parts of the world, such as the United States, but not yet in Europe. The recently published European position statement on lung cancer screening has recommended planning for implementation of screening to start within 18-months [1]. Pilot European programmes are already underway, primarily in the United Kingdom (UK), delivering lung cancer screening to their local populations. This review article acknowledges the evidence base for LDCT screening and will discuss the challenges that still need to be overcome in an attempt to answer the question: are we ready to implement in Europe?

Crosbie, P. A., Balata, H., Evison, M., et al. (2019). "Implementing lung cancer screening: baseline results from a community-based 'Lung Health Check' pilot in deprived areas of Manchester." Thorax **74**(4): 405-409.

We report baseline results of a community-based, targeted, low-dose CT (LDCT) lung cancer screening pilot in deprived areas of Manchester. Ever smokers, aged 55-74 years, were invited to 'lung health checks' (LHCs) next to local shopping centres, with immediate access to LDCT for those at high risk (6-year risk ≥1.51%, PLCO(M2012) calculator). 75% of attendees (n=1893/2541) were ranked in the lowest deprivation quintile; 56% were high risk and of 1384 individuals screened, 3% (95% CI 2.3% to 4.1%) had lung cancer (80% early stage) of whom 65% had surgical resection. Taking lung cancer screening into communities, with an LHC approach, is effective and engages populations in deprived areas.

Dierks, T., Heijnsdijk, E. A. M., Korfage, I. J., et al. (2019). "Informed decision-making based on a leaflet in the context of prostate cancer screening." Patient Educ Couns **102**(8): 1483-1489.

OBJECTIVE: We aimed to assess to what extent men make informed choices in the context of prostate cancer screening and how written material contributes to that process. METHODS: We developed a leaflet describing prostate cancer screening, and a questionnaire consisting of knowledge, attitude, and intended screening uptake components to assess informed decision-making. The leaflet and questionnaire were pilot-tested among men of the target population, adapted accordingly, and sent to 761 members of an online research panel. We operationalized whether the leaflet was read as spending one minute on the leaflet page and by a self-reported answer of respondents. RESULTS: The response rate was 66% (501/761). The group who read the leaflet (n = 342) correctly answered a knowledge item significantly more often (10.9 versus 8.8; p < 0.001) than those who did not read the leaflet (n = 159), and made more informed choices (73% versus 56%; p = 0.001). There were no significant differences in attitude and intended screening uptake between both groups. CONCLUSION: Having read the leaflet could be one of the factors associated with increased levels of knowledge and informed decision-making. PRACTICAL IMPLICATIONS: The results of this study showed that increasing knowledge and supporting informed decision-making with written material are feasible in prostate cancer screening.

Han, D., Heuvelmans, M. A., Vliegenthart, R., et al. (2019). "An Update on the European Lung Cancer Screening Trials and Comparison of Lung Cancer Screening Recommendations in Europe." J Thorac Imaging **34**(1): 65-71.

While lung cancer screening has been implemented in the United States, it is still under consideration in Europe. So far, lung cancer screening trials in Europe were not able to replicate the results of the National Lung Screening Trial, but they do show a stage shift in the lung cancers that were detected. While eagerly awaiting the final result of the only lung cancer screening trial with sufficient statistical power, the NELSON trial, a number of European countries and medical societies have published recommendations for lung cancer screening using computed tomography. However, there is still a debate with regard to the design of future lung cancer screening programs in Europe. This review summarizes the latest evidence of European lung cancer screening trials and gives an overview of the essence of recommendations from the different European medical societies and countries.

Pienaar, K., Petersen, A. et Bowman, D. M. (2019). "Matters of fact and politics: Generating expectations of cancer screening." Soc Sci Med **232**: 408-416.

Many countries, including Australia, the United Kingdom and the United States have established national screening programs in the effort to advance the early diagnosis of cancers. Australia has population screening programs for breast, bowel and cervical cancers, and this article focuses on breast and cervical cancer screening as the two longest running programs in Australia. While these screening programs are well-established and report relatively high participation rates, the effectiveness of population screening is a contested issue, subject to significant, ongoing debate about its purported benefits (Armstrong, 2019). In this article, we draw on ideas from sociology of science on the construction of scientific facts to analyse how evidentiary claims are presented in policy documents for Australia's breast and cervical cancer screening programs, and the implications for those who are the targets of screening. We explore how screening-related information assumes the status of scientific 'facts', and argue that presenting information as neutral and objective obscures the political choices involved in its generation. Importantly, some of the claims presented in the policy documents have a tendency to emphasise the benefits, and minimise the risks and harms of population-based screening. In doing so, we suggest that the current national policies may be contributing to sustaining expectations of screening that are higher than warranted. Higher expectations may bring with them unintended societal and economic costs to the public. We conclude by noting how deeply ingrained socio-cultural meanings of cancer shape public expectations of the protective value of screening, which allows current screening approaches to become further entrenched and resistant to challenge.

2018

Görig, T., Schneider, S., Schilling, L., et al. (2018). "Barriers to Using a Nationwide Skin Cancer Screening Program: Findings from Germany." Oncol Res Treat **41**(12): 774-779.

BACKGROUND: In 2008, a nationwide standardized and systematic skin cancer screening (SCS) service, which is globally unique, was implemented in Germany. We aimed to provide current data on SCS use, to explore barriers to SCS usage, and to identify population groups with lower rates of SCS use. METHODS: We analyzed data from 2,635 participants (18-45 years) in the National Cancer Aid Monitoring on Sunbed Use. Data on SCS use, barriers to SCS, and sociodemographic characteristics were obtained. Chi-square tests and logistic regression analyses were performed to analyze the data. Data was weighted by age, sex, educational level, and federal state. RESULTS: In total, 39.0% of participants reported having been screened for skin cancer at least once in their lifetime. The subjective importance of different barriers varied depending on the participants' educational level. SCS use was negatively associated with male sex (odds ratio (OR) = 0.63, $p < 0.001$), low level of education (OR = 0.83, not significant), immigrant background (OR = 0.63; $p < 0.001$), and having no employment. CONCLUSION: Although the SCS is part of the regular healthcare services offered in Germany, our data showed lower usage among certain population groups. Barriers relevant for these groups should be considered when developing measures to increase SCS use.

Willems, B. et Bracke, P. (2018). "Participants, Physicians or Programmes: Participants' educational level and initiative in cancer screening." Health Policy **122**(4): 422-430.

This study is an in-depth examination of at whose initiative (participant, physician or screening programme) individuals participate in cervical, breast and colorectal cancer screening across the EU-28. Special attention is paid to (1) the association with educational attainment and (2) the country's cancer screening strategy (organised, pilot/regional or opportunistic) for each type of cancer screened. Data were obtained from Eurobarometer 66.2 'Health in the European Union' (2006). Final samples consisted of 10,186; 5443 and 9851 individuals for cervical, breast, and colorectal cancer, respectively. Multinomial logistic regressions were performed. Surprisingly, even in countries with organised screening programmes, participation in screenings for cervical, breast and colorectal cancer was most likely to be initiated by the general practitioner (GP) or the participant. In general, GPs were found to play a crucial role in making referrals to screenings, regardless of the country's screening strategy. The results also revealed differences between educational groups with regard to their incentive to participate in cervical and breast cancer screening and, to a lesser extent, in colorectal cancer screening. People with high education are more likely to participate in cancer screening at their own initiative, while people with less education are more likely to participate at the initiative of a physician or a screening programme. Albeit, the results varied according to type of cancer screening and national screening strategy.

2017

Broekhuizen, H., Groothuis-Oudshoorn, C. G. M., Vliegenthart, R., et al. (2017). "Public Preferences for Lung Cancer Screening Policies." Value Health **20**(7): 961-968.

BACKGROUND: Because early detection of lung cancer can substantially improve survival, there is increasing attention for lung cancer screening. OBJECTIVES: To estimate public preferences for lung cancer screening and to identify subgroups in preferences. METHODS: Seven important attributes were selected using the literature, interviews, and a panel session. Preferences were elicited using a swing weighting questionnaire. The resulting attribute weights indicate the relative importance of swings from the worst to the best level between attributes. Hierarchical clustering was used to identify subgroups with different attribute weights. RESULTS: One thousand thirty-four respondents from a representative Dutch panel aged between 40 and 80 years were included. The identified attributes were location of screening (weight = 0.18 ± 0.16), mode of screening (weight = 0.17 ± 0.14), sensitivity (weight = 0.16 ± 0.13) and specificity (weight = 0.13 ± 0.12) of the screening modality, waiting time until results (weight = 0.13 ± 0.12), radiation burden (weight = 0.13 ± 0.12), and duration of screening procedure (weight = 0.10 ± 0.09). Most respondents preferred breath analysis (45%) to giving blood samples (31%) or going through a scanner (24%) as screening modality; 59% preferred screening at the general practitioner's office instead of at the hospital. There was a significant difference in education between the five identified preference subgroups (P < 0.01). CONCLUSIONS: There is considerable variation in how people value attributes of lung cancer screening. Different screening policies and implementation strategies may be appropriate for particular preference subgroups. Our results indicate that people prefer breath analysis and that they are more likely to attend screening modalities that can be used at a primary care facility.

Pina, F., Castro, C., Ferro, A., et al. (2017). "Prostate cancer incidence and mortality in Portugal: trends, projections and regional differences." Eur J Cancer Prev **26**(5): 404-410.

There is a large geographical variability in prostate cancer incidence and mortality trends, mostly because of heterogeneity in control efforts across regions. We aimed to describe the time trends in prostate cancer incidence and mortality in Portugal, overall and by region, and to estimate the number of incident cases and deaths in 2020. The number of cases and incidence rates in 1998-2009 were collected from the Regional Cancer Registries. The number of deaths and mortality rates were obtained from the WHO mortality database (1988-2003 and 2007-2013) and Statistics Portugal (2004-2006; 1991-2013 by region). JoinPoint analyses were used to identify significant changes in trends in age-standardized incidence and mortality rates. Incidence and mortality predictions for 2020 were performed using Poisson regression models and population projections provided by Statistics Portugal. In Portugal, prostate cancer incidence has been increasing since 1998 (1.8%/year), with the exception of the North Region, with a decrease since 2006 (-3.2%/year). An overall mortality decline has been observed since 1997 (-2.2%/year), although there were two patterns of mortality variation at the regional level: one with an inflection point or significant variation in the rates and the other without significant variation. If these trends are maintained, ∼8600 incident cases and 1700 deaths may be expected to occur in Portugal in 2020. Despite the overall increasing incidence and decreasing mortality, there is a large heterogeneity across regions. Future studies should address regional differences in the trends of prostate specific antigen screening and in the effective management of prostate cancer.

Silva, M., Pastorino, U. et Sverzellati, N. (2017). "Lung cancer screening with low-dose CT in Europe: strength and weakness of diverse independent screening trials." Clin Radiol **72**(5): 389-400.

A North American trial reported a significant reduction of lung cancer mortality and overall mortality as a result of annual screening using low-dose computed tomography (LDCT). European trials prospectively tested a variety of possible screening strategies. The main topics of current discussion regarding the optimal screening strategy are pre-test selection of the high-risk population, interval length of LDCT rounds, definition of positive finding, and post-test apportioning of lung cancer risk based on LDCT findings. Despite the current lack of statistical evidence regarding mortality reduction, the European independent diverse strategies offer a multi-perspective view on screening complexity, with remarkable indications for improvements in cost-effectiveness and harm-benefit balance. The UKLS trial reported the advantage of a comprehensive and simple risk model for selection of patients with 5% risk of lung cancer in 5 years. Subjective risk prediction by biological sampling is under investigation. The MILD trial reported equal efficiency for biennial and annual screening rounds, with a significant reduction in the total number of LDCT examinations. The NELSON trial introduced volumetric quantification of nodules at baseline and volume-doubling time (VDT) for assessment of progression. Post-test risk refinement based on LDCT findings (qualitative or quantitative) is under investigation. Smoking cessation remains the most appropriate strategy for mortality reduction, and it must therefore remain an integral component of any lung cancer screening programme.

2016

Brzoska, P. et Abdul-Rida, C. (2016). "Participation in cancer screening among female migrants and non-migrants in Germany: A cross-sectional study on the role of demographic and socioeconomic factors." Medicine (Baltimore) **95**(30): e4242.

In many European countries, migrants utilize cancer screening less often than non-migrants. In Germany, in contrast, higher rates of utilization among migrants as compared with non-migrants have been reported. The role of demographic and socioeconomic factors potentially confounding the association between migration status and participation in screening, however, could not be studied. The present study aims to investigate the utilization of cancer screening among migrant and nonmigrant women residing in Germany, adjusting for potential confounders.We used self-reported information from women surveyed on whether they have ever participated in screening for cancer (n = 11,709). The data was collected as part of a cross-sectional representative telephone survey conducted by the Robert Koch-Institute in 2010. We distinguished between three groups of women: (1) respondents of non-German nationality, those who had immigrated to Germany after their birth or those who have two foreign-born parents ("migrants with two-sided migration background"), (2) respondents who only have one foreign-born parent ("migrant with one-sided migration background"), and (3) all others ("non-migrants").To account for confounders, logistic regression analysis was performed. Only individuals proficient in German were included in the survey, allowing to control for a bias arising from poor language proficiency.84.9% of nonmigrant women, 82.1% of women with a one-sided, and 70.5% of women with a two-sided migration background had utilized screening for cancer at least once in their lifetime before the survey. The adjusted odds ratios (OR) as compared with nonmigrant women were 0.99 (95% confidence interval [95% CI]: 0.77-1.27) and 0.55 (95% CI: 0.47-0.64), respectively.The study shows that migrant women with a two-sided migration background residing in Germany utilize screening for cancer less often than nonmigrant women-independently of demographic and socioeconomic factors. This is in line with findings from other countries. Likely, barriers that migrant women encounter limit them from taking informed choices. These barriers need to be identified and appropriate measures aiming to enhance informed decision making must be implemented.

Joergensen, M. T., Gerdes, A. M., Sorensen, J., et al. (2016). "Is screening for pancreatic cancer in high-risk groups cost-effective? - Experience from a Danish national screening program." Pancreatology **16**(4): 584-592.

OBJECTIVE: Pancreatic cancer (PC) is the fourth leading cause of cancer death worldwide, symptoms are few and diffuse, and when the diagnosis has been made only 10-15% would benefit from resection. Surgery is the only potentially curable treatment for pancreatic cancer, and the prognosis seems to improve with early detection. A hereditary component has been identified in 1-10% of the PC cases. To comply with this, screening for PC in high-risk groups with a genetic disposition for PC has been recommended in research settings. DESIGN: Between January 2006 and February 2014 31 patients with Hereditary pancreatitis or with a disposition of HP and 40 first-degree relatives of patients with Familial Pancreatic Cancer (FPC) were screened for development of Pancreatic Ductal Adenocarcinoma (PDAC) with yearly endoscopic ultrasound. The cost-effectiveness of screening in comparison with no-screening was assessed by the incremental cost-utility ratio (ICER). RESULTS: By screening the FPC group we identified 2 patients with PDAC who were treated by total pancreatectomy. One patient is still alive, while the other died after 7 months due to cardiac surgery complications. Stratified analysis of patients with HP and FPC provided ICERs of 47,156 US$ vs. 35,493 US$ per life-year and 58,647 US$ vs. 47,867 US$ per QALY. Including only PDAC related death changed the ICER to 31,722 US$ per life-year and 42,128 US$ per QALY. The ICER for patients with FPC was estimated at 28,834 US$ per life-year and 38,785 US$ per QALY. CONCLUSIONS: With a threshold value of 50,000 US$ per QALY this screening program appears to constitute a cost-effective intervention although screening of HP patients appears to be less cost-effective than FPC patients.

Kilpeläinen, T. P., Talala, K., Raitanen, J., et al. (2016). "Prostate Cancer and Socioeconomic Status in the Finnish Randomized Study of Screening for Prostate Cancer." Am J Epidemiol **184**(10): 720-731.

Prostate cancer (PC) screening remains controversial. We investigated whether screening reduces the difference in prostate cancer risk by socioeconomic status (SES). In 1996-2011, a total of 72,139 men from the Finnish Randomized Study of Screening for Prostate Cancer were analyzed. Outcome measures were PC incidence, mortality, and participation in screening. SES indicators were educational level, income, and home ownership status (data obtained from the Statistics Finland registry). The mean duration of follow-up was 12.7 years. Higher SES was associated with a higher incidence of low- to moderate-risk PC but with a lower risk of advanced PC. Higher education was associated with significantly lower PC mortality in both control and screening arms (risk ratio = 0.48-0.69; $P < 0.05$). Higher income was also associated with lower PC mortality but only in the control arm (risk ratio = 0.45-0.73; $P < 0.05$). There were no significant differences in SES gradient by arm (Pinteraction = 0.33 and Pinteraction = 0.47 for primary vs. secondary education and primary vs. tertiary education, respectively; Pinteraction = 0.65 and Pinteraction = 0.09 for low vs. intermediate income and low vs. high income, respectively; and Pinteraction = 0.27 among home ownership status strata). Substantial gradients by SES in PC incidence and mortality were observed in the control arm. Higher SES was associated with overdiagnosis of low-risk PC and, conversely, lower risk of incurable PC and lower PC mortality. Special attention should be directed toward recruiting men with low SES to participate in population-based cancer screening.

Shellenberger, R., Nabhan, M. et Kakaraparthi, S. (2016). "Melanoma screening: A plan for improving early detection." Ann Med **48**(3): 142-148.

Malignant melanoma ranks fifth in the number of new cases annually in the United States (US). Despite increasing incidence and lack of recent improvement in mortality, national melanoma screening guidelines are currently not in existence. Our purpose was to review the evidence regarding screening whole-body skin examinations for early detection and a possible mortality benefit for malignant melanoma. Data sources for our review were MEDLINE Complete, PubMed, Cochrane Library, Cochrane Database of Systematic Reviews, and ClinicalTrials.gov. Study selection included: epidemiologic data from the US and European cancer surveillance registries, population-based case-control screening trials, computer-simulated Markov model trials, and survey trials. Studies were limited to those published in the English language. Data was extracted using a dual extraction method. Data from studies have shown that the mortality of malignant melanoma is highly predicated on the tumor thickness at the time of diagnosis. Our data review is in support of the implementation of whole-body skin examinations, performed by primary care physicians, for the purpose of early detection of melanoma. A large national population-based, case-control, skin cancer screening trial in Germany has shown a reduction in melanoma-specific mortality. In conclusion, our review of the evidence supports physicians performed whole-body skin examination can lead to the detection of earlier stage melanomas as well as to a reduction in disease-specific mortality. We found a paucity of randomized trials to be a limitation of screening studies for many cancers, including melanoma. To improve screening rates and early detection of malignant melanoma, we propose making skin cancer education part of the curriculum in US primary care residency programs to become the genesis for widespread melanoma screening. Our study had no funding.

Smith, S. G., McGregor, L. M., Raine, R., et al. (2016). "Inequalities in cancer screening participation: examining differences in perceived benefits and barriers." Psychooncology **25**(10): 1168-1174.

OBJECTIVE: Inequalities exist in colorectal cancer (CRC) screening uptake, with people from lower socioeconomic status backgrounds less likely to participate. Identifying the facilitators and barriers to screening uptake is important to addressing screening disparities. We pooled data from 2 trials to examine educational differences in psychological constructs related to guaiac fecal occult blood testing. METHODS: Patients (n = 8576) registered at 7 general practices in England, within 15 years of the eligible age range for screening (45-59.5 years), were invited to complete a questionnaire. Measures included perceived barriers (emotional and practical) and benefits of screening, screening intentions, and participant characteristics including education. RESULTS: After data pooling, 2181 responses were included. People with high school education or no formal education reported higher emotional and practical barriers and were less likely to definitely intend to participate in screening, compared with university graduates in analyses controlling for study arm and participant characteristics. The belief that one would worry more about CRC after screening and concerns about tempting fate were strongly negatively associated with education. In a model including education and participant characteristics, respondents with low emotional barriers, low practical barriers, and high perceived benefits were more likely to definitely intend to take part in screening. CONCLUSIONS: In this analysis of adults approaching the CRC screening age, there was a consistent effect of education on perceived barriers toward guaiac fecal occult blood testing, which could affect screening decision making. Interventions should target specific barriers to reduce educational disparities in screening uptake and avoid exacerbating inequalities in CRC mortality.

Vokó, Z., Túri, G. et Zsólyom, A. (2016). "[Cost-effectiveness of oral cancer screening in Hungary]." Orv Hetil **157**(29): 1161-1170.

INTRODUCTION: The burden of oral cancer is high in Hungary. AIM: To study the cost-effectiveness of potential oral cancer screening in Hungary. METHOD: Three strategies were compared: no introduction of screening, organized yearly screening for 40-year-old males in general medical practise, and opportunistic screening of high risk 40-year-old males in primary care. Local estimates of health utilities and costs of each health state and of the screening programmes were identified. The main outcomes were total costs, quality adjusted life years, and incremental cost-effectiveness ratios. RESULTS: Depending on the efficacy of the treatments of precancerous lesions and the participation rate, screening strategies are cost-effective over a 15-20 year time course. The opportunistic screening of high risk people is more cost-effective than the other strategies. CONCLUSIONS: Opportunistic screening of high risk people would be cost-effective in Hungary. The uncertainty about the efficacy of the treatments of precancerous lesions requires more research to support evidence based health policy making. Orv. Hetil., 2016, 157(29), 1161-1170.

Vrdoljak, D. (2016). "[COCHRANE SYSTEMATIC REVIEWS ON PROSTATE CANCER]." Acta Med Croatica **70**(4-5): 257-262.

Prostate cancer is a common malignant tumor of the elderly, which accounts for a significant proportion of total morbidity but very low of mortality. In Croatia, it is the second most common cancer in men. Currently, there are many doubts concerning screening, early detection and treatment of prostate cancer. Therefore, this article brings results of Cochrane systematic reviews (SRs) on the topic of prostate cancer published in the last eight years. In June 2016, Cochrane database of systematic reviews was searched using the following keywords: Systematic Reviews, and Prostate Cancer (Malignancy, Neoplasm). Inclusion criterion was publication date of the Cochrane SR or its update in the last eight years. The abstracts were initially screened and those that matched the topic were included in further analysis. Then full texts of all SRs involved were obtained. SRs were classified into four topics: prevention, screening, treatment and psychosocial aspects. Our search retrieved a total of 19 Cochrane SRs on the topic of prostate cancer. Excluded were four articles that did not match the specific topic, and the remaining 15 full texts were obtained. One of these was on screening, two on prevention, the majority, i.e. eleven were on treatment, and one on the psychosocial aspects related to prostate cancer. Based on the results of the Cochrane SRs on prostate cancer, instead of mass/population screening, the individualized/opportunistic screening approach should be applied in men aged 55-69, always providing full information to the patient and taking into account the potential benefits and harms of this procedure.

2014

Kjellberg, J. (2014). "[Screening for cancer - economic consideration and cost-effectiveness]." Ugeskr Laeger **176**(12).

Cost-effectiveness analysis has become an accepted method to evaluate medical technology and allocate scarce health-care resources. Published decision analyses show that screening for cancer in general is cost-effective. However, cost-effectiveness analyses are only as good as the clinical data and the results are sensitive to the chosen methods and perspective of the analysis.

2013

Skroumpelos, A., Zavras, D., Pavi, E., et al. (2013). "Recommending organized screening programs for adults in Greece: a Delphi consensus study." Health Policy **109**(1): 38-45.

OBJECTIVE: In the absence of organized screening programs in Greece, the aim of this study is to propose a set of programs, which exhibit potential to improve health system's performance. METHODS: A literature review was conducted to identify those programs fulfilling certain screening evaluation criteria. Using Delphi method programs identified were evaluated by a multi-professional expert panel who were asked to provide their consent and recommendations for the implementation, target-group, rescreening interval, primary screening method and social insurance reimbursement level. Kuder-Richardson 20 and Cronbach's α were used for assessing internal consistency and number of rounds. RESULTS: The majority of experts supported the introduction of organized screening programs for breast cancer, cervical cancer, colorectal cancer, abdominal aortic aneurysm and vascular risk assessment. Major disagreements arose on the target-group of the colorectal cancer and abdominal aortic aneurysm program concerning age-limits. Experts argued that only those fulfilling programs' eligibility criteria or those referred should be reimbursed by social insurance. CONCLUSION: Recommended screening programs provide for the first time a comprehensive and consensus based proposal for the secondary prevention policy of the country. They are expected to contribute to the reduction of the disease burden from important health problems and to the optimum allocation of resources invested in health.

Starker, A. et Saß, A. C. (2013). "[Participation in cancer screening in Germany: results of the German Health Interview and Examination Survey for Adults (DEGS1)]." Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz **56**(5-6): 858-867.

A growing number of people in Germany participate in the cancer screening services offered by statutory health insurance. Using data from the first wave of the German Health Interview and Examination Survey for Adults (DEGS1), current levels of participation in cancer screening services were determined. DEGS1 (2008-2011) permits representative cross-sectional analyses to be performed. In DEGS1, persons who were entitled to different cancer screening services were interviewed on their awareness, participation and regular utilisation of cancer screening for different types of cancer. Overall, 67.2% of women and 40.0% of men participate regularly. Participation rates fluctuate to a great extent for individual types of cancer screening. Women participate in cancer screening more frequently than men do. For women, a better socioeconomic status was associated with higher participation rates. Participation rates improve with increasing age, meaning that the difference in participation rates between women and men becomes smaller. The current analyses present information on specifically targeted population groups to promote informed decision-making about cancer screening, so that participation rates can be improved further. The analyses thus provide an important basis for health policy measures. An English full-text version of this article is available at SpringerLink as supplemental.

2012

Awojobi, O., Scott, S. E. et Newton, T. (2012). "Patients' perceptions of oral cancer screening in dental practice: a cross-sectional study." BMC Oral Health **12**: 55.

BACKGROUND: Oral cancer is increasing in incidence in the UK and indeed worldwide. Delay in diagnosis is common; up to half of patients are diagnosed with advanced lesions. Thus it is essential to develop methods to aid early detection. This study aimed to assess dental patients' experiences and awareness of oral cancer and screening within general dental practice. METHODS: A cross-sectional questionnaire survey of 184 English-speaking adults, with no previous history of oral cancer was conducted. The questionnaire collected data on participant's knowledge of oral cancer, experience of 'screening', attitudes and feelings towards having a screening, anticipated help-seeking behaviours, health-related behaviours (particularly risk factors) and sociodemographics. RESULTS: Twenty percent of respondents had never heard of oral cancer; 77% knew little or nothing about it and 72% did not know that their Dentist routinely screens for oral cancer. Overall, attitudes to screening were positive. Ninety two percent of respondents would like their Dentist to tell them if they were being screened for signs of oral cancer and 97% would like help from their Dentists to reduce their risk. CONCLUSION: Patients seem generally unaware of oral cancer screening by their dentist but are happy to take part in screening, would like to be informed, and welcome the support of their Dentist to reduce their risk of developing oral cancer.

Breitbart, E. W., Waldmann, A., Nolte, S., et al. (2012). "Systematic skin cancer screening in Northern Germany." J Am Acad Dermatol **66**(2): 201-211.

BACKGROUND: The incidence of skin cancer is increasing worldwide. For decades, opportunistic melanoma screening has been carried out to respond to this burden. However, despite potential positive effects such as reduced morbidity and mortality, there is still a lack of evidence for feasibility and effectiveness of organized skin cancer screening. OBJECTIVE: The main aim of the project was to evaluate the feasibility of systematic skin cancer screening. METHODS: In 2003, the Association of Dermatological Prevention was contracted to implement the population-based SCREEN project (Skin Cancer Research to Provide Evidence for Effectiveness of Screening in Northern Germany) in the German state of Schleswig-Holstein. A two-step program addressing malignant melanoma and nonmelanocytic skin cancer was implemented. Citizens (aged ≥ 20 years) with statutory health insurance were eligible for a standardized whole-body examination during the 12-month study period. Cancer registry and mortality data were used to assess first effects. RESULTS: Of 1.88 million eligible citizens, 360,288 participated in SCREEN. The overall population-based participation rate was 19%. A total of 3103 malignant skin tumors were found. On the population level, invasive melanoma incidence increased by 34% during SCREEN. Five years after SCREEN a substantial decrease in melanoma mortality was seen (men: observed 0.79/100,000 and expected 2.00/100,000; women: observed 0.66/100,000 and expected 1.30/100,000). LIMITATIONS: Because of political reasons (resistance as well as lack of support from major German health care stakeholders), it was not possible to conduct a randomized controlled trial. CONCLUSIONS: The project showed that large-scale systematic skin cancer screening is feasible and has the potential to reduce skin cancer burden, including mortality. Based on the results of SCREEN, a national statutory skin cancer early detection program was implemented in Germany in 2008.

Kornek, T., Schäfer, I., Reusch, M., et al. (2012). "Routine skin cancer screening in Germany: four years of experience from the dermatologists' perspective." Dermatology **225**(4): 289-293.

BACKGROUND: In 2008, routine skin cancer screening (rSCS) was introduced into routine care for persons ≥35 years in Germany. To date, about 95% of approximately 3,500 office-based dermatologists participate in this program paid by the statutory health insurances. OBJECTIVE: To evaluate German rSCS from the dermatologists' perspective. METHODS: Since 2009, every year standardized questionnaires were sent nationwide to about 2,000 dermatologists, once yearly addressing the actual patients, screenings and treatments, the personal experiences and the dermatologists' attitudes towards rSCS. Descriptive data analysis from 2009, 2010 and 2011 was performed. RESULTS: The average dermatologist -performed 1,380/1,364/1,348 screenings annually (2009/ 2010/2011), with a mean remuneration of EUR 21.50/22.10/ 21.93. 32.9/46.6/53.3% of the dermatologists were rather or very satisfied with rSCS, and a rising number of dermatologists (69.4/80.0/83.1%) perceived a better quality of health care for skin cancer since 2008. CONCLUSION: rSCS is widely accepted by German dermatologists and is conducted with increasing frequency.

Zappa, M., Dardanoni, G., Giorgi Rossi, P., et al. (2012). "[The diffusion of screening programmes in Italy, year 2010]." Epidemiol Prev **36**(6 Suppl 1): 3-7.

The national meeting of the National Centre for Screening Monitoring (ONS) was given the title "The screening during the crisis" as we realize that the severe economical crisis of our country influences all the health policies and, as a consequence, screening programs. Within this global scenario, the results of 2010 concerning screening programs can be considered as still positive even if the gap between the North and the Central Regions as compared to the South remains. In short, in 2010 almost 9.5 millions people were invited to undergo a screening examination (3,450,000; 2,496,000 and 3,464,000 for cervical, mammographic and colorectal cancer respectively). As compared to the previous year, a large increase was observed for colorectal screening.Whereas a slight decrease was observed both for cervical and for mammographic screening. The latter trend was partially due to the overload consequent to the extension of the programme to women younger than fifty in a couple of regions (Emilia-Romagna and Piemonte). More than 4.3 millions of subjects actually complied to the invitation (1,375,000; 1,382,000 and 1,582,000 for cervical, mammographic and colorectal cancer, respectively). As a consequence of these activities were identified 6,015 breast cancers (31% of annual occurring breast cancers in Italy in the age group 50-69 years according to the most update estimates of breast cancer occurrence), 4,597 CIN2 or more severe cervical lesions, 2,916 colorectal cancers (15% of annual occurring CRC cancer in Italy in the age group 50-69 years) and 15,049 advanced adenomas.

2011

Walsh, B., Silles, M. et O'Neill, C. (2011). "The importance of socio-economic variables in cancer screening participation: a comparison between population-based and opportunistic screening in the EU-15." Health Policy **101**(3): 269-276.

OBJECTIVES: To investigate differences in participation with breast and cervical cancer screening related to individual socio-economic characteristics, across population-based versus opportunistic screening programmes. METHODS: Data from Eurobarometer 66.2 "Health in the European Union" 2006 on self-reported breast and cervical cancer screening participation in the preceding 12 months within the EU 15 was obtained The sample was restricted to those eligible for screening based on the screening age within each country. Observations for 2214 and 5025 individuals respectively for breast and cervical cancer screening were available. Data on marital status, self-reported health, socio-economic group and years of education were also available. Screening programmes were categorised as population-based or opportunistic and logistic regression analysis used to examine the relationship between participation, individual characteristics and programme type. RESULTS: Differences in participation related to socio-economic status were observed in opportunistic screening programmes for breast cancer (OR=0.63* and OR=0.51**) and cervical cancer (OR=0.75** and OR=0.64**). Differences related to socio-economic characteristics were not found with respect to participation in population-based programmes. CONCLUSIONS: In opportunistic programmes, differences in participation across socio-economic groups are evident in respect of both breast and cervical cancer screening. These differences may have implications for treatment and outcomes across socio-economic groups. Such differences were not evident in population-based programmes.

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