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The Impact of Multiprofessional Group Practices on the Quality of General Practice

Results of the Evaluation of Multidisciplinary Group Practices (MGP), Health Care Networks (HCN) and Health Care Centers (HCC) Participating in Experiments with New Modes of Remuneration (ENMR)

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What are the impacts of multiprofessional group practice in the three types of health care facility (multidisciplinary group practices (MGP), health care networks (HCN) and health care centers (HCC) having participated in the Experiments with New Modes of Remuneration (ENMR)? Have the quality of general practice and the efficiency of prescribing improved in ENMR sites compared with solo practices? Do notable differences between MGP, HCN and HCC emerge? Do the analyses show that ENMR has had an impact?

These questions are examined in the sixth publication in a series on the evaluation of multiprofessional group practices having participated in ENMR. The quality and efficiency of general practice in ENMR sites was compared with that of control sites over a period of four years from 2009 to 2012. The analyses concerned four main dimensions of general practice: the monitoring of type 2 diabetes patients, vaccination, screening and prevention, and the efficiency of prescribing.

The interest in supporting the development of primary care health structures¹ is based on the hypothesis that it will lead to an improvement in the quality of health care and services delivered (Afrite *et al.*, 2014). After having focused our attention on activity, productivity and expenditures associated with monitored patients' use of health care services, this article is specifically focused on quality. In parallel with the economies of scale evoked in the preceding edition of *Issues in Health Economics*,

group practices are expected to improve the quality of care and services delivered (Mousquès, 2011). The first reason evoked is that group practices favour human and/or material investments allowing health care supply to be adapted to new health care needs that are economically viable and visible for the patients (Getzen, 1984; Cutler, 2010). These adaptations are notably concretised through the implementation of recommended new modes of care such as the *Chronic Care Model* (Wagner, 1998) or the *Patient-Centered Medical*

Home (Rittenhouse and Shortell, 2009; Landon *et al.*, 2010), favouring team work and collaboration between health care

¹ Primary care team can be split into three categories: multidisciplinary group practices (MGP) where all professionals work in the same location/setting. They are called in France "maison de santé" and correspond to patient-centered medical home in the US. The second category are Primary Health care networks (HCN) [called in France "pôle de santé" with at least two different settings but with large variation in the latter number and distances]. In both cases, health professional are self-employed. This is not the case of the third category of primary care team called "health care center" (HCC) where health professionals are salaried.

professionals (Curoe *et al.*, 2003; Wagner, 2000; Laurant *et al.*, 2004), or by increasing the use of information technologies (Rittenhouse *et al.*, 2010).

In order to specifically analyse this improvement, the quality and efficiency of general practice in ENMR sites was compared to control site general practices over a period of four years from 2009 to 2012.

The indicators used were close to those used within the framework of Performance Based Contracts to Improve Individual Performance (CAPI, *Contrat d'amélioration à la performance individuelle*) and Remuneration Based on Public Health Objectives (ROSP, *Rémunération sur objectifs de santé publique*). They ana-

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General practice quality indicators

Three indicators*, validated by the High Authority for Health (HAS, *Haute Autorité de Santé*), concern the quality of monitoring type 2 diabetic patients (frequency of the HbA1c test), prevention, including vaccination against influenza for patients aged 65 and over, and screening against breast cancer for women aged between 50 to 74 (mammogram). To these three indicators, were added six others* related to Remuneration Based on Public Health Objectives (ROSP, *Rémunération sur objectifs de santé publique*):

- The monitoring of diabetic patients: examination of the eye fundus or retinal photography for diabetic patients aged over 50 for men, and over 60 for women, those treated with statins and antihypertensives: statins, antihypertensives and AFD or anticoagulants.
- Prevention, including vaccination against influenza for patients aged from 16 to 64 years old registered as suffering from a long-term illness (ALD, *Affections de longue durée*) and the prevention of iatrogenic

risks; the treatment of patients aged 65 with vasodilators, long half-life benzodiazepines).

- Screening: against cervical cancer by cervical smear for women aged from 25 to 65.

To these six indicators were added four others* that are standard procedures in the monitoring of type 2 diabetes patients (creatinemia, microalbumenia, cholesterol, electrocardiogram (ECG)). Four additional indicators* concerning the efficiency of prescribing generic drugs (antibiotics, antihypertensives, statins) or transport were added, and four* more in relation to ROSP policy: two concerning the efficiency of prescribing generic drugs (antidepressants, proton pump inhibitors), one concerning the prescription of angiotensin converting enzyme (ACE) inhibitors or sartans, and the other concerning the prescription of platelet aggregation inhibiting drugs.

* All these indicators can be calculated from National Health Insurance data.

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Synthetic results of module 1 ENMR and/or ROSP indicators calculated from National Health Insurance data for a sub-sample of ENMR sites plus controls (LCZ) for the year 2012 – MGP, HCN and HCC –

	Target (Rosp and/or ENMR)	Nat. rate. 2012	Multidisciplinary group practices (MGP) or health care networks (HCN)						Health Care Centers (HCC)					
			Case (with ZLT)			Control (ZLT)			Case (with ZLT)			Control (ZLT)		
			Obs.*	Ave.*	S.D.*	Obs.*	Ave.*	S.D.*	Obs.*	Ave.*	S.D.*	Obs.*	Ave.*	S.D.*
Diabetes monitoring														
HbA1c	≥ 65%	48.7	64	59.53	12.10	64	49.92	9.13	30	46.02	9.57	30	48.65	7.35
Creatinemia			64	86.46	9.27	64	83.47	4.50	30	86.18	9.38	30	85.04	3.26
Microalbuminuria			64	34.03	18.94	64	23.79	9.80	30	50.72	13.51	30	37.63	8.92
Cholesterol			64	73.13	9.81	64	73.02	5.92	30	78.45	9.74	30	76.47	4.97
Electrocardiogram (ECG)			64	23.95	10.50	64	20.78	7.02	30	28.67	14.80	30	24.63	5.39
Endocrinologist			64	6.15	3.95	64	7.42	4.28	30	15.02	9.49	30	12.57	4.21
Cardiologist			64	31.95	10.28	64	32.04	6.47	30	38.82	12.13	30	35.42	5.10
Ophthalmologist			64	46.96	7.60	64	45.21	6.08	30	47.06	8.91	30	46.98	4.82
Eye fundus & retinal photography (2 years)	≥ 80%	61.5	64	65.98	7.98	64	63.72	6.17	30	69.63	10.44	30	66.34	4.90
Diabetic patients aged over 50 (men) or 60 (women)														
-treated with statins and antihypertensives (vs. antihypertensives)	≥ 75%	59.9	64	61.44	9.29	64	59.97	6.01	30	61.10	11.88	30	61.25	3.41
-treated with statins, antihypertensives and AFD or anticoagulants (vs. statins & antihypertensives)	≥ 65%	53.5	64	48.89	11.08	64	46.82	5.88	30	45.41	10.22	30	44.73	4.06
Vaccination, screening and prevention of medication-related iatrogenic risks														
Vaccination of patients aged 65 and over	≥ 75%	56.4	64	55.69	7.05	64	54.70	5.01	30	48.37	9.23	30	54.14	4.08
Vaccination of patients aged from 16 to 64 registered long-term disease (ALD, <i>Affections de longue durée</i>)	≥ 75%	35	64	18.30	4.97	64	17.45	3.48	30	18.19	5.73	30	16.07	1.83
Mammogram for women aged from 50 to 74 (2 years)	≥ 80%	64.8	64	65.61	9.60	64	64.45	7.04	30	62.37	10.08	30	65.87	4.95
Cervical smear for women aged from 25 to 65 (3 years)	≥ 80%	57.5	64	54.97	6.71	64	52.94	5.90	30	53.62	7.58	30	54.87	7.00
Vasodilator treatment for patients aged over 65	≤ 5%	7.1	64	5.24	3.52	64	7.27	2.74	30	2.90	1.69	30	5.22	1.59
Long half-life benzodiazepine treatment for patients aged over 65	≤ 5%	12.1	64	10.74	3.13	64	11.98	2.54	30	9.05	3.33	30	11.57	1.72
Prescribing efficiency														
Acquisition of antibiotics	≥ 90%	80.9	64	82.00	7.38	64	80.96	4.02	30	85.27	7.62	30	83.18	1.64
Proton pump inhibitor	≥ 85%	83.1	64	68.67	13.45	64	64.03	8.76	30	71.90	9.03	30	70.20	3.87
Acquisition of statins	≥ 70%	53.8	64	45.72	12.59	64	38.00	6.25	30	40.18	15.88	30	39.46	5.24
Acquisition of antihypertensives	≥ 65%	72.6	64	71.26	4.87	64	69.37	3.43	30	68.66	6.77	30	68.54	2.31
Acquisition of antidepressants	≥ 80%	66.5	64	70.39	10.35	64	66.09	6.02	30	70.03	9.89	30	68.72	3.44
Acquisition of angiotensin converting enzyme inhibitors / IEC & sartans	≥ 65%	39.6	64	46.03	8.93	64	42.77	5.21	30	40.71	12.08	30	39.60	4.18
Treatment by low-dose aspirin among patients treated by AAP	≥ 85%	83.3	64	76.88	7.60	64	75.02	4.66	30	74.04	10.33	30	76.02	4.24
Prescriptions of VSL			64	69.65	17.44	58	75.79	17.21	30	51.71	24.16	28	67.71	19.27

* Obs.: observations; Ave.: average; S.D.: standard deviation.

Sources: National Health Insurance Inter-regime Information System database (*Système national d'information inter-régimes de l'Assurance maladie*, SNIIRAM, CNAMTS). Inter-regime consumption datamart (*Datamart de consommation inter-régimes*, DCIR), National Inter-regime information system for health professionals (*Système national inter-régimes pour les professionnels de santé*, SNIR-PS).

Exploitation: Irdes.

Data available for download: www.irdes.fr/Donnees/

lyse four main dimensions of general practice: the monitoring of type 2 diabetic patients, vaccination, screening and prevention and the efficiency of prescribing (Insert 1).

The results of these indicators are presented for a sub-sample of sites and GPs, and compared with the results obtained for control GPs using static (2012) and dynamic models (trends) [Table 1].

For the ENMR sites, equivalent if not more favourable results that indicate few changes

The results for the period 2009-2012 presented here concern average achievement rates for general practitioners working in a sub-sample of 94 ENMR sites compared to GPs in 94 local control zones (LCZ).

The HbA1c achievement rates are higher in ENMR sites compared with control sites (55% vs 50%). This is also the case regarding achievement rates for the two other indicators concerning diabetic patients (of the 7 available): the achievement rate for the annual dosage of microalbuminuria (39% vs 28%) and electrocardiograms (25% vs 22%).

For the other indicators concerning the monitoring of diabetic patients, the results in ENMR sites are similar to those obtained for control sites.

In terms of achievement rates for the vaccination, screening and the prevention of medication-related iatrogenic risk, ENMR sites present equivalent if not better results than the control sites, notably concerning the rate of treatment of over 65 year olds by vasodilators which is lower in ENMR sites² (4.5% vs 6.5%).

In terms of prescribing efficiency, ENMR sites distinguish themselves by a higher rate of generic prescriptions for three classes of generic drugs (proton pump inhibitors, statins, antidepressants), and equivalent results for light-weight medical vehicle transport prescriptions.

A higher quality of general practice in MGP, HCN and HCC than control sites for almost all the indicators retained

The extent of the gap between ENMR sites and control sites is modified when they are analysed by GP (Table 2) taking into account the following criteria:

² This indicator aims to prevent the risk of falls generated by vasodilator treatments.

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Marginal effects resulting using a hierarchical linear model, GP by GP, concerning the achievement of general practice quality indicators over the period 2009-2012, HCC, MGP or HCN versus control sites, all other things being equal

	Status			Typology classes			Status			Typology classes		
	Health Care Centers	Health Care Centers "associative" Class 1	"municipal" Class 2	Multidisciplinary group practices	Health care networks	Multidisciplinary group practices or health care networks Class 3	Class 4	Class 5				
Diabetes monitoring												
HbA1c	3.50 **	6.74 **	1.40	10.20 ***	4.61 ***	8.71 ***	7.69 ***	10.35 ***				
Creatinemia	3.50 **	6.74 **	1.40	3.17 ***	1.31	3.14 ***	3.84 ***	2.26 ***				
Microalbuminuria	16.24 ***	17.51 ***	15.42 ***	10.76 ***	8.43 ***	12.25 ***	10.95 ***	9.57 ***				
Cholesterol	2.59 *	2.27	2.80	0.77	-0.69	0.20	0.65	0.57				
Electrocardiogram	3.13 **	7.36 ***	0.37	5.81 ***	2.31 **	8.78 ***	3.58 ***	5.19 ***				
Eye fundus & retinal photography (2 years)	7.41 ***	7.53 ***	7.33 ***	2.68 ***	2.67 ***	5.73 ***	2.25 ***	2.07 ***				
Diabetic patients aged over 50 (men) or 60 (women)												
-treated with statins and antihypertensives (vs. antihypertensives)	2.48 *	5.08 **	0.86	1.66 **	2.65 **	2.65 **	-0.24	2.70 ***				
-treated with statins, antihypertensives and AFD or anticoagulants (vs. statins & antihypertensives)	0.95	0.12	1.46	2.53 ***	1.72	0.42	0.80	3.85 ***				
Vaccination, screening and prevention of medication-related iatrogenic risks												
Vaccination of patients aged 65 and over	1.12	4.36 ***	-0.97	0.45	-1.55 **	0.29	1.36 **	-0.58				
Vaccination of patients aged from 16 to 64 registered long-term disease ALD, Affections de longue durée)	3.42 ***	5.65 ***	1.97 ***	6.10 ***	2.52 ***	5.14 ***	4.03 ***	6.47 ***				
Mammogram for women aged from 50 to 74 (2 years)	3.51 ***	2.80 **	3.97 ***	-0.05	0.10	2.40 ***	-0.27	-0.55				
Cervical smear for women aged from 25 to 65 (3 years)	6.34 ***	6.79 ***	6.06 ***	2.34 ***	1.61	3.99 ***	3.07 ***	1.29 **				
Vasodilator treatment for patients aged over 65	-3.15 ***	-3.14 ***	-3.16 ***	-2.96 ***	-2.38	-3.11 ***	-3.08 ***	-2.68 ***				
Long half-life benzodiazepine treatment for patients aged over 65	-2.70 ***	-2.11 ***	-3.08 ***	-1.76 ***	-1.81 ***	-2.88 ***	-2.13 ***	-1.27 ***				
Prescribing efficiency												
Acquisition of antibiotics	0.97	3.06 *	-0.38	1.85 ***	0.13	-0.25	2.09 ***	1.79 ***				
Proton pump inhibitor	3.75 **	11.38 ***	-1.20	4.06 ***	1.99	3.72 ***	6.78 ***	2.09 **				
Acquisition of statins	4.58 ***	11.84 ***	-0.14	5.75 ***	3.36 **	7.16 ***	3.55 ***	5.87 ***				
Acquisition of antihypertensives	2.83 ***	2.47 *	3.06 ***	1.70 ***	2.00 ***	1.97 ***	1.63 ***	1.75 ***				
Acquisition of antidepressants	3.69 **	5.24 **	2.69	3.52 ***	-0.27	2.15 *	4.93 ***	2.04 ***				
Acquisition of angiotensin converting enzyme inhibitors / IEC & sartans	3.40 ***	6.11 ***	1.64	2.53 ***	3.48 ***	1.51	2.10 ***	3.32 ***				
Treatment by low-dose aspirin among patients treated by AAP	-2.36 **	-4.70 ***	-0.87	1.88 ***	0.87	0.90	1.56 **	2.04 ***				

*** p<0.01, ** p<0.05, * p<0.1.

Reading: A marginal effect of + 1 means that, all other things being equal, a GP working in an MGP or HCN has a 1% higher rate than a control GP.

Sources: National Health Insurance Inter-regime Information System database (Système national d'information inter-régimes de l'Assurance maladie, SNIIRAM, CNAMTS). Inter-regime consumption datamart (Datamart de consommation inter-régimes, DCIR), National Inter-regime information system for health professionals (Système national inter-régimes pour les professionnels de santé, SNIR-PS).

Exploitation: Irdes.

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ria: patient characteristics (age, gender, insurance regime), long-term illness), GP activity, year and type of ENMR site distinguished according to "status" or typology class (Afrite and Mousquès, 2014) [Insert 2], all according to geographic environment (Chevallard *et al.*, 2013).

Better quality monitoring of diabetic patients...

GPs working in multidisciplinary group practices (MGP) [in French, "*maisons de santé*"] provide better quality general practice than control GPs on all indicators concerning the monitoring of diabetic patients (marginal effects between 1.6% and 11%), except lipid profile monitoring for which there is no difference. This superiority decreases in health care networks (HCN) [in French, "*pôles de santé*"] in terms of creatinemia, lipid profile monitoring and the prevention of high risk cardiovascular disease by statin treatment, antihypertensive treatment and low-dose aspirin or anticoagulants. Analyses by "type" of MGP or HCN showed that the "better coordinated and cooperative" class 5 MGP had more positive results for diabetes monitoring on a greater number of indicators (7 out of 8) than class 1 MGP (6 out of 8) or class 2 MGP (5 out of 8).

The quality of general practice in health care centers (HCC) [in French, "*centres de santé*"] was better than that of control sites in terms of diabetic patient monitoring on all indicators (marginal effects of between 2.5% and 16%) except in terms of prevention of high risk cardiovascular disease by statin treatment, antihypertensives and low-dose aspirin or anticoagulants, for which there was no difference. Class 1 "associative" HCC perform considerably better than class 2 "municipal" HCC that only differentiate themselves in terms of microalbuminuria and examinations of the fundus of the eye.

... as well as in terms of vaccination, screening and prevention practices...

General practice in MGP is of better quality than control sites in terms of vaccination, screening and prevention of iatrogenic risk on all indicators (absolute marginal affects of between 1.7%

and 6%), except in term of vaccination against influenza for patients aged 65 and over, and mammograms for women aged between 50 and 74 years old.

The quality of general practice is slightly lower in HCN which do not differentiate themselves in terms of mammograms, cervical smears and even underperform in terms of vaccination against influenza for patients aged 65 and over. The analyses by "type" of MGP or HCN showed that class 3 structures had positive results, including in terms of mammograms, and in class 4 structures, positive results for vaccination against influenza for patients aged 65 and over.

General practice in HCC is of higher quality than the control sites in terms of vaccination, screening and the prevention of iatrogenic risks on all the indicators (marginal effects of between 2.6% and 6%) except vaccination against influenza for patients aged 65 and over in "municipal" class HCC.

... and more efficient prescribing

GPs in MGP are more "efficient" in their prescribing process with a systematically higher acquisition rate of generic drugs for the five classes studied, angiotensin converting enzyme (ACE) inhibitors and low-dose aspirin than the control sites (marginal effects of between 1.8% and 5.7%). This is less true for HCN that are only more efficient in prescribing two types of generic drug (statins, antihypertensives) and ACE inhibitors. According to "type" of MGP or HCN, the class 4 and 5 structures had positive results for the seven indicators against only four for class 3 structures. HCC are more "efficient" in their prescribing than control sites with a systematically higher rate of acquisition for the five classes of generic drugs, ACE inhibitors or low-dose aspirin (marginal effects between 2.6% and 4.5%). This superiority is concentrated in "associative" HCC as "municipal" HCC only distinguish themselves in terms of acquisition rates for generic antihypertensives.

* * *



IRDES was charged with evaluating the Experiments with New Modes of Remuneration (ENMR) for multiprofessional health center group practices [multidisciplinary group practices (MGP), health care networks (HCN) and health care centers (HCC)] from 2009-2012. This article, based on a more in-depth analysis (Mousquès, Bourgueil *et al.*, 2014), is the sixth in the series. The first presented evaluation aims and methodology in general (Afrite *et al.*, 2013), the second, the geographic distribution of sites and the impact on the density of general practitioners (Chevallard *et al.*, 2013) and the third, using the results of a qualitative survey, the different forms of multiprofessional working and the role of ENMR in their development (Fournier *et al.*, 2014), and the fourth a typology of ENMR sites based on organisational and functional characteristics (Afrite and Mousquès, 2014) and the fifth, an evaluation of multiprofessional group practice in MGP, HCN and HCC in terms of activity and expenditures (Mousquès, 2015).

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The five class typology of MGP, HCN and HCC

The typology based on a sub-sample of 128 sites (of the 150 studied) distinguishes two classes of HCC and three classes of MGP and HCN¹. The HCC, MGP and HCN classes are differentiated in terms of degree of integration, that is to say, the pooling of resources (premises, health professionals or not, equipment) and activity accompanied or not by coordination between professionals, multiprofessional cooperation and information sharing including computerisation. The two HCC classes, "associative" and "municipal" are distinguished from the MGP and HCN by their status, age, accessibility but also by their size, professional composition and level of equipment as well as by the range of the roles developed by the professionals and their cooperation. They also differ by the third-party payer system for complementary health insurance practiced, the range of nursing roles and computerisation.

- **Class 1:** health care centers (HCC) [in French, "*centres de santé*"] more frequently "*associative*", relatively old and more frequent multiprofessional cooperation and coordination than "*municipal*" centers.
- **Class 2:** health care centers (HCC) in the majority "*municipal*", older, and where the range of roles and functions performed by non medical professionals is more developed than in "*associative*" centers.
- **Class 3:** essentially made up of recently established and less well integrated health care networks (HCN) [in French "*pôles de santé*"].
- **Class 4:** in the majority, fairly recent and poorly integrated multidisciplinary group practices (MGP) [in French, "*maisons de santé*"].
- **Class 5:** in the majority, relatively recent and better integrated multidisciplinary group practices (MGP).

¹ For further details see Afrite et Mousquès, 2014.

General practitioners working in MGP, HCN and HCC provide a better quality general practice on almost all the indicators retained, with minor differences between types of site according to the typology. According to a difference-in-differences analysis developed in the report (Mousquès, Bourgueil *et al.*, 2014) not presented here, these results are almost essentially due to the initial differences observed between multiprofessional group practices, whether

multiprofessional or not, and their GPs, and are thus not directly related to their participation in ENMR (Mousquès, Bourgueil *et al.*, 2014).

These results thus confirm the hypothesis put forward concerning the improvement of general practice in multiprofessional group practices compared with solo practices. This analysis additionally strengthens the results obtained concerning activity, productivity and patients' health care

consumption (Mousquès, 2015), and makes it possible to conclude that group practices are overall more efficient. This research on the impact of multiprofessional group practices on the quality of health care will be completed by studies on patient satisfaction in terms of their health care experience. In addition, research based on data from computerised patient files, if they were available, would make it possible to extend research to themes that have never yet been explored. ♦

FOR FURTHER INFORMATION

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