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Impact Evaluation of Pilots for improving "Healthcare Pathways of Seniors" (PAERPA) Initial findings

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Regional pilots, Healthcare pathways of seniors (PAERPA) launched in 2014 in nine territories (local areas) with the objective of improving care coordination and quality of life of frail elderly people aged 75 and over and their families, with a better organisation and coordination of professionals working in the health, social, and medico-social sectors at the local level.

The impact evaluation of pilot projects, carried out by IRDES, had to tackle many methodological issues due to the number and diversity of the actors involved in pilots, the variety of interventions implemented in each territory, and the heterogeneity of the territories selected on a voluntary basis.

The initial findings, based on data from 2015 and 2016, first years of implementation of the pilot projects, do not indicate a significant average effect of PAERPA on the outcome indicators studied when all the territories are treated together. However, the evaluation by territory did point to significant improvement linked to PAERPA in some regions for some outcome indicators sensitive to primary care coordination.

Increasing life expectancy, which is reflected in continuous ageing of the population with an increase in the number of patients with long-term and multiple diseases, requires to adapt the organisation of the health system to guarantee cost-effective quality healthcare. The treatment of elderly persons with significant healthcare needs often requires the intervention of many actors from the medical and social sectors, and is a key challenge for the qual-

ity and efficiency of the health system. In 2013, one out of four persons aged 75 or over consumed regularly more than ten medications, one out of three was hospitalised at least once during the year, for an average of nine days, and half had been admitted to the emergency room (Or et al., 2015). In its 2011 report, the High Council for the Future of Health Insurance (Haut Conseil pour l'Avenir de l'Assurance Maladie, HCAAM) stated that better territorial organisation that

facilitates inter-professional and inter-institutional cooperation is a major lever for improving professional practices and the care pathways of elderly persons, thereby ensuring "the sustainable equilibrium of the accounts of the National Health Insurance fund" (HCAAM, 2011).

Launched in 2014 in nine pilot territories (see map), the experimental scheme Healthcare Pathways of Seniors (PAERPA, the *Parcours Santé des Aînés*)

for improving the coordination of care for frail elderly people was based on these recommendations. The pilots aimed to improve the coordination of health and social care for people 75 and older to improve care quality, prevent their loss of autonomy and reduce their hospital use. The idea was to experiment with a process of reorganisation of health and social care on a territorial scale by considering the different needs of fragile elderly persons and by derogating the regulatory and financial frameworks when necessary. PAERPA's main hypothesis is that redefining the roles, tasks, and practices of the various actors involved in the treatment of elderly people in a given region, supported by new coordination tools, would improve the coordination between professionals working in the health, social, and

medico-social sectors. This coordination would also improve the overall quality of care, maintain the autonomy of the person, and avoid inappropriate hospital admissions.

The nine pilot territories were selected via a call for projects. They are committed, with their Regional Health Agency (Agence Régionale de Santé, ARS), to implement an ensemble of measures defined at the national level (see Inset 1). Each territory was funded over a four-year period to develop and consolidate these measures. But they had flexibility in deciding with measures to develop (or not) and the implementation strategy according to the territory. In 2016, the Minister of Health decided to extend the pilot territories. This extended certain



An independent scientific evaluation of the medical and economic impacts of the pilot projects is required by the PAERPA provisions. The evaluation combines a qualitative and quantitative approach. The results of the qualitative evaluation, conducted by a EHESP-Mines Paris Tech-CNRS team, providing the information on the implementation of territorial initiatives, was made available in 2017 (Gand *et al.*, 2017). This Issues in Health Economics is a synthesis of the initial findings of the impact evaluation presented in greater detail in an intermediary report and in an IRDES working paper (Or *et al.* 2018; Bricard *et al.*, 2018).

pilot territories (to neighbouring municipalities) and also introduced new experimental territories in regions that were not covered in 2014.

This issue of *Questions d'Économie de la Santé* ("Issues in Health Economics") takes stock of the evaluation of the impacts of PAERPA experiments, conducted by the Institute for Research and Information in Health Economics (Institut de Recherche et Documentation en Économie de la Santé, or IRDES). It presents the evaluation protocol and methods, as well as the initial findings using 2015–2016 data, excluding the new territories (extensions) introduced in 2016.

A complex evaluation with several objectives

The number and diversity of the actors, the variety of interventions implemented in each territory, and the heterogeneity of the measures and selected territories turned the pilot projects into complex experiments.

The evaluation, by the Institute for Research and Information in Health Economics (IRDES), aimed to make a global judgement on the results of the pilot projects by taking into account their territorial specificities, with regard to the objectives of PAERPA. It also aimed to generate information and knowledge, for understanding the links between the organisation of healthcare on the territorial level and the healthcare pathways of

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PAERPA: the key schemes

PAERPA consists of a number of measures. While most of the measures are original and specific to PAERPA, the experiment also finances a few schemes aiming to improve care coordination in the territories that have not been fully developed (French Department of Social Security, DSS, 2018).

The principal original measures

- Territorial Coordination Support (Coordination Territoriale d'Appui, CTA) is a help desk (with a unique number) dedicated to the population aged 75 and over, their family, and the health and social care professionals in the territory. They provide them with support for their medical and social requirements, by orienting them to existing resources and giving them information and expertise about their rights and options. The CTA accounts for the most expenditure (32% of the PAERPA budget in 2016).
- Personalised Healthcare Plan (Plan Personnalisé de Santé, PPS) sets out and funds a process of medico-social assessment of the frail-elderly patients. This document formalises a shared action plan under the aegis of the GP by bringing together one or two health professionals (nurses, kinesiologists, or pharmacists). Despite the attention paid to the scheme, the Personalised Healthcare Plan (PPS) accounted only for 3% of the expenses of the PAERPA programme in 2016.
- Multidisciplinary training schemes (including doctors, nurses, pharmacists, and kinesiologists) aim to promote multidisciplinary working on issues/priorities set in PAERPA scheme, but few of them are currently operating. But training schemes for home care professionals, aiming to support the professionals to spot the signs of the risks of loss of autonomy and transmit the information to other professionals, attracted a large number of professionals.

The provisions for other coordination schemes

PAERPA also provides financial and organisational support (via the CTA) to a certain number of existing schemes that are being developed in the territories. In 2016, half of the PAERPA funding was allocated to the development of these schemes (French Department of Social Security, DSS, 2018). Three of them have been given significant funding in the regions (40% of the PAERPA budget in 2016):

- Temporary residence in a long-term nursing home (EHPAD) reduces the duration of hospital stays when it is not possible for the patient to return home immediately (because the patient's home needs to be adapted or assistance is required with everyday activities). It can also be used during the hospitalisation of an informal carer. PAERPA covers the costs of residential care (not covered by the health insurance normally), for a maximum duration of 30 days.
- The Mobile Geriatric Team (Équipe Mobile Gériatrique, EMG) helps the various non-geriatric departments in the hospital, in the treatment and referral of elderly patients (organising the patient's discharge, and links with ambulatory care professionals and medico-social services). These teams also play a role in identifying frail (at risk) patients in hospital and in ambulatory care structures (extra-hospital teams).
- The mutualisation of night nurses in long-term nursing homes (EHPAD) enables a night nurse to work in several EHPADs. The aim is to maintain continuous healthcare provision in the EHPADs in order to reassure the non-medical staff as well as the elderly persons and their families, and reduce emergency hospitalisations.

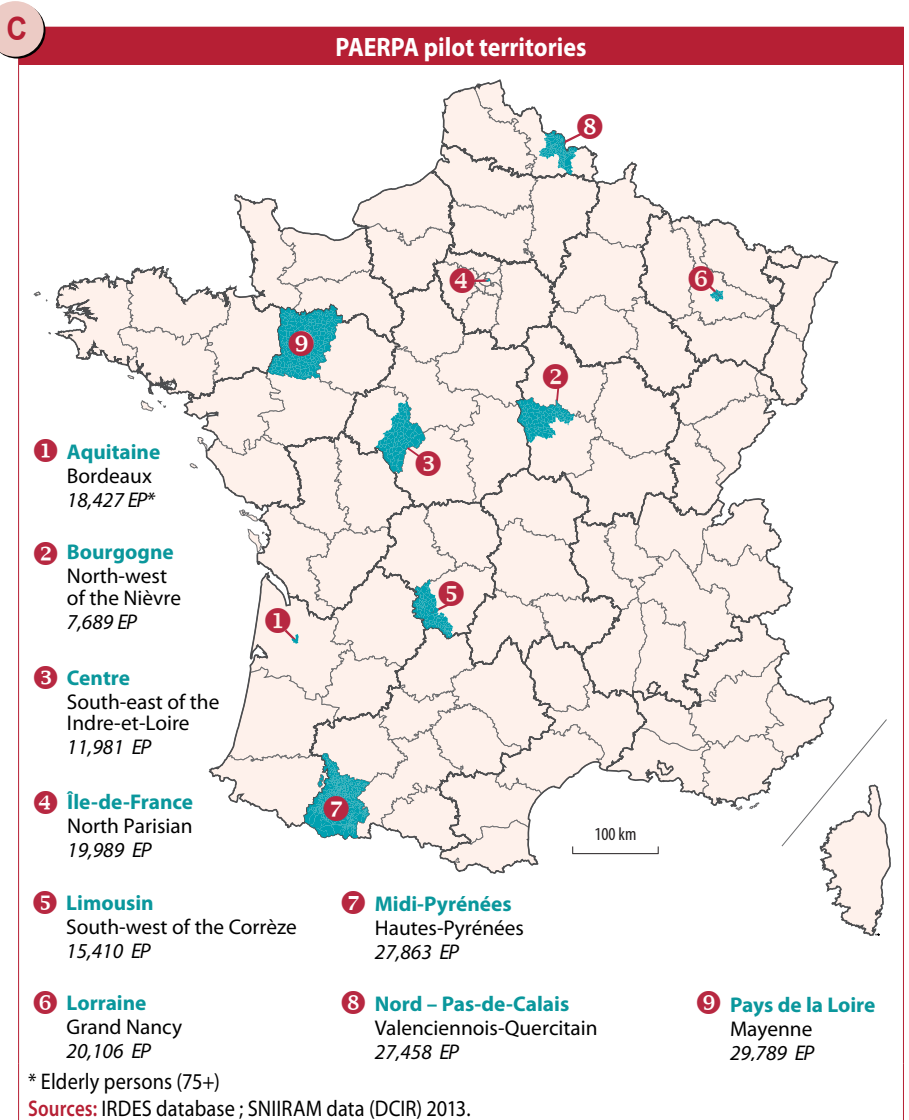
The other measures funded as part of the experiment, such as preventive programmes (falls, malnutrition, and medicine-related illness), telemedicine in EHPADs, the therapeutic education of elderly persons, and the deployment of a shared information system mobilized relatively few resources in the regions.

local population. With this in mind, the evaluation combines three complementary approaches: monitoring, so-called T0 analyses, and the impact analysis.

Monitoring, the first phase of the evaluation

The regular monitoring of predefined indicators provides a systematic and quantified appreciation of the effects of a public policy (Khandker et al., 2009). Widely disseminated, it increases transparency, facilitates the accountability of the actors involved, and enables the policy to be adapted, where necessary. In PAERPA evaluation, there are three distinct types of monitoring: the territorial diagnosis, monitoring the process, and monitoring the findings.

- **Territorial diagnosis.** This involves defining a broad range of standardised indicators in order to compare the specific contexts and characteristics of the PAERPA territories in relation to one another and to the rest of France, before the launch of the projects. Using the data available in 2013, IRDES carried out an initial comparative assessment, via the PAERPA Atlas (Or et al., 2015). This atlas illustrates the great diversity of the selected territories in terms of the populations concerned and the geographic, demographic, and socioeconomic situations, as well as the structure of hospital and ambulatory care provision. Healthcare and medical spending per habitant also significantly varied across territories. These initial observations suggested that the potential capacities for progress differed from one territory to another and as a function of the outcome indicator considered.



- **Monitoring the process.** The PAERPA projects comprised a series of common measures or interventions (financed)

that were implemented at different paces and to varying degrees in different pilot territories. To monitor the scaling up of different measures in each territory, process indicators were defined by the French Department of Social Security (DSS), in collaboration with the French National Agency to support the Performance of Health and Social Institutions (ANAP, Agence nationale d'appui à la performance des établissements sanitaires et médico-sociaux), the French Directorate for Research, Studies, Assessment and Statistics (DREES, Direction de la recherche, des études, de l'évaluation et des statistiques), and the Institute for Research and Information in Health Economics (IRDES). This information, complemented by the results of a qualitative evaluation (Gand et al., 2017), is also used in the framework of

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Outcome indicators used in evaluation

- **Cumulated number of hospital days:** number of days of acute care hospitalisations of elderly persons per year in relation to the number of elderly persons living in the territory.
- **30-day rehospitalisation rates:** all cause rehospitalisations at 30 days after an index hospital discharge compared with the total number of index hospitalisations.
- **Rate of emergency hospitalisations:** number of unscheduled hospitalisations of elderly persons in acute care facilities in relation to the number of elderly persons living in the territory.
- **Potentially avoidable hospitalisations:** number of hospitalisations sensitive to the quality of primary care treatment in relation to the number of elderly persons living in the territory.
- **Visits to emergency room without hospitalisation:** number of visits to emergency departments without subsequent hospitalisation in relation to the number of elderly persons living in the territory.
- **Continuous polypharmacy:** proportion of elderly persons consuming at least ten medications at least three times over the past twelve months amongst the inhabitants in the territory.
- **Inappropriate prescriptions:** proportion of elderly persons who have had at least one inappropriate prescription during the year amongst the inhabitants in the region.

See Or et al. (2018) for the detailed definitions.

the impact evaluation to interpret the initial findings.

• **Monitoring the outcomes.** To assess the impact of PAERPA, seven outcome indicators were identified in the national evaluation committee that brought together the various actors participating in the experiment (branches of the French Ministry of Health, the Regional Health Agencies, the National Health Insurance system, the National Agency to support the Performance of Health and Social Institutions, etc.) taking into account the objectives of the experiments, international literature, and the available data (see Inset 2). Three of them relate to hospitalisation (number of days of hospitalisation per elderly person, rate of rehospitalisation at 30 days, and unscheduled hospitalisations), and four are indicators that relate to the organisation of primary care, but which may have consequences on hospitalisation (potentially avoidable hospitalisations, visits to emergency room without subsequent hospitalisation, polypharmacy, and inappropriate prescriptions).

Baseline analyses were used to understand the factors that explain territorial disparities

Baseline analyses, modelling outcome indicators before the introduction of pilots (T0) were necessary to understand the role of socioeconomic factors

and healthcare provision in determining healthcare pathways. They helped to identify the explanatory factors that needed to be taken into account in the evaluation, and to verify the hypotheses underlying PAERPA's initiatives that investing in primary care can reduce hospitalisations.

A first study examined the determinants of the disparities in visits to emergency units without subsequent hospitalisation (Or and Penneau, 2017), and the second analysed the impact on early consultation with general practitioners on the incidence of readmissions to hospital (Bricard and Or, 2018). The results of these analyses confirmed the role played by primary healthcare provision (its extent and organisation) in hospitalisation. The emergency care study demonstrated that elderly persons use the emergency services much less in the territories in which accessibility to primary care is facilitated by the availability of healthcare professionals, out-of-hours care provision, and home visits by GPs. The second study suggested that a rapid consultation with a GP after a hospitalisation for heart failure diminished the number of 30 days rehospitalisations by half.

Impact evaluation: a method adapted to complex interventions

The evaluation of impact raises several methodological issues, as PAERPA is a complex experiment that combines sev-

eral measures, which have been implemented heterogeneously, with numerous objectives in different territorial contexts. There are several levels of evaluation: the global evaluation of PAERPA (all of the measures at the national level), territorial evaluation (all of the measures in a territory), and the evaluation of a specific scheme, the Personalised Healthcare Plan (Plan Personnalisé de Santé, PPS). The impact analysis of the Personalised Healthcare Plan, which is underway, will be completed in 2019.

In order to estimate the effect of PAERPA—the impact of all the measures—we need to adjust for the particularities of the territories, which were not randomly selected. These may be linked, for example, to the existing healthcare provision and the characteristics of the population served but also to the local experience of coordination policies. We used the synthetic control method, which was developed to evaluate territorial public policies and well adapted to the evaluation of this multi-objective programme in a quasi-experimental design (Abadie et al., 2010). The method allows to construct, for each territory and each outcome indicator, a "composite" territory as a "control" unit as the weighted average of the potential controls that best combine the characteristics of the unit treated and the evolution of outcomes in the period before the treatment (introduction of PAERPA). The method was presented in detail and the

T1

Outcome indicators : trends between 2014 and 2016 by territory — the level in 2014 and the percentage changes between 2014 and 2016

	Cumulated number of hospital days (days/EP*)		30-day rehospitalisation (/100 stays)		Emergency hospitalisations (/100 EP)		Avoidable hospitalisations (/100 EP)		Visits to emergency room without hospitalisation (/100 EP)		Continuous polypharmacy (/100 EP)		At least one inappropriate prescription (/100 EP)	
	Level	Progression	Level	Progression	Level	Progression	Level	Progression	Level	Progression	Level	Progression	Level	Progression
Aquitaine	3,3	-4,8%	16,9	9,0%	20,9	-2,8%	3,9	5,1%	9,8	17,6%	23,0	-6,1%	33,8	-16,5%
Lorraine	3,6	-0,2%	17,9	3,4%	20,9	8,7%	3,7	32,6%	11,8	5,6%	26,7	-4,3%	29,7	-21,5%
Nord – Pas-de Calais	4,1	4,5%	17,9	1,7%	26,7	6,5%	5,3	13,7%	14,7	18,9%	33,6	-3,5%	40,8	-21,3%
Ile-de-France	3,5	4,7%	21,3	1,5%	20,9	11,1%	4,6	20,4%	19,3	25,4%	23,6	-4,3%	29,1	-23,2%
Pays de la Loire	4,2	-2,4%	18,0	-3,2%	25,4	1,4%	5,3	-12,2%	14,2	21,1%	21,3	-2,4%	28,8	-22,9%
Centre	3,2	5,6%	17,6	13,0%	24,1	6,6%	5,7	-2,6%	19,9	17,1%	21,6	-3,8%	26,7	-27,2%
Limousin	3,5	2,5%	16,9	2,5%	21,3	9,4%	4,0	7,0%	9,4	24,9%	27,4	-2,4%	34,1	-13,9%
Bourgogne	4,2	-6,0%	18,1	2,6%	16,9	3,9%	5,2	-8,8%	22,1	10,9%	24,5	-2,1%	30,9	-17,1%
Midi-Pyrénées	3,2	-0,4%	16,6	-2,1%	19,4	-1,5%	4,6	-4,1%	20,7	14,8%	22,4	-5,2%	29,1	-17,1%
Overall	3,7	0,4%	17,9	2,1%	22,4	4,3%	4,7	4,6%	15,4	17,8%	25,0	-3,9%	31,7	-20,2%
Outside PAERPA**	3,7	-1,2%	18,5	0,9%	22,1	5,0%	4,5	7,2%	16,1	15,3%	23,1	-3,0%	30,4	-20,4%

* EP. Elderly persons; ** Outside PAERPA. 12 regions (9 PAERPA regions + Champagne-Ardenne, Rhône-Alpes, and Brittany) from which the départements with a PAERPA area were extracted.

Reading: In the PAERPA areas, the combined duration of stays increased by 0.4% between 2014 and 2016. The progression rates varied greatly depending on the PAERPA territories, ranging from a drop of 6% in the Burgundy territory to a rise of 5.6% in the Centre territory.

Sources: IRDES database ; SNIIRAM data (DCIR) 2010-2016.

[Download the data](#)

T2

Estimations of the impact of the PAERPA scheme in improving the coordinated care of elderly people: differences between the PAERPA territories and their composite control regions in 2015 and 2016 (%)

	Impact	Cumulated number of hospital days (days/EP*)	30-day rehospitalisation (/100 stays)	Emergency hospitalisations (/100 EP)	Avoidable hospitalisations (/100 EP)	Visits to emergency room without hospitalisation (/100 EP)	Continuous polypharmacy (/100 EP)	At least one inappropriate prescription (/100 EP)
Aquitaine	2015	+1,5%	+5,0%	+3,9%	+4,6%	-4,7%	-8,0% ***	+1,7%
	2016	+0,8%	+2,2%	+2,0%	-7,7%	-4,6%	-9,2% ***	+4,0%
Lorraine	2015	+7,3%	+1,3%	+2,8%	+15,3% **	-23,5% **	-1,2%	-7,3%
	2016	+5,0%	+1,4%	+4,4%	+28,1% ***	-23,1% **	-1,6%	-5,2%
Nord – Pas-de-Calais	2015	+5,9%	+5,6%	-0,5%	-7,2%	+5,7%	-2,3% **	-8,0% ***
	2016	+7,2%	+1,2%	+3,6%	+5,3%	+1,0%	-3,1% *	-9,6% ***
Ile-de-France	2015	-4,2%	-4,1%	+2,6%	+13,6%	-1,3%	+2,8%	+1,3%
	2016	+1,7%	+5,8%	+6,0%	+6,4%	+0,7%	+1,4%	-2,4%
Pays de la Loire	2015	+1,2%	+1,6%	-2,1%	+4,0%	-5,4%	-1,6%	-2,6%
	2016	-0,8%	+4,2%	-1,7%	-13,3%	+2,1%	-2,4%	-2,1%
Centre	2015	+2,9%	+5,7%	+3,6%	+9,9%	+1,8%	+0,4%	-3,6%
	2016	+7,6%	+9,9% *	+5,9%	+6,2%	+4,0%	-0,6%	-6,8%
Limousin	2015	+5,7%	+2,5%	+4,0%	+0,9%	-10,0%	+2,9%	+0,2%
	2016	+4,7%	+4,1%	-0,4%	-7,0%	-8,4%	+2,2%	+1,5%
Bourgogne	2015	-5,9%	+5,4%	-11,6%	-9,8%	-4,7%	+2,5%	+4,2%
	2016	-7,9%	+1,5%	-15,6% *	-23,6% **	-4,2%	+1,4%	+6,5%
Midi-Pyrénées	2015	+7,7%	-0,2%	-9,9%	+1,5%	+4,1%	-2,7%	-0,6%
	2016	+8,6%	-2,3%	-13,9% *	-9,1%	+1,2%	-3,7%	+0,0%
Overall PAERPA	2015	+4,7%	+0,6%	+0,1%	+0,7%	+1,2%	-1,1%	-2,5%
	2016	+5,5%	+0,9%	+0,2%	-3,4%	-2,2%	-2,1%	-2,3%

* EP. Elderly persons (75+). The stars indicate the level of statistical significance of the results (* < 10%; ** < 5%; *** < 1%).

Reading: In Aquitaine, PAERPA has had a significant impact on reducing polypharmacy, with a difference of -8% in 2015 and -9.2% in 2016 compared with the control territory. In percentage points, the proportion of elderly persons on polypharmacy dropped by 23% *8%=1.8 points in 2015, thanks to PAERPA.

Sources: IRDES database ; SNIIRAM data (DCIR) 2010-2016.

[Download the data](#)

robustness of the methodological choices was verified in a methods paper accessible on line (Bricard et al., 2018).

Contrasting trends depending on the territories and outcome indicators

The trends of outcome indicators, on average of all PAERPA territories vary greatly as a function of the indicator (see Table 1). Since the launch of PAERPA, between 2014 and 2016, overall on average, the rate of rehospitalisation at 30 days, emergency and potentially avoidable hospitalisations, and visits to emergency care units without hospitalisation have increased consistently, while the number of hospital days per elderly (75+) remained stable. While there is a downward trend for continuous polypharmacy and inappropriate prescriptions, this reduction in drug consumption is partly related to the exclusion of certain ineffective medicines from the benefit basket (de-reimbursement) as of 2012, which were largely consumed by elderly persons (vasodilators, etc.), as well as preventive measures implemented by the health insurance in all of the regions.

Yet, these average trends conceal when the PAERPA territories are considered separately. At local level, some indicators progress in the same direction in all of the territories, but to different extents. In terms of visits to emergency departments, the trend is upward for all of the PAERPA territories (+ 18%), as it is for the non-PAERPA territories, and varies from 6% in the Lorraine territory to 25% in the Ile-de-France territory (Paris 9, 10, 19th). The hospital indicator trends are more contrasting. For example, the number of hospital days, globally stable, increased by 6% in the Centre, while it dropped by 6% in Lorraine.

This first description of the trends between 2014 and 2016, without controlling for the characteristics of the territories, does not say anything on the impact of PAERPA, but it is useful for understanding the different situations in the regions.

No average effect of PAERPA...

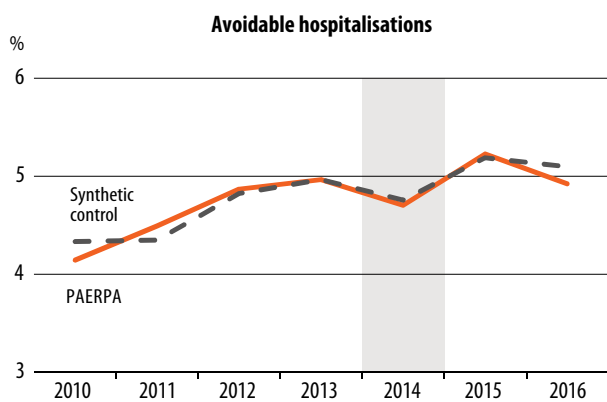
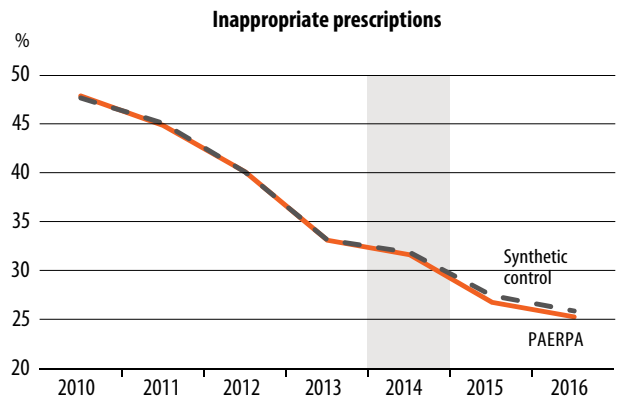
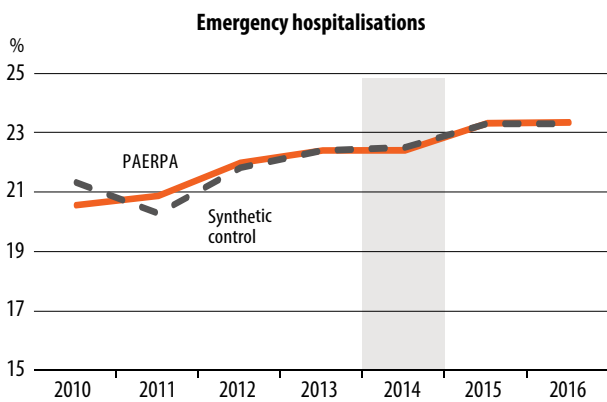
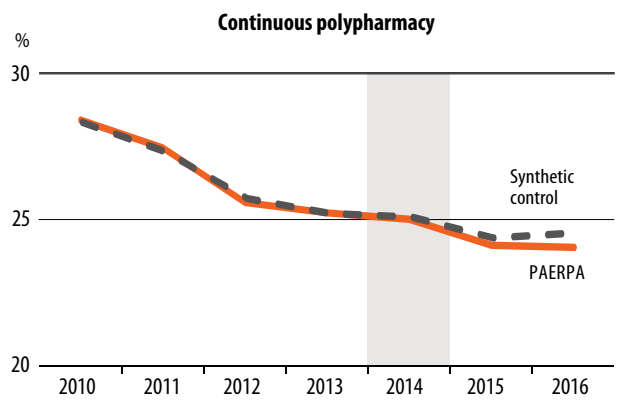
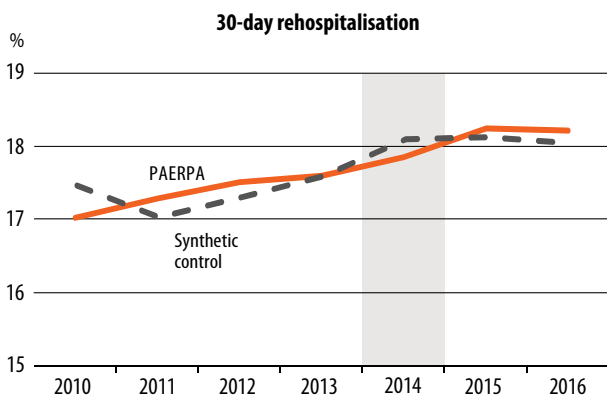
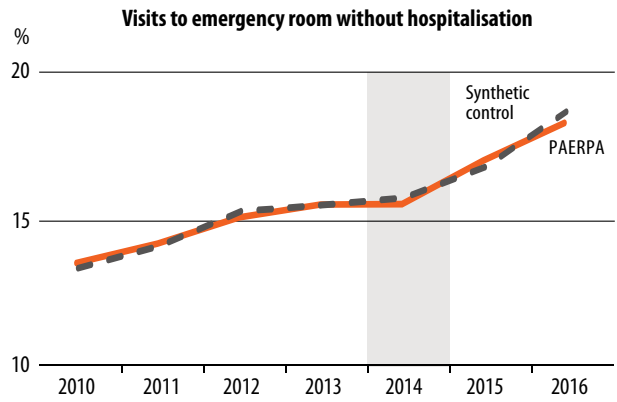
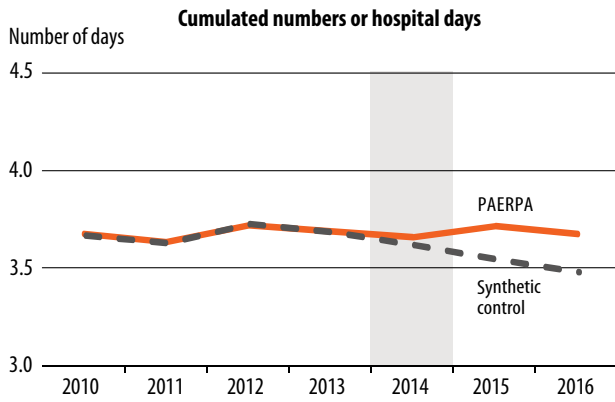
The impact of PAERPA is measured by the difference between the value of the outcome indicator for the PAERPA ter-

ritory and its composite control territory in the years after the implementation of PAERPA (2015, 2016). Table 2 presents the results of the impact analysis by territory for seven indicators. For each indicator, the difference between the PAERPA territory (treated) and its control unit is presented in percentage, in 2015 and 2016.

Globally, to date, the results from 2015–2016 do not allow to establish a significant average impact of PAERPA measures over all the territories (last line on the Table and figure F): there is no statistically significant difference in the findings (for any of the indicators) between the PAERPA territories all together and their aggregated control territories in 2015 and 2016. Given the heterogeneous implementation of the different measures in each region and the time taken for scaling up some schemes, these findings are not really surprising. In the majority of territories, several measures become only effective in 2016, with an intensification of actions through 2017. For example, while the total number of PPSs conducted between 2015 and 2017 was on average 32 per 1,000 elderly persons in the PAERPA territories, it varied

F

Evolution of the results indicators for the entire PAERPA scheme and its synthetic control



Reading: the trends in outcome indicators, for elderly persons aged 75 and over, is shown here for PAERPA territories all together against their control units/territories (synthetic control), before and after the implementation of the PAERPA. For all of the outcome indicators, the results indicate no difference between the PAERPA territories and their controls (see Table 2, p. 5).

Sources: IRDES database ; SNIIRAM data (DCIR) 2010-2016.

from 11 per 1,000 elderly persons in the Midi-Pyrénées PAERPA territory to 79 in Lorraine. Certain initiatives, such as the identification of frailty, with the support of an extra-hospital mobile geriatric team, are only undeveloped in certain territories (Or et al., 2018. Annexe 3). The lack of average effect therefore reflects, in part, the heterogeneity in the implementation of the PAERPA programme from one territory to another.

..., but significant effects in certain territories, except for hospital admissions

Nevertheless, the territorial analyses have revealed a few significant effects in certain territories and for the outcome indicators most related to the mobilisation of primary care actors. In 2015, polypharmacy dropped significantly in the PAERPA territories of Aquitaine and Nord-Pas-de-Calais. In a context of a general improvement in these indicators, the progress is far greater in these regions compared with their control territories. The Nord-Pas-de-Calais had a particularly high incidence of polypharmacy before the experiment (34% of the elderly in 2013). The territory has adopted several PAERPA initiatives to reduce over medication of elderly starting from 2014 (French Department of Social Security, DSS, 2018). The territory of Aquitaine (Bordeaux), despite an initial lower level of polypharmacy (23%), has also developed specific initiatives on polypharmacy, which are complemented by an investment in the coordination between ambulatory care professionals and hospitals and in the information systems. Lorraine is the only territory where there is a significant impact of PAERPA on containing visits to emergency care without hospitalisation. These results are coherent with the intuitions of the qualitative evaluation, which identified these three territories as 'a settled territory' (Aquitaine, Nord-Pas-de-Calais, and Lorraine), that is to say those in which the local actors were well connected and ready to implement the first PAERPA measures in 2014.

In two territories, the Midi-Pyrénées and Burgundy, PAERPA had a significant impact, but only as of 2016, in terms of

SOURCES AND DATA

Populations and territories concerned by the evaluation

The target or eligible population is defined in the framework of the experimentation as all the elderly persons aged 75 or over who live in an experimental territory.

The impact analyses uses all of the healthcare data concerning elderly persons aged 75 or over who live in one of the twelve following regions: Aquitaine, Burgundy, Brittany, Centre, Champagne-Ardenne, Ile-de-France, Limousin, Lorraine, Midi-Pyrénées, Nord-Pas-de-Calais, Pays-de-la-Loire, and Rhône-Alpes. This data was extracted from the inter-scheme consumption data (DCIR) and matched with hospital data for the years 2010 to 2017. The 12 regions comprise two thirds of the French population, that is to say (in 2013) 3,604,505 elderly persons aged 75 and over living in 22,675 communes and 61 départements. In all, the nine PAERPA regions comprised 178,712 elderly persons aged 75 or over in 2013, ranging from 7,689 elderly persons in the Burgundy region to 29,789 persons in the Pays de la Loire territory. The potential control population (outside the PAERPA regions) comprised 2,890,404 elderly persons in 2013.

The contextual data of the territories, collected in 2013, came from various sources. The data characterising the age, the chronic health condition (ALD), and the health insurance schemes of the persons are individual data that come from the health insurance reimbursement data (DCIR). Other data sources were used, at the level of the communes or départements. The death rates and the median income of the municipalities were provided by the National Institute for Statistics and Economic Studies (INSEE) database. The localised potential accessibility indicators and theoretical distances from emergency departments, calculated on the level of the commune by the French Directorate for Research, Studies, and Statistics (DREES) and the Institute for Research and Information in Health Economics, or IRDES (Barlet et al., 2012), were provided by the DREES. The data describing the hospital supply (number of beds), measured on the level of the département, came from the French Annual Health Establishment Statistics (Statistique Annuelle des Établissements de Santé, SAE). Lastly, the data on long-term nursing homes (Établissements d'hébergement pour personnes âgées, EHPAD) and long-term care facilities (Unités de soins de longue durée, USLD) on the level of the départements, and in home nursing care services (Services de Soins Infirmiers à Domicile, SSIAD) on the level of the catchment area, were provided by the DREES's freely accessible database.

reducing unscheduled hospitalisations. In Burgundy, PAERPA also had a significant impact on avoidable hospitalisations. It would be important to understand the local practices in these territories in order to share knowledge about the effective schemes.

In none of the territories, there was a perceptible effect of PAERPA on two hospital indicators: the number of hospital days per elderly and rehospitalisations at 30 days. The lack of visible impact on these indicators, in particular readmissions, raises questions about the appropriateness of the measures implemented to reduce the number of hospitalisations. It would be legitimate to examine other levers for action to improve hospital practices and coordination between ambulatory care professionals and hospitals in order to improve the PAERPA program. It would also be coherent to think about the financial incentives for hospitals for reducing avoidable hospitalisations, which are not in place in PAERPA.

However, certain dimensions, such as the experience of elderly persons, their fami-

lies, as well as health professionals which may also be impacted by PAERPA, were not studied as part of the evaluation due to lack of data. Understanding the preferences of the users — in this instance elderly persons — is also essential to evaluate the advantages and limitations of the various measures in place.

* * *

The initial findings of the evaluation suggest that organisational and inter-professional changes in the healthcare system take time to be effective. On average, the time that elapsed between the launch of the experiment and the operational implementation of the measures was eighteen months (French Department of Social Security, DSS, 2018). These measures can only be effective if the professionals involved are willing to change their practices. This is why it is important not to underestimate the challenge of building a middle ground between different groups of professionals. Cross-referencing our results with the qualitative analyses and the data for the deployment of the schemes suggests that the

difference of 'maturity' between the pilot territories may be a determining factor.

The analyses also demonstrate that the composition of local of healthcare supply is a significant determinant of hospital utilisation that is unaffected by PAERPA experiment. But specific local

problems appear to be a trigger for the local actors to develop PAERPA measures in certain areas, for example to reduce polypharmacy.

These initial findings of the evaluation should be considered with caution with regard to the conclusions that can be

drawn from these pilots. The lack of a significant average impact of PAERPA in 2015 and 2016, first years of the experiment, should not mask significant effects in certain regions. The analysis of the 2017 data will allow to conclude on the robustness of these effects and check any emergency effect in new territories. ♦

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