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Wide variations among GPs in the level of interest in integrated care for frail, elderly adults and their association with data on consulting and prescribing: an analysis of the PAERPA project.

Matthieu Calafiore¹, Emmanuel Chazard², Lorette Averlant², Claire Ramez², Fanny Sarrazin², Nathalie Leveque³, Delphine Dambre³, David Verloop⁴, Marguerite-Marie Defebvre⁴, Carla Di Martino², Jean-Baptiste Beuscart²

1. Univ. Lille, Département de Médecine Générale, Faculté de Médecine, CHU Lille, ULR 2694 – Evaluation des technologies de santé et des pratiques médicales, F-59000 Lille, France
2. Univ. Lille, CHU Lille, ULR 2694 – METRICS: Evaluation des technologies de santé et des pratiques médicales, F-59000 Lille, France
3. Dispositif d'appui territorial – Valenciennois-Quercitain – Groupe Hospitalier Territorial du Hainaut-Cambrésis, F-59322 Valenciennes Cedex
4. Agence Régionale de Santé Hauts-de-France, F-59000 Lille, France

AUTHOR INFORMATION

Matthieu Calafiore, MD, General practitioner, Department Chair

Department of Family Medicine, University of Lille, Lille.

<https://orcid.org/0000-0002-4755-5172>

Emmanuel Chazard, MD PhD, Public Health specialist

METRICS: Evaluation des technologies de santé et des pratiques médicales, CHU Lille, University of Lille, Lille.

Lorette Averlant, MD, Geriatrician

METRICS: Evaluation des technologies de santé et des pratiques médicales, CHU Lille, University of Lille, Lille.

Claire Ramez, MD, Geriatrician

METRICS: Evaluation des technologies de santé et des pratiques médicales, CHU Lille, University of Lille, Lille.

Fanny Sarrazin, MD, Geriatrician

METRICS: Evaluation des technologies de santé et des pratiques médicales, CHU Lille, University of Lille, Lille.

Nathalie Leveque, MD, Geriatrician

Dispositif d'appui territorial – Valenciennois-Quercitain – Groupe Hospitalier Territorial du Hainaut-Cambrésis, Valenciennes.

David Verloop,

Agence Régionale de Santé Hauts-de-France, F-59000 Lille, France.

Marie-Marguerite DEFEBVRE, MD, Public Health Specialist

Agence Régionale de Santé Hauts-de-France, F-59000 Lille, France.

Carla Di Martino, Research engineer

METRICS: Evaluation des technologies de santé et des pratiques médicales, CHU Lille, University of Lille, Lille.

Jean-Baptiste Beuscart, MD PhD, Geriatrician

METRICS: Evaluation des technologies de santé et des pratiques médicales, CHU Lille, University of Lille, Lille.

<https://orcid.org/0000-0002-0734-8371>

Corresponding Author: Dr Matthieu Calafiore, matthieu.calafiore@univ-lille.fr , General Practitioner, Department Chair, Department of Family Medicine, University of Lille, 1 rue Eugène Avinée, 59000 Lille - FRANCE. (+33)610563153

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ABSTRACT

Background: Integrated care pathways can help to avoid unnecessary hospitalizations and improve the overall quality of care for frail, elderly patients. Although these ICP should be coordinated by general practitioners (GPs), the latter's level of commitment may vary.

Aim: To profile GPs who had participated or had refused to, in the *Personnes Agées En Risque de Perte d'Autonomie* (PAERPA) integrated care project (ICP) in the Valenciennois-Quercitain area of France between 2014 and 2019.

Design and setting: A dual qualitative and quantitative analysis of the GPs who participated in the PAERPA project.

Method: We interviewed GPs interested or not then compared consultation and prescription profiles.

Results: Some GPs were interested in the PAERPA ICP, whereas others were opposed. The 48 qualitative interviews revealed four issues that influenced participation in the PAERPA project: (i) awareness of issues in geriatric medicine and the value of collaborative work, (ii) time saving, (iii) task delegation, and (iv) advantages of coordination. The level of interest in ICP for frail, elderly adults was indirectly reflected by the data on consulting and prescribing. GPs who participated to PAERPA had a greater proportion of elderly (over-70) patients ($p<0.05$), a larger number of consultations per year ($p<0.05$) and a larger number of home visits ($p<0.01$), relative to GPs who refused to.

Conclusion: The level of interest in ICP for frail, elderly adults varied widely among GPs. Our findings suggest that commitment to an ICP could be increased by customizing the recruitment strategy as a function of the GP's profile.

INTRODUCTION

The care of frail, elderly people is often compartmentalized by health providers and may become a series of successive but poorly coordinated assessments and procedures. Integrated care pathways seek to improve patient care by coordinating existing services and facilities. The benefits of integrated care in older patients are well established and include a reduction in potentially avoidable hospital admissions, better care at home, and a better perception of care by the patients (1–6).

Several qualitative studies have shown that commitment by healthcare professionals is a key success factor for integrated care pathways (7–9). Moreover, the general practitioner (GP) is responsible for coordinating the integrated care and has a key role in integrated care pathways for frail, elderly adults (10). However, the level of GP participation in this type of pathway for the elderly is variable. Although levers for and obstacles to participation have been studied, the profiles of participating and non-participating physicians do not appear to have been described (3,7,8,11). To the best of our knowledge, there are no published qualitative and quantitative data on this topic.

The French *Personnes Agées En Risque de Perte d'Autonomie* (PAERPA) project was a nationwide pilot deployed by the French Ministry of Social Affairs and Health between 2014 and 2019. It sought to provide integrated care for frail, elderly (over-75) people at risk of losing their independence due to medical and social factors. A personalised health plan (PHP) for integrated care was drawn up by the professionals involved in the patient's care, with coordination by the GP. The PHP had to be agreed to in writing by all the professionals and the patient. A support platform informed healthcare professionals and patients about this new medical and social care pathway and helped them to draw up PHPs. All the PHPs were centralised and archived at a support platform dedicated to the PAERPA project.

The objective of the present study was to provide a qualitative and quantitative description of GPs who participated to the PAERPA project, relative to GPs who did not.

2- METHODS

2.1- Study design

We performed a dual qualitative and quantitative analysis of GPs who participated in the PAERPA integrated care pathway for frail elderly patients. The PAERPA project has been implemented in 16 areas across France. Here, we studied the PAERPA project's deployment in the Valenciennois-Quercitain area of northern France. All GPs based in the Valenciennois-Quercitain were contacted by the PAERPA support team before and during the project's implementation. The qualitative study was conducted between March 2017 and March 2018, and the quantitative study was conducted throughout 2018. The qualitative surveys were part of a broader study (the results of which have been published elsewhere (11)) and were reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) (12). Twenty-nine of the COREQ checklist's 32 items were completed.

2.2- Ethics

The use of healthcare data for quantitative evaluation of the PAERPA project was authorized by the French government (decree 2013-1090). In line with the terms of this authorization, data were extracted from the French national health insurance system's database by the Hauts-de-France Regional Health Authority (Lille, France) after the latter had registered the study database with the French National Data Protection Commission (*Commission nationale de l'informatique et des libertés* (CNIL), Paris, France).

The GPs gave their written, informed consent to participation in the study. Audio recordings were destroyed after transcription. As this type of study is not subject to the French legislation on clinical trials (government decree 2016-1537, dated November 16th, 2016), neither registration with the CNIL nor approval by an independent ethics committee was necessary (13).

2.3- The qualitative analysis

2.3.1- The study population

GPs having participated to PAERPA program and those who refused to participate were eligible for the qualitative study. The lists of GPs were provided by the PAERPA support team. Interviewees were selected by maximum variation sampling (based on age, sex, and urban/rural location), contacted by phone, and asked to participate in the present study. Of the GPs having participated in the PAERPA project, only those having drawn up three or more PHPs were contacted. The recruitment process continued until no new information was generated in study interviews.

The support platform was in regular contact with the doctors involved in PAERPA for the day-to-day PHP. Between two GPs with the same characteristics, the choice to contact a GP was motivated by the advice of the support platform in terms of ease of human contact. Conversely, the support platform was not in contact with the doctors who refused to participate in PAERPA. Between two GPs who refused to participate with the same characteristics, the choice to contact a GP was linked to the alphabetical order of appearance in the list

2.3.2- Data collection

Two investigators (CR and ML) interviewed GPs who had participated in the PAERPA project, and another investigator (FS) interviewed GPs who had refused to participate. All three interviewers were residents who had received a standardized, two-day training course in qualitative research at the Lille Faculty of Medicine. The interviewers did not know or had not met any of the interviewees prior to the study and introduced themselves by explaining that the survey was part of their MD dissertation. The interviewers had drafted a semi-structured interview guide for each of the two groups (GP+ and GP-). The interviewers submitted and discussed their proposals for changes to the interview guides with the steering committee as the interviews progressed, through regular meetings. Approval of changes was obtained by consensus. Only the interviewer and the GP being interviewed were present during the interview, and each study participant was interviewed only once. The interview took place in the GP's surgery and was audiorecorded. The interviews continued until sufficient data was available (i.e. until no new issues were identified, plus two final interviews). The studies were coordinated by a steering committee (JBB, MC, LA, and CDM). Any problems or discrepancies

were resolved by consensus at monthly meetings. The evolution of the interview guides between the first and the last interview is presented in **Supplementary Table 2**.

2.3.3-Analysis

Each interview was fully transcribed and anonymized. The interview's verbatim was then coded independently as the interviews were conducted by two investigators and analyzed according to grounded theory using a constant comparison(14), and Nvivo® software (15,16). The coding allowed the emergence of categories leading to the development of a theory with the steering committee. Any disagreements were resolved by consensus with the steering committee. The steering committee and the interviewers analyzed and validated the results together, in order to describe the similarities and differences between various GPs for each identified theme.

2.4-The quantitative study

2.4.1-The study population

GPs having participated in the PAERPA program or having refused to participate were eligible for the qualitative study. The PAERPA support team provided us with the two lists of GPs and the number of PAERPA PHPs performed by each participating GP from 2015 to 2018 (i.e. 4 years). As a function of these data, the GPs were classified into three categories: those having completed 3 or more PAERPA PHPs over the 4-year period (the "GP+" group), those who refused to participate in PAERPA (the "GP-" group) and those participated in PAERPA but had completed less than 3 PHPs. The latter group was not analyzed further.

2.4.2- Data extraction

The data on the Valenciennois-Quercitain GPs' consulting and prescribing activities between January 1st and December 31st, 2018, was provided by the Hauts-de-France Regional Health Authority. The extracted data included the number of consultations, the number of house calls, the number of registered patients, the number of patients with registered "chronic disease" status, the number and reimbursable value of medical lab tests, and prescriptions of medications, nursing care, and physiotherapy.

2.4.3-Data analysis

We first performed a univariate, descriptive analysis. Quantitative variables were described as the mean (standard deviation (SD)) if normally distributed or the median [interquartile range (IQR)] if not. The normality of the distribution was assessed graphically. Qualitative variables were described as the frequency (percentage). Next, we compared the mean values of quantitative variables for the GP+ vs. GP- groups of GPs, using Student's t-test with Welch's correction ($n > 30$). All tests were two-tailed, and the threshold for statistical significance was set to $p < 0.05$. The analyses were performed using R software (version 3.5.3) and the R Studio console (version 1.1.463).(17)

3. RESULTS

3.1 The GP population.

At the time of our study (2019), about the area had around 31,520 inhabitants aged 75 or over, 350 GPs, 148 community pharmacies, 390 community nurses, five social care networks (local information and coordination centres), and several home help services for the elderly. Of the 350 GPs based in the Valenciennois-Quercitain area, 139 had completed 3 or more PHPs (forming the GP+ group) and 141 GPs had refused to participate in the PAERPA project (forming the GP- group). Lastly, 70 GPs had carried out fewer than 3 PHPs and so were not analyzed further.

3.2 Results of the qualitative study:

In the GP+ group, 16 of the 139 GPs were contacted. Twelve interviews were required for the collection of sufficient data. In the GP- group, 39 of the 141 GPs were contacted. Again, 12 interviews were required for the collection of sufficient data. The characteristics of the GPs interviewed and the duration of the interviews are summarized in **Supplementary Table 1**.

The analysis of the interviews with the GP+ and GP- groups identified four main common themes. For each theme, the GP+ and GP- groups differed diametrically in their feelings about integrated care and care for older people (**Table 1**). The subnodes from the coding tree are in **Supplementary Figure 3 and 4**.

The theory developed by the steering committee was based on the central role of awareness of geriatric issues from which the perceptions of GP+ and GP- could be derived. The schematic diagram is provided in **Supplementary Figure 5**.

The members of the GP+ group were aware of the complex issues in geriatric medicine and considered that networking was a good way of tackling this complexity. In contrast, the members of the GP- group were not interested in geriatric medicine and did not believe in the value of networking:

(GP8): "(...) there are people who will have (...) skills that I don't (...) I consider that they will add something to an area in which I am not competent"; (GP7) "It also gave us to an overview. From a social and administrative point of view (...), I was very interested in that."

(GP19) "Geriatrics doesn't interest me much", "I've had it, I'm sick of it." (GP24) "All these networks, it's nonsense. And anyway, they are never there when you need them,"

The members of the GP+ group considered that their participation in an integrated care pathway would save them time thanks to the presence of the care coordinator. Indeed, they reported to save time because the care coordinator undertook tasks in coordination, communication, and administrative support. The members of the GP- group considered that participation would increase their workload to an unacceptable extent.

(GP6) "I don't think it's feasible without a local coordinator because they coordinate the care and bind it all together (...) Because we can't actually spend 2 hours coordinating with the nurse and spending 2 hours on that; it was impossible, it doesn't fit into a GP's schedule at the moment. (GP4) "She [the care coordinator] made my work easier, in fact – fortunately so because it takes a lot of energy otherwise"

(GP15) "It's a system that seemed very time-consuming to me. That's what scared me"; (GP23) "I believe that the extra work would have been impossible to go, given my workload"

The GPs in the GP+ group liked the task delegation in general and particularly with regard to the tasks taken on by the care coordinator. The members of the GP- group considered this delegation to be a form of direct intrusion into the physician-patient relationship.

(GP12) "She (the care coordinator) does everything. I have to say it, she fills me in on everything. We just go over it point by point, we look together at what was targeted. But everything is filled in, I don't have to do any extra paperwork, I don't have an additional administrative workload"; (GP9) "What I liked was that the PAERPA project formalized a network that already existed"

(GP16) "So I didn't wait for the PAERPA project to take care of my patients"; (GP21) "And, in the end,... the people [patients] who chose us as their GP have the impression that they have a rapport with us – there is intimacy, the confidentiality of the physician-patient relationship – and that this universe of intimacy is open to everyone"

The GP+ group appreciated the benefits of coordination in general and the role of the care coordinator in particular. The GP- group viewed coordination as a form of activity monitoring or a devaluation of their skills:

(GP8) "I work on the principle that the more people we look at, the more things we see. The more people there are, the better it goes"; (GP12) "It's an advantage because it's much more practical, it centralises more things, and above all it's very easy to contact [the coordinator]"

(GP13) "We are falling into a system, under the guise of prevention. We must not delude ourselves - they are trying to control us (...) I think there are organisations trying to surround us, to close us in. (GP21) "We are not being stifled, well, a little... It's guilt-driven: why didn't he do that, why didn't he call them? And, um, no, we're managing alright."

3.3 Results of the quantitative study:

The characteristics of the GP+ and GP- groups are summarized and compared in **Table 2**. Although the two groups had similar number of registered patients, the proportion of adults aged 70 or over was significantly higher in the GP+ group. The ratio between the number of consultations and the number of registered patients was higher in the GP+ group. Furthermore, the number of consultations per year and the number of house calls per year were higher in the GP+ group. Lastly, the number of physiotherapy procedures per registered patient, the number of prescriptions for medications and laboratory tests as well as the number of patients registered with the status of chronic disease, were significantly higher for GP+ patients.

4. DISCUSSION

Here, we analyzed the opinions and activities of GPs participating in an integrated care programme for frail, elderly adults, vs. those who refused to participate. Our qualitative analysis showed that the members of the GP+ and GP- groups had opposing representations of integrated care and markedly different levels of interest in frail, elderly patients. The quantitative analysis showed that the level of consulting and prescribing activity with elderly

patients was higher in the GP+ group. These findings suggest that (i) the implementation of an integrated care system should initially target GPs with an interest in integrated care and geriatric medicine, and (ii) these GPs can be identified by analyzing their consulting and prescribing activity. The higher number of physiotherapy procedures, prescriptions for medications, laboratory tests per registered patient and the higher number of patients with chronic diseases for GP+ suggests that these patients had more comorbidities (18–20).

Strengths and limitations

The present study had a number of strengths. Firstly, we interviewed GPs who refused to participate in the PAERPA project as well as GPs who had participated. Secondly, our study report fulfilled 29 of the 32 COREQ items. Thirdly, the qualitative studies were validated and coordinated by a steering committee. Fourthly, the interviewers received specific interview training. Fifthly, all the coding was double-checked. Lastly, our qualitative study is (to the best of our knowledge) the first in this field to have examined a substantive body of primary data onto have exhaustively examined data on the GPs' consulting and prescribing activity; this made it possible to highlight differences between the GP+ and GP- groups and identify markers of their interest in geriatric medicine and integrated care.

Our study also had some limitations. Firstly, the data were limited to the GPs in the Valenciennois-Quercitain area. Relative to France as a whole, this area has a high proportion of single-GP surgeries. Our results must therefore be extrapolated to other geographic regions or care systems with caution. Secondly, the GPs' consulting and prescribing activity might be influenced by a particular type of professional practice. Thirdly, we have excluded GPs who had agreed to participate in the PAERPA project but did not do so very actively (i.e. with fewer than 3 PHPs). We did not therefore perform an "intention-to-treat" analysis (by reference to clinical trial designs) and we cannot draw firm conclusions about the determinants of participate in an integrated care project. However, the study's design made it easier to compare GPs participating in the programme with those who refused to participate.

Comparison with existing literature

Several qualitative studies have looked at the barriers to and levers for implementing integrated care among healthcare professionals(21). Ling et al. conducted 213 semi-

structured interviews with GPs participating in an integrated care scheme in Great Britain (22). They reported that the main levers for a functioning, sustainable integrated care scheme were good personal relationships between the leaders in the various organisations, the scale of the planned activity, resource availability, support for staff in new roles, and organisational and staff stability. These findings were confirmed by a recent literature review, which highlighting the importance of multidisciplinary team working in overall patient management (23). The GPs' professional culture should evolve taking account to the collaborative approach(11) as in the multi-professional health centres that are expanding in French primary care services. Interprofessional Primary Care Teams involve having a team vision and sharing goals(24). Valentijn. et al. showed that a better understanding of the care professional relationships can be assessed a comprehensive conceptual framework(25). The presence of a care coordinator in the coordinated care pathway is particularly appreciated by healthcare professionals(26). Our study therefore shed new light on this topic by comparing GPs who participated in integrated care with those who refused to participate GP. The contrasting nature of the responses in the GP+ and GP- groups highlighted the GPs' profoundly different representations of integrated care and frail, elderly patients. The GP population thus appears to be very heterogeneous; GPs needs to be approached in different ways, depending on their profile.

Implications for Research and practice

The results of our quantitative study suggested that a GP's consulting and prescribing activity is a marker of their awareness of certain medical themes. Indeed, we observed significant differences between the GP+ and GP- groups with regard to (i) the number of consultations with elderly patients and (ii) indirect markers of morbidity (e.g. the amount of nursing care prescribed). These markers might reflect the GP's level of interest in frail, elderly patients. It might also be possible to analyse upstream activities for other groups of patients, e.g. patients with diabetes, paediatric patients, patients with psychiatric disorders, obstetric care, etc.

Many studies have shown that the successful implementation of integrated care requires the anticipation of barriers at the macro-, meso- and micro-levels (4). At the micro level, commitment from the GPs is essential. Our results showed that that a large proportion of GPs might not be accessible - at least at the beginning of the integrated care project. A more reliable strategy for including GPs at the beginning (perhaps using indirect indicators like

prescribing activity and participation in networks, for example) might be associated with higher acceptance and participation rates. Peer encouragement appears to be an effective lever for spreading the implementation of integrated care (27).

These findings and the desire for change in culture and standards suggest that innovative training courses on integrated care should be promoted in France(28,29). These courses could be inspired by interprofessional courses that have proven effective for pharmacists(30) and other professions. These interprofessional courses are probably integrated from the outset into integrated care training.

5. CONCLUSION

Our present results highlighted major differences between GPs in the level of interest in integrated care for frail, elderly adults. Some GPs were naturally interested in the PAERPA integrated care pathway, whereas others were strongly opposed. These differences were indirectly reflected by the data on consulting and prescribing. Our findings suggest that commitment to and participation in an integrated care pathway could be increased by customizing the recruitment strategy as a function of the GP's profile.

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Ethical approval:

As this type of study is not subject to the French legislation on clinical trials (government decree 2016–1537, dated November 16th, 2016), neither registration with the CNIL nor approval by an independent ethics committee was necessary

Competing interests:

All authors declare no competing interests.

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Table 1: Results of a qualitative analysis of the GPs' reasons for participation in or refusal to participate in the PAERPA integrated care project.

GPs who participated in the PAERPA project (the GP+ group)	GPs who refused to participate in the PAERPA project (the GP- group)
Aware of issues in geriatric medicine and the value of collaborative work	Lack of awareness of geriatric issues and reluctance to work collaboratively.
Involvement in an integrated care pathway saves time	Involvement to an integrated care pathway would be a waste of time
Interest in delegating tasks	Task delegation is considered as an intrusion into the physician-patient relationship
Coordination has benefits	The presence of a coordinator is viewed as a form of control over the physicians' activities

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Table 2: Patient characteristics and prescribing and consultation activities in the GP+ and GP- groups. Data are quoted as the mean (SD) or the median [IQR].

Characteristic	GP+ (n=139)	GP- (n=141)	<i>p</i>
Number of registered patients	798.2 (377.3)	716.2 (399.0)	ns
Patients over the age of 70	157 (95)	145 (79)	<0.05
Number of consultations per year	6122.5 (3877.2)	5101.0 (3802.1)	<0.05
Number of consultations per registered patient	3.29 (1.92)	2.95 (1.64)	ns
Number of house calls	847 [437; 1206]	592 [338; 1023]	<0.01
Number of house calls per registered patient	3.77 (2.54)	3.47 (2.36)	ns
Reimbursable amount of nursing care prescribed	90 341 (51 338)	61 287 (47 772)	<0.001
Number of nursing procedures prescribed per GP	17 784 (10 354)	12 530 (9 671)	<0.001
Number of nursing acts prescribed per registered patient	5.19 (0.83)	4.98 (0.83)	ns
Reimbursable amount of physiotherapy prescribed	80 435 (42 194)	72 939 (50 462)	ns
Number of physiotherapy procedures prescribed per registered patient	17.6 (0.5)	17.8 (0.5)	<0.05
Reimbursable amount of laboratory test prescribed	50 624 [39 980; 68 443]	40 526 [26 055; 58172]	<0.01
Number of laboratory procedures per registered prescribed patient	20.0 (5.0)	20.7 (5.9)	ns
Ratio between the number of consultations and the number of registered patients	6.60 [5.64; 7.56]	6.17 [5.26; 6.77]	<0.05
Number of patients with the status of chronic disease	279.7 (129.1)	211.9 (111.7)	<0.001