GPs' enrolment in research networks and experiences of GPs with utilisation and sharing of EPR data

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1 Acknowledgements

We would like to thank the general practitioners having participated in this study as well as Anne-Lise Laffineur, Muriel Vanbellingen and Lieselot Van Cauter for their administrative support and the transcription activities.
2 Scope of the qualitative approach

During preliminary analysis of the first phase of the ResoPrim project it gradually emerged that some crucial research objectives could best be tackled through a qualitative approach. Instead of offering a training programme “from our ivory tower”, we thought it useful to first assess what were the training needs of GPs participating in networks such as ResoPrim. Secondly there was a need for more information to be gathered about both the expected and experienced benefits and drawbacks of such participation, since this will throw light on ways of expanding the network. Additionally, the qualitative approach resulted in an opportunity to discover more about the impact of participation in research networks and data quality in clinical information systems as well as more about the doctor-patient relationship “in a wired world”. Finally, it was found that listening to the GPs and assessing their views and needs is a very direct way to involve them into the development of such a network.

We have divided the research questions into questions of high and low priority. The high-priority questions are fundamental questions, which must be answered if the second phase of ResoPrim is to be constructed. The low-priority questions are still relevant for ResoPrim but less essential.

High-priority questions:

Q1. What are the training needs of (potential) participating GPs in ResoPrim?

Q2. What are the benefits/drawbacks of participation in ResoPrim expected by (non-) participating GPs (based on former experience with similar processes of data collection and feedback)?

Q3. What are the benefits / drawbacks of participation in ResoPrim as experienced by participating GPs?

Low-priority questions (not tackled in this report):

Q4. How could ResoPrim improve data quality in the EPR, according to participating GPs?

Q5. How could ResoPrim hamper data quality in the EPR, according to participating GPs?

Q6. What are the sociological benefits/drawbacks of participation in ResoPrim, according to participating GPs?

2.1 Research objectives

The core issue in the reasoning of the argumentation section is “participation (=enrolment + the experience of taking part in the study)”. Training needs are related to participation, because if they are not answered in a project, GPs will not participate next time. If the quality of participation is poor (few or no benefits for the GP, cumbersome process of data collection), this will lead to a refusal to participate again. Therefore, exploring the issue of participation will provide information on training needs and the quality of participation. So the focus of the research will be on participation.

Participation is a complex and multifactorial phenomenon, which can be driven by factors that have nothing to do with the issue of the project in which one participates. Therefore participation has to be tackled from a broad point of view (participation in research networks in general, taking account of GPs’ background, career planning, other non-research networks etc.). However, our objective is clearly to investigate participation in electronic research networks (if this was not the case, the questions initially posed in the ResoPrim project might not be answered). These electronic networks all have to deal with three issues (figure 1):

- Data entry in the EPR (process 1)
- Utilisation of data from the EPR (process 2)
- Feedback of health care assessment (benchmarking)
The best way to obtain qualitative data on participation in electronic networks is to explore retrospectively the experiences of GPs who have participated in research networks, electronic networks and data management.

Figure 1: components of a process of data entry, data extraction and feedback with the EPR

To summarise this very important point, we clearly state our central research objective:

To investigate the experiences with and motivations for participation in electronic research networks

- To investigate GPs’ enrolment in research networks, whether electronic or not.
- To investigate GPs’ experiences with the processes of utilising and sharing data from the electronic patient record.

This objective throws up research questions, which will guide us in the development of the questionnaire for the data collection.

2.2 Research questions

1. GPs enrolment in research networks (“GP leaves the cabinet”)
   1. What previous experience does the GP have of participation in research networks?
      a. Non-electronic (NE)
      b. Electronic (E)
   2. What are the costs and benefits for the GP of such participation (NE, E)?
   3. What expectations did they have (NE, E)?
   4. What were their fears (NE, E)?
   5. How is the GP’s background (career planning, personal life, practice habits, etc.) related to participation in research networks?
   6. How are GPs’ computer skills related to participation in research networks?
   7. Do the determinants of enrolment in electronic research network differ from those of non-electronic research networks?
   8. Are determinants of enrolment in electronic research networks (identified in this study) in accordance with the literature (3.1.3)?
   9. How does participation in electronic networks interact with the doctor-patient relationship in the consultation?
10. What are the specific training needs of participants in electronic research networks?

2. Data handling with the EPR.
   1. What experience do GPs have of data utilisation?
   2. What experience do they have of data sharing (data leave the cabinet)?
   3. What are the determinants of “good” data utilisation (“tutto subito y sempre”)?
   4. What are the determinants of propensity for data sharing?

2.3 What is already known on GP participation in research networks (literature)?

There is a paucity of work on the involvement of GPs in an EPR network. However, several studies address the participation of GPs in health services research. This material provides some clues about the factors known to influence the participation of GPs in research.

- **Personal interest** in the research topic is important (2). Where the physician believes he has a stake in the issue raised by the research, the likelihood of his participation will increase. Creating a sense of collective ownership of the project is also an effective strategy to improve the quality of participation (3).

- A previous review of 16 studies addressing the participation of physicians in research suggests that “personal contacts from another physician or an investigator was the most common method of obtaining research participants from a community physician” (4). This claim must, however, be viewed with caution since these studies were merely observational. However, the method designed by the RAND corporation to achieve a high participation rate could clash with inference imperatives (representativity and selection bias).

- The role of financial incentives is controversial. A randomised trial revealed that the likelihood of GPs answering a survey increased with the level of the financial incentive (5). In a previous review (4) financial incentives were considered to play a modest role though this might be due to the small number of reviewed studies (5/16) with GP payment or to the low level of these incentives: as long as the level of the incentive remains below the opportunity cost of participating in the project, it is unlikely to affect GPs’ final decision. Lastly, it is unlikely that pharmaceutical companies, which tend to provide substantial financial sums to GPs, would use such an incentive if it failed to work (4,6).

- The impact of the project on quality of care and on the opportunity cost for the patient has also been raised (6). GP participation could be improved by raising the expectation of the project regarding quality of care.

- A recently published study in the US described an assessment programme that appeared to improve data quality in primary care electronic records (23). This paper ends by stipulating that “more research is now needed into the impact the assessment program had on practice staff”. This excerpt clearly illustrates the need for more research into the views and attitudes GPs had towards their participation in such programmes of electronic data retrieval.
3 Methodology

3.1 Sample selection

3.1.1 Inclusion criteria

- GPs should have some **experience with data entry in, extraction from and utilisation of the EPR**.
- GPs should have **between five and 30 years of practice**, since we assume that this group is likely to have had an opportunity to experience the phenomenon stated above.

3.1.2 Selection method

GPs are selected from **three groups** that are likely to meet the above-mentioned inclusion criteria, but **differ in their propensity to participate** in a process of data entry in, extraction from and utilisation of the EPR. Their participation profile is defined by a questionnaire that was attached to a recruitment letter for the ResoPrim project and by some eligibility criteria described elsewhere (see document ResoPrim/Analyse/ISPE010E).

1. GPs **wanting to participate** in ResoPrim but were **not selected** to participate.
2. GPs **not wanting to participate** in ResoPrim
3. GPs who **participated in former studies** (IPH-WVVH-SSMG) with the EPR and do not use an EPR-software system included in ResoPrim.

However, the recruitment of GPs refusing to participate in research networks was not very successful since there is a relation between participation in research networks and volunteering for being interviewed. Even those GPs who refused to participate did so because they already were participating in another ongoing study. So it is very difficult to find and recruit the real ‘refusers’.

3.2 Data-collection strategy

3.2.1 Design

Focus groups and face-to-face interviews are two common interview strategies.

The pros and cons are discussed in the following table:

<table>
<thead>
<tr>
<th>Focus group</th>
<th>Face-to-face interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro</td>
<td>Pro</td>
</tr>
<tr>
<td>– Favour debate and discussion: individual opinions become more pronounced in a group discussion</td>
<td>– More questions</td>
</tr>
<tr>
<td>– Validation of extreme opinions</td>
<td>– Easy to keep anonymity</td>
</tr>
<tr>
<td>– Favour consensus</td>
<td>– Lower risk of censorship</td>
</tr>
<tr>
<td>– Lower cost</td>
<td>– Groups of interviewees</td>
</tr>
<tr>
<td>Contra</td>
<td>Contra</td>
</tr>
<tr>
<td>– Feasibility of bringing GPs together</td>
<td>– Costly</td>
</tr>
<tr>
<td>– Limited number of questions</td>
<td>– More triangulation is required</td>
</tr>
<tr>
<td>– Poorer depth</td>
<td>– Extensive material to manage</td>
</tr>
<tr>
<td>– Cock effect (‘dominant talkers’)</td>
<td>– No individual identification</td>
</tr>
<tr>
<td>– No individual identification</td>
<td>– Not relevant for touchy issues or for individual experience</td>
</tr>
<tr>
<td>– Intra-class correlation</td>
<td>– Intra-class correlation</td>
</tr>
</tbody>
</table>
The unit of analysis is an important determinant of the data-collection strategy. We think that *participation* of GPs in research may be determined by some *group dynamics* (a group of GPs is the unit of analysis). For instance, as became clear from the literature, GPs participate more if a colleague approached them personally (4). When it comes to the *quality of participation*, investigating *individual* cases (unit of analysis = the GP) is preferred. The problems (advantages) experienced during participation may be very particular to one GP.

Group discussions allow the reproduction of a “*collective orientation pattern*” (24). This means that, through a guided group discussion, the collective attitude of the group regarding a certain phenomenon (we are interested in participation in a network for data collection and feedback) can be made explicit (“articulated”). This collective orientation pattern is not necessarily focused on the topics in the question list (questions asked in the group). What is important is that the group focuses on “*centres of experience*” that are representative for that group.

We opted for a mixed design: focus groups and face-to-face interviews

**Focus groups (FG)** address the question of participation from a GP group’s viewpoint in a broader context (data entry in the EMR of GPs, data exchange with colleagues and the government, feedback of data “taken” from the practices of GPs, etc.).

**Face-to-face interviews (FI)** are used to investigate the experiences or expectations of individuals who have participated or not participated in projects other than ResoPrim.

**Tableau 1: Characteristics of the focus group**

<table>
<thead>
<tr>
<th>ID</th>
<th>Participation</th>
<th>Language</th>
<th>Numbers of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>old Dutch</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>old French</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

**Tableau 2: Characteristics of the interviewed GPs**

<table>
<thead>
<tr>
<th>ID</th>
<th>Participation</th>
<th>Language</th>
<th>Sex</th>
<th>Age (years)</th>
<th>Solo/duo</th>
<th>Professional age (years)</th>
<th>Computer's use (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>old Dutch</td>
<td>man</td>
<td>52</td>
<td>solo</td>
<td>27</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>old Dutch</td>
<td>woman</td>
<td>50</td>
<td>solo</td>
<td>25</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>old Dutch</td>
<td>man</td>
<td>53</td>
<td>duo</td>
<td>28</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>non-selected</td>
<td>Dutch</td>
<td>woman</td>
<td>29</td>
<td>duo</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>7</td>
<td>non-selected</td>
<td>Dutch</td>
<td>man</td>
<td>28</td>
<td>solo</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>non-participant</td>
<td>Dutch</td>
<td>woman</td>
<td>48</td>
<td>solo</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>old French</td>
<td>woman</td>
<td>47</td>
<td>solo</td>
<td>22</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>non-participant</td>
<td>French</td>
<td>woman</td>
<td>33</td>
<td>solo</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>old French</td>
<td>man</td>
<td>32</td>
<td>duo</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>non-selected</td>
<td>French</td>
<td>man</td>
<td>42</td>
<td>solo</td>
<td>18</td>
<td>&gt;10</td>
</tr>
<tr>
<td>13</td>
<td>non-selected and non-participant</td>
<td>French</td>
<td>man</td>
<td>64</td>
<td>solo</td>
<td>40</td>
<td>&gt;10</td>
</tr>
<tr>
<td>14</td>
<td>old French</td>
<td>man</td>
<td>42</td>
<td>duo</td>
<td>18</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
3.2.2 Developing the question list

The question list was developed in stages:

A preliminary question list was constructed, based on several inputs from some stakeholders (SSMG, WVVH). This list was tested in a pilot (focus group/interviews) with some practising GPs. Afterwards the list was adapted, based on the comments received from this pilot (e.g. comments on the quality of the phrasing, adding a question). Questions with low productivity were revised, omitted or replaced.

3.3 Collecting data

3.3.1 Trust and consent

Qualitative research is demanding for the interviewees: they devote one to two hours of their time, address personal issues, and are required to accept audiotaping and transcription of the conversation. So qualitative researchers need to make some provisions aimed at motivating the participant and addressing potential concerns (15).

Several strategies were used: advocacy, negotiation and feedback.

Advoacy: The objectives, expected output and reasons for a qualitative interview are clearly stated and re-stated from the beginning. Underscoring the relevance of the GP opinions and experience is stressed. Since qualitative methods are fairly recent in medical research, it is important to explain what a qualitative method is and what output is expected from it.

Negotiation: It is important to address the interview expectations and fears as well as to negotiate the technical details of the interview such as audiotaping, transcription, disclosure and anonymity.

Feedback: Participants can receive a transcription of the interview and an account of the results of the study.

3.3.2 The discussion leader (focus groups)

Bohnsack has proposed some guidelines for reconstructing “the collective orientation pattern” of a group (24):

- Address the entire group, not individuals. This is to avoid exerting any direct influence on the distribution of turns.
- Only initiate topics.
- The questioning on the part of the discussion leader is deliberately and demonstratively kept vague. This shows respect for the experiential world of the subjects (“they know more about it than I (discussion leader) do”). This vagueness may be achieved by ‘imprecise’ or open questions but also by the sequence of questions (e.g. ‘What then happened with the change from school to work? How was it for you at that time?’)
- Do not intervene in the allocation of turns. Let the group find its focus “on its own”. Do not take over.
- Refer back to specific sequences (discussed details) only after the group has had its high point of focus (“focusing metaphor”).

3.3.3 The observer (focus groups)

- After each focus group, a discussion took place between the observer and the researcher. The observer noted down his impressions during the focus group. Finally a summary was written after the focus group.

3.3.4 The interviewer (face-to-face)

A summary was also written after each interview. After some interviews, a discussion took place between the researcher, to adapt the questions list and the selection of GPs.
3.3.5 Recording, transcription rules

All material was transcribed using common rules in this field. The Flemish interviews/focus group were transcribed by a secretary from the WV VH; the Walloon interviews/focus group were transcribed by the SSMG -SESA.

3.3.6 Early analysis

One of the nightmares of qualitative research is getting common-sense data. To avoid this problem, qualitative analysis was started at the beginning of data collection. In general, waiting till the end of data collection before starting analysis leads to poor quality data. We, therefore, completed types of intermediate data analysis.

1. Summary of the interview

After each focus group/interview the investigator drafted an interview summary with the following elements: location, context and timing of the interview, name and main professional features of the interviewee, major themes, issues raised, hypothesis or ideas raised, questions with poor productivity, and questions needing more investigation. Just after the end of the interview or focus group, the interviewer and the observer (independently) filled out a sheet answering the following questions:

- Who was being interviewed (face-to-face or focus)?
- Where and when the interview took place.
- Describe the overall atmosphere of the meeting.
- Was there low participation from some members? How many?
- Did any questions elicit a low or poor response?
- Were any questions difficult to understand or required explanations?
- How would you describe the interest of the participants?
- What are the main topics raised by the interview?
- Give three free keywords to summarise the interview.
- What are the new topics raised by the interview?
- What are the hypotheses raised by the interview?
- What would you recommend for the next interview?

2. Interview pre-analysis

In qualitative analysis, new cases are generated in relation to previous findings. Interview N is thus designed in relation to interview N-1 (also known as the saturation principle). Consequently, a rapid first analysis of the interview was carried out during a meeting with the researchers.

3.4 Coding

Two types of coding were suggested: a thematic framework and a conceptual framework.

The thematic framework uses the questionnaire guide as the list of main themes. This is a rough frame allowing for rapid segmentation of the material. The conceptual framework involves implementing the grounded theory approach of open-coding, axial and selective coding.

Because ResoPrim involves several investigators, we used the rules applied by the CDC in the HIV project (25):

1. Assign the primary responsibility to one person for creating, updating and revising a given codebook.
2. Schedule regular meetings where the coding team review each code and definition in the codebook.

3. Establish a process that enhances inter-coder agreement.

4. Define accurately what the code should and should not capture.

**Chronological order of different coding strategies (32)**

- Open coding: so-called “free nodes” in QSR*nudist
- Axial coding: links between codes giving birth to new codes
- Selective coding: a central code linked with satellites
- Cross-coding

Several microanalysis sessions of a sample of “rich” excerpts helped with the creation of a refined list of free codes. The sample might include two to three pages of highly significant material.

The investigators agreed on a list of 50 to 60 codes, using the literature, the pre-analysis and the microanalysis session. These codes are descriptive, interpretative or analytical codes. Each code has a limited definition of what it includes and what it does not include. The definition allows several researchers to use the same code list.

More specifically, in this phase of analysing the collected material, a **theoretical model** was developed. This model relates to “a GP covering a route from acquisition of a PC with EPR for the practice through to participation in EPR-based research networks”. The steps in the model are as follows:

**Step 1:** the GP decides to buy a personal computer with appropriate software for an electronic patient record

**Step 2:** the GP builds experience with computer use and utilisation of the electronic patient record

**Step 3:** after being informed and invited, the GP decides to participate in an EPR-based research network

**Step 4:** the GP becomes acquainted with the reality (costs/benefits) of participation in data exchange through the EPR.

### 3.5 Strategies to improve precision

Our standpoint here is that a qualitative study should meet some precision criteria. However, external validity, internal validity and reliability criteria cannot be applied in the same way as is in quantitative research. Authors have suggested three criteria and strategies that improve the precision of a qualitative design (13,16), although these strategies should be used with caution (17). The criteria are reflectivity, credibility and transferability.

- **Reflexivity** is concerned with the influence that pre-conceptions, theoretical and teaching background may have on the results of the study.

- **Credibility** is the extent to which the results can be trusted: do the results flow from the data or are they merely the product of the investigator’s personal feelings? **Triangulation** is a strategy to increase the credibility of the results. It involves combining several techniques, sources of data, points of view on the issue, and the source of analysis (focus group and interviews).

- **Transferability** is the ability to transfer the results to other settings, populations and, in our case, GPs.

**Cross-reading and cross-coding** (additional criteria): once a first list of codes had been agreed, at the beginning of the coding stage, four investigators from different backgrounds (i.e. two physicians, a psychologist, a social scientist) read and coded a sample of rich materials (interviews known to have
been successful or provided good memos). The text segmentation and the codes were then compared to refine the coding and to develop categories with a view to ensuring that codes have a theoretical underpinning. A kappa was computed at the different levels of the nodes (hierarchy of codes). Divergences were discussed and resolved by the team. Minutes of the discussion were kept, to keep track of any reliability and validity challenges.

The codebook was updated and a second coding stage was started. Once again, a kappa was computed to check concordance, the relevance of the code and the definition of the code.

### Tableau 3: computed kappa by couple of investigators (for codes and steps)

<table>
<thead>
<tr>
<th>Type</th>
<th>Couple of investigators</th>
<th>kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>code</td>
<td>1-2</td>
<td>0.70518</td>
</tr>
<tr>
<td>code</td>
<td>1-3</td>
<td>0.69567</td>
</tr>
<tr>
<td>code</td>
<td>1-4</td>
<td>0.71174</td>
</tr>
<tr>
<td>code</td>
<td>4-2</td>
<td>0.57740</td>
</tr>
<tr>
<td>code</td>
<td>4-3</td>
<td>0.67886</td>
</tr>
<tr>
<td>code</td>
<td>2-3</td>
<td>0.63392</td>
</tr>
<tr>
<td>step</td>
<td>1-2</td>
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</tr>
<tr>
<td>step</td>
<td>1-4</td>
<td>0.67094</td>
</tr>
<tr>
<td>step</td>
<td>4-2</td>
<td>0.58564</td>
</tr>
</tbody>
</table>

### 3.6 Question list for focus group and interviews

See appendix
4 Analysis: the results of the analysis of the interviews with GPs

The following analysis is based on the text material collected during the first phase of the ResoPrim project. The following paragraphs lay out each step (four steps, cf. 2.4 Coding) of the route “from the acquisition of a PC with an EPR system for the practice to the participation in EPR-based research networks” by summarising their content, according to the interviewed GPs.

In the appendix, the frequency of the code (text unit) for the four steps is enclosed. The participation route may be summarised as follows (cf. figure 2): if the GP has a personal computer with appropriate software for an electronic patient record (step 1) and uses the EPR (step 2), he can decide to participate (step 3) and effectively participate (step 4) in an EPR-based research network.

4.1 STEP 1 – “To computerise or not to computerise”, that’s the question!

Since the late 1980s, there has been an increasing trend towards computerisation in health care. As a result of this trend, every physician has been confronted with the decision to computerise their patient files or not. We summarise hereafter the determinants of this decision, according to the participants.

4.1.1 Informatics, a hobby

Some interviewed doctors like to work with a computer. For some GPs it is a ‘passion’ in the same way as new cars are a ‘passion’ for other GPs.

Il faut aimer l'informatique quelque part. Il faut aimer le côté informatique de la chose… [Walloon GP, interview 3]

It is a ‘hobby’ for some of the interviewed GPs and they help to develop the software. They are proud to be part of the design of the software program. They like the software producer to ask them for help, although the GP is lucky if his wishes are fulfilled. The GP is often an ideal partner for the software firm, because he helps introduce the firm’s product to other GPs.

Ze zijn heel wat tijd uitgespaard want ik heb een klein scriptje gemaakt waarin ze in twee minuten al hun diabetes twee patiënten kunnen halen [Flemish GP, interview 1]

Once a GP is convinced of the usefulness of the EPR, he will go back to paper patient record. But it is worth underlining that not all GPs are in favour of PCs and that one may end up with ‘specialists’, who are no longer representative of the average GP. The risk is that the ‘average’ users will drop out/off and that the network may become biased.

Je pense que vous devriez quand même, indépendamment du reste, parcourir les groupes d'utilisateurs de programmes. Ce sont des gens qui sont versés dans la recherche, qui sont versés dans l'informatique, qui sont versés dans les données médicales, qui consacrent du temps à ce type d'aspect des choses, et là vous allez avoir un recrutement qui est biaisé peut être. [Walloon GP, focus group]
Figure 2: The route to participation in an electronic research network

- **CONTACT**
  - Personalisation
  - Exhaustiveness of the information

- **DATA ENTRY**
  - To get computer, to be competent and motivated
  - [Training], To get appropriate software
  - Patients and organisation
  - Informed consent
  - Time for the patients

- **DATA EXTRACTION**
  - Better mastery of the software
  - To complete the EPR
  - To get an image of his practice
  - Better follow-up of the patients

- **USE**
  - Remuneration (financial)
  - Feedback

- **INSTITUTION**
  - Non-scientific
  - Scientific
  - If anonymity
  - Visibility
  - ‘confidence’

- **Satisfaction?**
  - Interest in participating again?

- **Protection of the patients and oneself**

- **Complexity**
  - Time
4.1.2 Cost and benefits of computer use

Computerisation costs money, takes time and introduces technology-related problems.

Mais l'argument ici est fort financier. Un. Ça demande un investissement financier, régulier dans le temps en plus. C'est pas un seul investissement. Mais grosso modo, j'avais calculé un moment donné qu'un investissement informatique tout compris coûtait entre 50 et 100 mille francs par an. Ce qui est beaucoup, ce qui est beaucoup. [Walloon GP, interview 2]

So it is important to invest a little in someone you can trust, to avoid problems. A good after-sales ‘service’ is still very important. GPs help each other or get help from another programmer, not only from the software producer. A ‘computer’ doctor may be the solution for an ongoing helpdesk problem, but this too costs money.

On the other hand, computer use may offer the interviewed GPs many advantages. For example, it gives them fast communication and thus enables them to act very quickly and to give the patient the care required. Some GPs tell (and convince) other GPs that it is important to get computerised, because of the sheer speed of IT development. For instance, x-rays will soon be routinely sent by e-mail. The last ‘battle’ of the ‘hard liners’, who swear by the paper record, is almost lost… and there is a degree of embarrassment among those who are not computerised.

4.1.3 External incentives to get a computer

Our responders say that patients ‘accept’ the PC and want their GP to use the computer. They even ask the GP to look up some previous prescriptions. But GPs should be careful not to spend too much time in front of the screen. It is very important that they first listen to the patient and use the computer in a discreet way, so as not to disturb the patient (unobtrusive, inconspicuous). Moreover, with the help of a computer, some interviewed GPs write more letters to specialists. This may result in them receiving compliments from the specialist, because they provide a complete vision of the patient’s health status in the referral letters. It also puts the specialists under pressure to answer the letters. Even patients appreciate receiving a letter from the GP for preventive actions.

4.2 STEP 2 – using computers in general practice: What’s the buzz?

Once the GP has a personal computer on his desk, this doubtlessly affects the way the GP behaves in daily practice - in terms of clinical practice and the doctor-patient relationship. According to the interviewed GPs, the experience with a computer is a balanced picture between cost (investments) and benefits (returns). We can look at this balance between costs and benefits from three different angles.

4.2.1 The critical care viewpoint

According to the interviewed GPs, having experience with the EPR facilitates safer and better patient follow-up. Facilitators of effective patient follow-up include quicker access to data in the patient file as well as to external data such as a patient’s hospital stay or a vaccination database. Information in the EPR is useful for avoiding double testing (lab test, x-ray, etc.) or for supporting drug safety.

Donc ça, c'est quand même très intéressant de savoir quand on a demandé, quel examen, quel était le résultat, faut-il redemander l'examen ou pas ? Ça, c'est quand même le gros bénéfice. [Walloon GP, interview 4]
The electronic patient record is also a great aid for preventive care. In terms of practice, the GP can extract a list of patients that need to undergo a specific preventive test (e.g. all women between 50 and 70 need a two-yearly mammography for breast-cancer prevention). At the individual level, a GP can keep track of all preventive actions that should be planned for a particular patient.

Et puis à partir du moment où tu es intéressé par la prévention, je ne vois pas comment tu peux travailler sans dossier médical informatisé parce que, chaque mois, il me sort tout ce qui doit être planifié. [Walloon GP, interview 1]

Once the data are in the EPR and have been structured, one of the computer’s clear advantages is the rapid access it offers to a patient’s clinical data. For instance, filters are very useful for specific searches. When patient data accumulate over the years, it becomes increasingly hard to find something in this collection of clinical data. With paper files, users have to turn many pages and look for the right record in a large filing cabinet. With the computer, this takes less time.

Les avantages, c'est la rapidité, hein. Tu as tout le dossier devant toi, tu ne dois pas aller chercher des protocoles, tu ne dois pas fouiller avec des feuilles pour savoir quand est-ce que j'ai fait la dernière radio, la dernière bio. Je cherche un truc, je l'ai immédiatement. Je sais directement quel est son traitement, je sais quels sont ses antécédents, je sais directement quelles sont les intolérances médicamenteuses. Suppose qu'il y a un médicament où il y a allergie, cela s'affiche en rouge. Donc je sais directement que cela ne va pas. Donc, c'est vraiment une aide énorme. [Walloon GP, interview 1]

This speed is also found in the visualisation of data. For instance, the longitudinal curves of blood pressure or cholesterol values are produced at a press of a button. Although some interviewed GPs still like the paper medium for an overview, others clearly state that their computer offers facilities to visualise simultaneously several aspects of the patient’s health. The presentation of data is quick; but even more important, it is also very structured and enables other documents such as referral letters to be laid out in many different ways.

Moi, personnellement, quand je fais une lettre à un spécialiste, combien de médecins, quand ils ne sont pas informatisés, prennent un petit bout de papier et " Cher confrère, pourriez vous voir mon patient pour un problème de tension... ", un petit mot comme ça ne sert pas à grand chose. Moi quand je fais une lettre à un spécialiste, on retrouve automatiquement, c'est l'informatique qui fait ça, tous ses antécédents, ses problèmes, son traitement, ses problèmes allergiques, tout ça se fait tout seul. J'ai une lettre bien complète et les spécialistes en sont ravis.[Walloon GP, interview 6]

These benefits are counterbalanced by some costs, such as the time GPs must invest for data entry and the ordering of this data. This time investment at first discourages many GPs from “going electronic”. But the GPs who have done this are enthusiastic about the benefits of even this laborious data entry. They see it as an opportunity to update their knowledge of their patients.

Le week-end et le soir. Euh, heureusement avec l'aide d'assistant, à l'époque, mais enfin ça nous a quand même pris un temps fou. Mais on a appris à bien connaître nos patients, d'une part, et d'autre part, à régir nos dossiers d'une façon plus, je vais dire, plus structurée.[Walloon GP, interview 5]

Second, once a paper record has been transferred to an electronic one, the GP will need to maintain some discipline in the recording of data. All the clinical data should always be entered into the
electronic file, immediately and in the same way. This is not only true for one physician but also within a group of doctors, such as a group practice or a duty region. This is necessary if different health care providers have to use clinical data for the same patient. Interviewed GPs reported that, in the early phase of their computer use, there was a lot of heterogeneity among doctors in the coding of the records.

Thirdly, GPs using clinical computers need a lot of patience and tolerance when dealing with sometimes very frustrating technical problems, such as computer crashes. All of a sudden, during a busy consultation, the GP may be prohibited from accessing some patient data due to bugs in the software. After the installation of additional software or upgrading of existing software, some data may be lost. It is a law in daily practice that processes should be fluent and quick, to ensure the high workload faced by the GPs is acceptable. If the doctor is confronted with too many obstacles or bottlenecks during such a process, he will get very annoyed and frustrated. During the consultation, this may create problems for the GP and have a negative impact on the patient’s perception of the doctor. GPs also voiced many complaints about the software helpdesks. They feel that helpdesks do not listen to their problems. Having different persons who may answer at the help desk or a helpdesk that only is available from 9 AM till 5 PM may be very annoying.

4.2.2 The doctor-patient relationship viewpoint

Few doctors seemed to connect the computer issue to the doctor-patient relationship. However, in some cases, the clinical computer has also brought some new challenges for the doctor-patient relationship in the consultation. Using a computerised medical record means that the GP inevitably has to spend some time tapping on the keyboard and looking at the computer screen, which calls for a reorganisation of his practice. So the doctor’s attention needs to be balanced between the computer and the patient. Spending too much time with the computer during consultations may cause irritation in patients (“the doctor is not listening, he is looking at his screen”). Some interviewed GPs say that, after the arrival of the computer in the cabinet, they need to be vigilant about the quality of doctor-patient relationship.

GPs are aware of this challenge and use their creativity to deal with it. For instance, several interviewed GPs said they speak out loud what they are entering into the computer. In that way the patient is not unaware of what is happening while the GP is summarising the complaints into the EPR.
If a GP speaks out loud, the patient is also in a position to confirm what is entered in the record. Other GPs turn the computer screen towards the patient, enabling the patient to follow the data-entry process. Another strategy is to place the computer to the side, so that the machine does not block the eye contact with the patient when the GP is looking at the computer screen; or a laptop may be used because of its more discreet size. Some interviewed GPs are, however, still reluctant to work on the PC during the consultation and do the data entry after the consultation is finished or do not bother to do it. This is especially the case when the consultation concerns patients with psychological complaints. On the other hand, patients seem to appreciate GPs that use computers or even expect them to do so.

Er zijn zelfs mensen die zeggen: ik ben bij een dokter geweest en hij heeft zelfs geen computer. Zo van: oei oei is daar niet wat mee? Heeft hij wel de technologie in huis en de knowhow om mij te helpen, want hij had zelfs geen computer? Dus dat begint al negatief te worden bij de mensen. [Flemish GP, interview 5]

### 4.2.3 The psychological angle: substitution and dependency

The electronic patient record has clearly substituted a great deal of uninteresting or demanding human labour. In the first place, the computer serves as an extended memory for the interviewed GPs. The EPR provides the physician with detailed information about prescriptions, x-rays, lab tests, diagnoses, referrals, etc. Moreover, the patient has growing confidence in the “GP’s computer” in terms of its ability to store clinical information. To a lesser extent, GPs see the computer as their secretarial assistant or as a storage point for some libraries.

But this strength is also a weakness because the GP and the patient have become increasingly dependent on the EPR. So if the computer has a crash, the GP’s daily work is severely affected and there is a lot of frustration. The GP is probably aware of the threat posed by the combination of this dependency with the inherent fragility of IT systems. Which explains why some of the interviewed GPs still invest time and energy in keeping paper records (just in case…).

Voor mij zou dit een ramp zijn. Ik zeg altijd dat is mijn extended memory. Ik zou niet meer weten wat de patiënt allemaal neemt. Want alles zit erin. De grote trekken weet ik nog doch de details die je normaal in uw dossier noteert zijn voor mij compleet weg. [Flemish GP, focus group]

### 4.3 STEP 3 - recruitment, a matter of convincing or seducing

#### 4.3.1 The first contact

GPs using an EPR in practice must first be contacted by the organisers of the research network. According to the interviewed GPs, the nature of this contact has to meet two requirements: it has to be a personal contact and its content has to be exhaustive. The importance of being invited by a “well-known” colleague or by a reputed institute or association (scientific in nature) was highlighted. The decision to join the network may also be guided by the knowledge that other colleagues are also participating or the ability to visit a website with further information about the organisers of the network.

Je pense que si c’était un médecin régional qui dit : " voilà ça va se passer comme ça, moi je participe etc ; est-ce que toi tu ne mettrais pas aussi tes données à disposition?", ce serait beaucoup mieux que d'avoir une lettre extérieure qui dit on va faire ceci, cela et on va venir dans votre ordinateur. [Walloon GP, focus group]
4.3.2 A financial remuneration

Remuneration is another element that plays an important – though controversial – role in the decision process. Some interviewed GPs said that it is not the data they provide but the time they invest for someone else (the organisers of the research network) that needs to be compensated. Remuneration is a way of giving value to the GP and his work. Others said that data exchange should be viewed as being part of their daily tasks and therefore does not necessarily need to be remunerated.

Qui sont bien en route. Tu peux te dire : " je fais une auto-évaluation sur tel thème pendant 6 mois, OK je vais passer du temps ". A partir du moment où tu t’inscris dans un projet pondu par d’autres - et ces autres en attendent aussi quelque chose - ça me semble logique qu’ils te paient. Et à ce moment là qu’ils te paient à la rétribution normale d’un médecin généraliste et pas celui d’une femme de ménage, quoi. Parce que ça, j’en ai un peu ras le bol. [Walloon GP, interview 3]

4.3.3 A non-financial remuneration

Besides financial remuneration, other types of remuneration may even be more important for motivating GPs to join the network: participation provides an opportunity to complete and update the information in the EPR (not only useful for the research network but also for the GP) and/or it may encourage the GP to be more systematic both in data entry and clinical work. From that perspective, (re)participation can be enhanced by participation.

Et j'ai accepté d'y participer aussi parce que les conditions sont les mêmes et ça va me permettre, me motiver aussi à introduire plus de données dans l'ordinateur parce qu'on va devoir, - d'après la petite séance de formation à laquelle j'ai été invité tout du moins pour nous expliquer ce que l'on allait attendre de nous -, bien je vais devoir indiquer le poids de mes patients, le BMI, tout des trucs qui sont prévus mais que honnêtement je ne remplis pas. [Walloon GP, interview 4]

Je pense que quand on s'implique dans un sujet d'étude, notamment, on est plus attentif dans sa propre pratique. Si c'est le vaccin, fatalement, on fait attention aux vaccins. [Walloon GP, focus group]

Secondly, at the end of the project, the GP receives some feedback with the results for the practice being benchmarked against those of the other participating practices. Feedback is not just a piece of paper with graphs on it: it also includes personal feedback from the researchers and ‘tips and tricks’ on how the practices could provide better quality of care. GPs seem to want to know how they will compare with their colleagues. They are interested in getting feedback on their daily practice. Some GPs see feedback as a stimulus to work more systematically, to operate in a more logical way and to stay in touch with the way others work.

Je crois que j’ai été agréablement surpris parce que j’avais peut-être une tendance à croire que j’utilisais beaucoup trop souvent les anti-inflammatoires et en fait, je me suis rendu compte que j’étais dans une bonne moyenne. Et donc ça m’a un peu rassuré sur ma pratique, en tout cas concernant les anti-inflammatoires. [Walloon GP, interview 4]

However, GPs are a little nervous about discovering how they are doing and somewhat afraid of the ‘consequences’ of any ‘big brother’ watching over their shoulder. Moreover, or consequently, several
of the interviewed practitioners called into question the validity of feedback received. Indeed, the feedback comparison does not take into account the characteristics of each practitioner's patient.

Twee, dat ik op voorhand garanties krijg dat als daar hiaten of fouten uit voortkomen dat zij niet als BIG BROTHER gaan afkomen van:"ha, jij hebt dat zo gedaan". Zij mogen mij wel adviseren en zo, maar ik wens mijn therapeutische autonomie te behouden en ik heb er geen behoefte aan om door mijn nek uit te steken eigenlijk meer mijn hoofd op de blok te leggen en om af te zien gekapt worden, dat loont niet. Het is uiteraard zo dat als daar zware dingen in zitten, dat ik dat ook graag weet. Dan kan ik er maar wel bij varen, maar men moet heel sterk opletten om het niet allemaal te uniform te willen maken. Een heel stuk van wat ik doe is toch wel experience-based en op maat van de patiënt en dat staat helaas niet in de standaard. [Flemish GP, interview 5]

**4.3.4 Characteristics of the study**

The interviewed GPs listed a number of characteristics of the research network that are crucial in their decision to participate. First, the study must have a **scientific purpose**, such as epidemiology.

Mais si c'est pour une question de savoir, et bien, il y a autant de personnes hypertendues dans le pays, ou les généralistes traitent plus ceci ou ça, si c'est dans la masse, je veux bien. [Walloon GP, interview 2]

Another scientific purpose is auto-evaluation of the practice in relation to evidence-based medicine. It may be useful for the GP to compare himself to the average physician at the end of the study. From this perspective, the clinical practice is guided by general observations on what the GP has to do with his patients.

Je me rends bien compte qu'il faut travailler au sein d'un réseau et ce qui fait que quand l'ISP a proposé de faire une récolte de données au niveau de plusieurs médecins et de leur donner après un feedback de son niveau individuel par rapport à l'ensemble du groupe ça m'intéressait au premier point. C'est ce qui m'a incité à participer à chacun des projets. [Walloon GP, focus group]

The **anonymisation** of both patient and GP data is a **conditio sine qua non**. Another concern of the GPs is the time they will have to invest as well as the workload for recording all the requested data. Lack of **time** was a very frequent excuse for declining participation in data-collection projects. Last but not least there was a "**fear of being controlled by authorities**" (e.g. health authorities). This was a common concern and there needs to be a clear communication about the purposes of the data collection and secondary use of the data in order to create an atmosphere of **trust**. This atmosphere lies at the heart of a positive decision to participate.

**4.4 STEP 4 - how to survive the data-collection process**

What does it mean to participate in an EPR-based research network, from a practical point of view? The experience of the interviewed GPs is centres on two key moments: the recording of the data in the EPR and the extraction of the data from of the EPR.

**4.4.1 The recording of data in the EPR**

Participation in the study involves additional work such as recording more than usual (items which the GP has not entered before) or recording more systematically than usual (items already coded but sporadically). The study organisers ask the GP to encode data that are not necessarily considered to be
useful for the practice by the GP. Coding for others and not only for oneself increases the GP’s daily workload. This **discipline** (coding data in the right section, in the right way and at the right time) is designed to make the EPR legible for other colleagues. For the GP is not the only potential user of a part of his EPR.

The discipline takes time and **time** allocated to data entry comes at the expense of time allotted to the patient or the family. The GP also has to be careful not to devote too much time to the study.

*Ik zou het eerste nog een beetje beter onder de knie willen krijgen. Onder andere die codering en wat ik er allemaal meer mee kan doen, de keer dat dat er is, misschien wel ja. Maar ik heb twee kinderen, een puber en één die zogezegd puber af is, maar daar steek ik ook nog tamelijk wat tijd in.* [Flemish GP, interview 6]

*Het vraagt wel meer tijd tijdens uw consultatie. Correct registreren vraagt meer tijd. Je ziet minder patiënten op een uur dan in normale omstandigheden. Patiënten die je op huisbezoek zag, hiervan noteerde je achteraf ook de gegevens. Dat is in feite geen nadeel doch ook een voordeel.* [Flemish GP, focus group]

The GP above speaks about “optimalisation” of this new situation. Participation in the network is not supposed to overload the physician. For it is not just a question of time: in some cases, GPs need to **reorganise** their daily routine, which creates a real problem for some GPs. Participation can lead to a re-organisation of the daily practice and introduce an inflexibility imposed by others.

*Voilà, on pouvait s'adapter. Si je commençais mes consultations à 5h et je me dis "tiens, allez, aujourd’hui, lundi soir, je fais mon étude sur la ssmg " et en arrivant à 5h, je vois qu’il y a déjà 10 voitures sur le parking, je me dis " non, je la ferai demain ". Vous avez la possibilité comme ça de .. . Tandis que l'étude sur les patients de plus de 60 ans et l'arthrose, c’était vraiment tous les patients de plus de 60 ans pendant une période d'un mois ou trois semaines.* [Walloon GP, interview 6]

On the other hand, participation may change practice habits in a positive way in the long run (e.g. raising awareness of the need for exhaustive data entry, which in its turn results in better patient follow-up).

There is a debate about the **informed consent**. There are barriers to obtaining written consent from patients systematically. Although these barriers have a legal basis, some GPs consider them to be “not necessary”, given that the data are anonymised, the study is no threat to the well-being of patients and it is hard to explain the study to the patients.

*Ik vind dat dat niet nodig is. Waarschijnlijk stroomt dat niet met de privacy, met de wet op de patiëntenrechten, dat kan, ik weet dat niet. Maar ik vind dat dat niet nodig is, ik doe ook al 20 jaar mee aan de peilpraktijken, nu zat daar dit jaar ook een affiche bij om in de wachtkamer te hangen, ik heb dat gedaan. Dat is toch vrij anoniem, met proeven en aantallen, ik denk niet dat de mensen daarvan wakker liggen.* [Flemish GP, interview 3]

Other GPs have other arguments, such as the possibility of adding a bias to the study.

*Pff. Honnêtement, je ne crois pas. A partir du moment où, de toute façon, on essaye de voir sa pratique, ce serait peut-être biaiser les choses en signalant au patient :*
"tiens, c'est une étude". Le patient va peut-être être un peu réticent, certains tout au moins, et peut-être être moins ouvert vis-à-vis de nos prescriptions que si on ne leur avait pas dit. Ça peut orienter un peu nos prescriptions. Donc, je crois que ce n'est pas utile, non. [Walloon GP, interview 4]

Furthermore, the study does not request more from patients, who must not bring any additional data (at least he should be aware of the study) and the practitioner is just as much the owner of the data as the patients themselves.

However, there is a clear benefit to asking for informed consent: the patient becomes more important to some extend and the doctor-patient relationship may be enhanced.

J'ai l'impression que le patient incorpore cela dans la logique d'une anamnèse. Il se dit : "Tiens on s'intéresse à des choses dont on n'a jamais parlé". Ça peut être bien. [Walloon GP, focus group]

4.4.2 The extraction of data from the EPR

According to the interviewed GPs, annoying problems often emerge during data extraction. Informatics is a very technical affair: though GPs may not master it, they do become dependent on it. They have to trust computer scientists, who are not physicians, even though this affects their practice and medical data. Since data extraction in a network of GPs requires a great deal of standardisation during data entry, some GPs may view this as too rigid a constraint and see it as a potential threat to their autonomy as a general practitioner. So GPs may get frustrated when technical problems arise during data extraction, problems that, as they put it, “ruin the work [data entry] done”.

As a solution for this phenomenon GPs propose a somewhat bipolar approach. On the one hand they would like the process of data extraction to take place in a “hidden” way (i.e. fully automatically, without bothering the GP in his daily work with the EPR). They say it is the task of the IT person to look for the data “where they are”. Data extraction should not take extra time or require the GP to acquire additional skills.

C'était un envoi automatique de données qui devait se mettre en place. Sans rien faire, vos données partaient. […] Voilà, il faudrait que, sans s'en rendre compte, les données soient envoyées, soit automatiquement, soit qu'on peut valider, pour quand même avoir un choix personnel, mais sur chaque patient, que toutes ces données soient ... ; alors là je crois qu'on éviterait le problème du temps, le problème de la manipulation informatique. […] On ne va pas aller regarder tout ces machins là chaque fois naturellement, mais je pense qu'il faut quand même une certaine transparence, que le médecin qui envoie un fichier puisse l'ouvrir, pour voir ce qu'il y a dedans. Donc, c'est vrai, c'est une petite sécurité, on peux dire : « bon voilà, je sais quand même avoir un petit coup d'œil ». [Walloon GP, interview 6]

On the other hand, this automatic approach should not exclude the possibility for the GP of checking the data that leave his computer, “whenever he wants to”. Consequently, it is important for the GP to be able to do the extraction voluntarily in order to check the content, his data, his work and the utilisation of his data by others.

Once extracted, the data will be sent to a central collection point (e.g. a research institute). From hereon, the GPs make it very clear that they and their patients must be protected by complete anonymisation of the data sent as well as full encryption of their content. Being protected also includes the level of confidence, as is often said, that GPs have in the institutions that organise the data.
collection and/or use the collected data. For them to trust the institutions, it is important that they are aware of the nature of the institution that organises the data collection. It is also easier if the institution has some visibility (e.g. a website) and is scientific or epidemiological (as opposed to a public health ministry, health fund or pharmaceutical firms, which have economic goals).
5 Discussion

5.1 Theoretical discussion

In this part of the document, we attempt to bring together some analyses of our results, some theoretical considerations and information from the literature. This additional information opens up a number of research perspectives for further work.

Some results of our analysis raise questions about the effects of using a computer, the autonomy of the GP and the professional approach of the practice. Our results cannot entirely answer these questions, but they do allow us to make some hypotheses. These three aspects are briefly discussed below.

5.1.1 Computer technology and its effects

To participate in electronic research networks, GPs must use computers with appropriate software systems. But some of the interviewed GPs say that computerisation is time-consuming and causes technical problems. For some of these GPs, this situation may stem from technology that is often designed by a computer scientist or a professional outside of the practice rather than a practitioner. This issue is also raised in the literature. For instance, Gómez et al. noted in their paper (29) that many computer systems showed risks in a numerical, graphical or pictorial way that is difficult for a non-computer scientist to understand.

Our analysis also showed that the GPs were unable to check systematically what leaves their computers or to interpret the data when they participate in a research network. This may raise questions about the validity of the feedback (i.e. the image that GPs will acquire from their own practices) provided by the scientists and potentially based on biased extracted data that do not correspond to the reality of the GPs’ practices.

In the literature, the computer is sometimes viewed as a ‘magic box’, a substitute for GPs and patients. Computers potentially enhance the image of a GP and patients may see computers as a mark of modernity. But according to Als (26) and Gómez et al (29), patients may also have less confidence in their GP, because they see that the GP needs a computer, which may raise questions about the GP’s abilities.

5.1.2 Autonomy of the GP

A key issue, present in the interviews as a leitmotiv throughout the process from computer use in daily practice through to participation in EPR-based networks, is that of the potential control of the practice and the profession. Once the practice is computerised, it becomes possible to extract and use data for practice assessment purposes. Consequently, just by participating in a study, the GP will necessarily have to deal with some constraints associated with data entry, clinical practice or the organisation of daily work. In this case, the computer could have a particular function, as Exworthy et al emphasised (28): it becomes an arbiter of the GP’s performance, reveals the data on individual clinical practice to others, and the GP becomes reliant on computer data. According to these authors, the GPs acknowledge the need for better recording of their clinical activities “in order to be seen to be performing well”, because they know that their professional abilities have to be shown.

However, the use of a computer and participation in a research network can also pose a potential threat to the GP’s clinical autonomy – a threat that is then associated with scepticism towards some government policies, such as clinical governance and immunisation rate targets (28). This scepticism probably explains why some interviewed GPs emphasised need for protection of themselves, their patients and their data before they would consider taking part in data-exchange projects. What is more, some interviewed GPs think that certain indicators – such as those used in INAMI/RIZIV feedback – cannot demonstrate the skills of the GPs. The INAMI/RIZIV is associated with the state and has a poor reputation, because its position and objectives are far removed from the GPs’ daily practice. As a result, the kind of assessors and their type of expertise (28) are important for the recruitment of GPs for participation in an electronic research network.
5.1.3 Individual approach and population approaches

The issue of clinical autonomy throws light on another phenomenon, namely the tension in the professional field between what is called “the population approach” and the “individual approach”. The former implies strict concordance of the care for the patient group with evidence-based guidelines; the latter stresses the individual doctor-patient relationship, where the patient in question is at the centre of clinical reasoning (in contrast with generalisation in guidelines). The evidence-based medicine perspective creates tension within the profession between “the maintenance of the autonomy of the profession as a collectivity through the promotion of a therapeutic rationality and the maintenance of the autonomy of the individual practitioner through the rhetoric of patient-centredness”, addressing the consumerist concerns (27).

With this evolution, we observe a stratification of the medical profession (28; 30) and the emergence of some “elites” appear within the medical professional group. These elites promote evidence-based medicine (EBM) and control a particular type of knowledge, linked to epidemiology and statistics.

In our interviews, GPs listed a number of features of the research network that are crucial in encouraging them to participate; among them was the study’s scientific purpose. For some interviewed GPs, this purpose is linked with evidence-based medicine and quality of care. From this perspective, clinical practice is guided by general observations on what the GP has to do with his patients. So we could hypothesise that GPs participating in networks adopt a population approach in their practice and data (as opposed to an individual approach, focused on the particular characteristics of the patient). We can also assume that participation in a research network offers GPs the opportunity to master specific knowledge (e.g. epidemiological and statistical) and therefore to become part of an “elite”.

5.2 Link with the research questions

Since the late 1980s, there has been an increasing trend towards computerisation in health care. As a result, every physician has been confronted with the decision to computerise their patient files or not. If the GP uses a computer and appropriate software, he may also decide to participate in an electronic research network.

By exploring participation in electronic research networks, we tried to provide initial answers to two research questions: (Q1) “What are the training needs of participant GPs in an electronic research network?”; and (Q2) “What are the benefits and drawbacks of participation in an electronic research network?” The design of the first phase of the ResoPrim project did not allow us to interview GPs about their participation in ResoPrim. Therefore, through the qualitative analysis, we were not able to answer our third research question (Q3) “What are the benefits and drawbacks of participation in ResoPrim, as experienced by participating GPs?” Nevertheless, we obtained a partial answer to this question through various questionnaires. The results of the analysis of the answers to these questionnaires are available elsewhere (33).

A short discussion of the results related to our first two research questions is provided below.

5.2.1 Training needs

Physician are among the key users of computers – yet they often have poor (and sometimes hardly any) mastery of the technology. This situation results in uncertainties, unwanted side effects and can make the computer users dependent on others. However, only a few interviewed GPs spontaneously mentioned their training needs in this field. When they did mention them, these needs concerned computer training (to make correct use of software for data transfer or email) or were linked to coding. Moreover, training must be useful for the GP, in the long term and not only for the study. Instead of training, many of the interviewed GPs proposed an efficient and available help-desk.

These results have limited value. Indeed, for some interviewed GPs, computers are a passion and a hobby. Once a GP is convinced of the EPR’s usefulness, he will never go back to a paper patient record. But it should be underlined that not all of the GPs are in favour of PCs and that our research network will end up with ‘specialists’, who are no longer representative of the common GP (especially
with regard to training needs for participation in an electronic research network). There is a risk that the ‘average’ users will drop out/off and that bias will enter into the network.

5.2.2 Benefits and drawbacks of participation in an electronic research network

To stimulate participation in an electronic research network, the interviewed GPs highlighted several benefits as well as drawbacks. These include the stimulus of a personal contact inviting the GP to collaborate; exhaustive information on the project; trust in the organisers of the research network; the use of anonymous data (for patients and GPs); a scientific objective for the network; an acceptable workload compatible with daily practice; learning opportunities or individual feedback (less unanimity); and a financial incentive (less unanimity).

However, according to the interviewed GPs, the decision to participate in EPR-based research networks seems not to be linked to a rational evaluation of the advantages and drawbacks. Instead, it would appear to be an automatic process in our study.

Motivations to participate include an interest in scientific studies or a need to meet other colleagues (and to break out of the isolation of a GP’s life). Once GPs step into a network they remain potential participants. Although the interviewees voiced some criticism of the existing projects (badly designed or too time-consuming) they remain candidates for future projects. Since our research does not pertain to GPs who enter such a network for the very first time (most of them have previous experiences of these networks) or those who have never taken part in anything similar, our conclusions should be interpreted as being valid for the process (an experience) of participation, as assessed retrospectively, rather than for the process from non-participation to participation.

GPs participate in a network for a variety of reasons. But after they have done so, they experience benefits that outweigh the costs (or costs become benefits) and they participate again. For that reason, participation explains participation.
6 Bibliography


(3) Kmietowicz Z. Data collection is poor because staff don't see the point. BMJ 2004; 328(7443):786-d.


(22) Barbour RS. Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? BMJ 2001;322:1115-7.


7 Appendix

7.1 Question list for focus group

7.1.1 Question list for focus group 3A: “HA die reeds vroeger aan studies van WIV, WVVH hebben deelgenomen doch die andere software gebruiken dan de softwares die deelnemen aan ResoPrim”.

1. U hebt ooit al eens deelgenomen aan een project waarbij gegevens werden ingezameld en uitgewisseld. Wat heeft dat voor u aan voordelen bij gebracht?

Subvraag:
1.1 Hebt u voordelen ervaren met betrekking tot uw praktijkorganisatie of praktijkvoering?
1.2 Had dit invloed op uw relatie met uw patiënten?

2. Uw deelname waarbij gegevens werden ingezameld en uitgewisseld. Waren hier bepaalde nadelen aan verbonden?

Subvraag:
2.1 Nadelen met betrekking tot uw praktijkorganisatie of praktijkvoering?
2.2 Nadelen mbt uw relatie met uw patiënten?

3. Wij hebben ondervonden dat het moeilijk is om HA te vinden die willen deelnemen aan onderzoeksnetwerken met gegevensuitwisseling. Wat zijn volgens jullie de voornaamste redenen tot niet deelname?

Subvragen:
3.1 Heeft men schrik om gegevens uit te wisselen?
3.2 Wat kan er volgens u allemaal fout lopen met de ingezamelde gegevens?

4. De volgende vraag heeft betrekking op het EMD en de verwerking van de elektronische patiëntengegevens:

4.1 Stel dat morgen uw PC “crasht” en alle gegevens zijn verdwenen. Wat zou het gevolg zijn:
   i. Voor uw praktijkorganisatie?
   ii. Voor uw contact met de patiënten?

b. Stel dat je uw collega ervan wil overtuigen dat het gebruik van een elektronisch dossier veel beter is dan het gebruik van papieren dossiers. Wat zijn voor u door slaggevende argumenten ten voordele van het elektronisch dossier of ten voordele van het papieren dossier?

c. Of wat zijn voor u door slaggevende argumenten ten nadele van het papieren dossier of ten nadele van het elektronisch dossier.
Subvragen :
   i. Welke moeilijkheden ervaart u regelmatig tijdens het werken met het elektronisch patiëntendossier?
   ii. Heb je voldoende opleiding gekregen om te leren werken met het EPD? Wat is er tekort aan het huidig aanbod van opleiding?

5. De volgende vragen gaan over het gebruik van gegevens uit uw EMD.

   d. Waarvoor wil je uw gegevens uitwisselen?
   e. Welke voorwaarde moet eerst voldaan zijn opdat je gegevens wil uitwisselen met andere collegae?
   f. Onder welke voorwaarden zou de WVVH of een andere wetenschappelijke organisatie uw gegevens mogen gebruiken?

Bij de afsluiting wordt gevraagd of er nog iemand iets wil toevoegen. Aan de observatoren wordt gevraagd of zij nog vragen te stellen hebben. Danken voor de medewerking.
7.1.2 Question list for focus group 3B : « MG qui ont participé à une étude précédente de l'ISP-SSMG-WVVH avec DME et qui n’utilisent pas un logiciel impliqué dans ResoPrim ».

1. Vous avez déjà participé à un projet de récolte et d’échange de données. Qu’est-ce qui vous avait motivé à participer à ce projet ?

2. Qu’est-ce que cela vous a apporté concrètement de participer à ce projet?

   Sous-questions :
   2.1. Quelle influence cela a-t-il eu sur l’organisation de votre pratique quotidienne ?
   2.2. Comment vos patients ont-ils perçu cette expérience ?

3. Quels ont été les désavantages de votre participation à ce projet de récolte et d’échange de données?

   Sous-questions :
   3.1. Difficultés en relation avec l’organisation de votre pratique quotidienne ?
   3.2. Difficultés concernant votre relation avec vos patients ?

4. Nous trouvons qu’il est difficile de recruter des médecins généralistes pour participer à des réseaux (projets) de recherche avec échange de données. Comment expliquer vous cela?

   Sous-question facultative :
   4.1. De quoi vos confrères ont-ils peur ?
   4.2. Qu’est-ce qui selon vous peut mal tourner avec ce type de réseaux ?

La question suivante concerne le DME et le traitement des données électroniques des patients au sein du cabinet:

5. Si demain vous n’aviez pas d’ordinateur, qu’est-ce qui manquerait à votre pratique quotidienne ?

6. Vous devez convaincre un confrère de se mettre aux dossiers électroniques, quels arguments allez-vous utiliser ?
7. Vous êtes un promoteur du dossier papier, quels sont vos arguments?

Sous-question :
7.1. Quelles difficultés rencontrez-vous régulièrement au cours de votre travail avec le dossier électronique?

La question suivante concerne l'utilisation des données extraites de votre DME et sortant du cabinet.

8. A quelles conditions accepteriez-vous que les données quittent votre DME et soient utilisées par d'autres?

A la fin de la discussion, il faut veiller à s'assurer que personne n'a plus rien à ajouter et vérifier que l'observateur n'a pas de questions à poser.

Enfin, il reste à dire merci pour la participation.
7.2 Question list for interviews

7.2.1 Question list for interviews with participants

1. Rappelez-vous le moment où vous avez été contacté par téléphone pour votre participation à l’entretien. Quelles ont été les premières pensées qui vous sont venues spontanément à l’esprit ?

2. Vous avez déjà participé à un projet de récolte et d’échange de données. Qu’est-ce qui vous avait stimulé à participer à ce projet ?

Sous-question :
   2.1. Aviez-vous eu besoin d’une formation pour y participer ? de quel type ?

3. Qu’est-ce que cela vous a apporté concrètement de participer à ce projet ?

Sous-questions :
   3.1. Quelle influence cela a-t-il eu sur l’organisation de votre pratique quotidienne ? Pouvez-vous donner un exemple ? Quelles sont les adaptations que vous avez dû faire dans l’organisation de votre pratique ?
   3.2. « Ce n’est pas nécessaire d’informer les patients ». Qu’en pensez-vous ?
   3.3. Comment cela vous aide-t-il dans votre relation au patient ?
      - du point de vue de la disponibilité ?
      - du point de vue de l’information du patient ?
      - du point de vue des données sur le patient (mieux codées par exemple) ?

4. Quels ont été les désavantages de votre participation à ce projet de récolte et d’échange de données ?

   Si réponse = perte de temps, relance : Pourquoi est-ce une perte de temps ?

Sous-questions :
   4.1. Difficultés en relation avec l’organisation de votre pratique quotidienne ? (exemple ?)
4.2. Dans vos relations avec vos patients, quelles sont les difficultés que vous avez rencontrées lors de votre participation à ce projet ? (exemple ?)

4.3. En quoi cela a-t-il été contraignant pour vous ?

5. Nous trouvons qu'il est difficile de recruter des médecins généralistes pour participer à des réseaux (projets) de recherche avec échange de données. Comment expliquer vous cela ?

Sous-questions :
5.1. De quoi vos confrères ont-ils peur ?
5.2. Qu'est-ce qui selon vous peut mal tourner avec ce type de réseaux ?

La question suivante concerne le DME et le traitement des données électroniques des patients au sein du cabinet:

6. Pouvez-vous nous raconter une consultation où le DME a posé problème ?

Relance :
6.1. Et si demain vous n'aviez pas d'ordinateur, qu'est-ce qui manquerait à votre pratique quotidienne ?

7. Vous devez convaincre un confrère de se mettre aux dossiers électroniques, quels arguments allez-vous utiliser ?

8. Vous êtes un promoteur du dossier papier, quels sont vos arguments ?

Sous-question :
7.1. Quelles difficultés rencontrez-vous régulièrement au cours de votre travail avec le dossier électronique ?

9. Qu'est-ce que vous ne pouvez pas faire avec votre DME que vous pouvez faire avec votre dossier papier ?

La question suivante concerne l'utilisation des données extraites de votre DME et sortant du cabinet.
10. Lors de vos expériences précédentes, à quelles conditions avez-vous accepté que les données quittent votre DME et soient utilisées par d'autres ?

Sous-question :
10.1. Qu'avez-vous pensé de cette démarche ?

11. Pourquoi avez-vous accepté de participer à l'entretien ?

Sous-question :
11.1. Avez-vous des commentaires à ajouter ?
7.2.2 Question list for interviews with non-participants

1. Rappelez-vous le moment où vous avez été contacté par téléphone pour votre participation à l’entretien. Quelles ont été les premières pensées qui vous sont venues spontanément à l’esprit?

2. Pourquoi n’avez-vous jamais participé à un projet de récolte et d’échange de données?

3. Quelles étaient vos craintes vis-à-vis ce type de projet?
   Si réponse = perte de temps (ou autre), relance : pourquoi est-ce une perte de temps?

   Sous-questions :
   a. Auriez-vous besoin d’une formation pour y participer ? de quel type ?

4. «Dans le cadre de la participation à un projet de récolte et d’échange de données, il est nécessaire d’informer ses patients » : qu’en pensez-vous ? (pourquoi ?)

5. Nous trouvons qu’il est difficile de recruter des médecins généralistes pour participer à des réseaux (projets) de recherche avec échange de données. Comment expliquez-vous cela ?

   Sous-question :
   a. De quoi vos confrères ont-ils peur ? (Pourquoi ?)
   b. Qu’est-ce qui selon vous peut mal tourner avec ce type de réseaux ?

La question suivante concerne le DME et le traitement des données électroniques des patients au sein du cabinet:

6. Pouvez-vous nous raconter une consultation où le DME a posé problème ?
   (pas uniquement du point de vue informatique, mais aussi dans le cadre de la relation au patient)

   Relance :
   a. Et si demain vous n’aviez pas d’ordinateur, qu’est-ce qui manquerait à votre pratique quotidienne ?
7. Vous devez convaincre un confrère de se mettre aux dossiers électroniques, quels arguments allez-vous utiliser ?

8. Vous êtes un promoteur du dossier papier, quels sont vos arguments ?

Sous-question :
8.1. Quelles difficultés rencontrez-vous régulièrement au cours de votre travail avec le dossier électronique ?

9. Qu’est-ce que vous ne pouvez pas faire avec votre DME que vous pouvez faire avec votre dossier papier ?

   a. Par rapport à l’organisation de votre pratique quotidienne ?
   b. Par rapport aux relations à vos patients ?

La question suivante concerne l’utilisation des données extraites de votre DME et sortant du cabinet.

10. A quelles conditions accepteriez-vous que les données quittent votre DME et soient utilisées par d’autres ?

11. Pourquoi avez-vous accepté de participer à l’entretien ?

Sous-question :
11.1. Avez-vous des commentaires à ajouter ?
### 7.3 Frequency of the codes (text unit) for each step

**step 1 - to get computer, internet and appropriate software's**

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**step 3 - To be invited to participate in a specific electronic study**

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step 4 - To install software and programs, to record data and to contact help desk, to extract data

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