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Published in:
Science, Technology & Human Values

Link to article, DOI:
[10.1177/0162243906293884](https://doi.org/10.1177/0162243906293884)

Publication date:
2007

Document Version
Early version, also known as pre-print

[Link back to DTU Orbit](#)

Citation (APA):
Winthereik, B. R., van der Ploeg, I., & Berg, M. (2007). The electronic patient record as a meaningful audit tool - Accountability and autonomy in general practitioner work. *Science, Technology & Human Values*, 32(1), 6-25.
<https://doi.org/10.1177/0162243906293884>

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The Electronic Patient Record as a Meaningful Audit Tool Accountability and Autonomy in GP Work

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Acknowledgements

We wish to thank the GPs, who shared their experiences on audit. In particular Dr. John Williams, who made fieldwork possible in the first place. Also, we are grateful towards Roland Bal, Antoinette de Bont, Casper Bruun Jensen, Jeannette Pols, Katie Vann and colleagues at the Institute of Organization and Industrial Sociology, Copenhagen Business School. The research was made possible through a grant from Netherlands Organization for Scientific Research (project no. 426-12-006).

Abstract

Health authorities increasingly request that GPs use information and communication technologies such as electronic patient records (EPR) for accountability purposes. This article deals with the use of EPRs among general practitioners (GPs) in Britain. It examines two ways in which GPs use the EPR for accountability purposes. One way is to generate audit reports on the basis of the information that has been entered into the record. The other is to let the computer intervene in the clinical process through prompts. The article argues that GPs' ambivalence towards using the EPR makes them active in finding ways that turns the EPR into a meaningful tool for them; i.e. a tool that helps them provide what they see as good care. The article's main contribution is to show how accountability and autonomy are co-produced; less professional autonomy does not follow from more requests to document one's work. Instead, new forms of autonomy are produced in the sociotechnical network that is made up by health policy and local engagements with patients and technology.

Keywords

Accountability, GP practice, electronic patient record (EPR), evidence-based medicine, self-management, autonomy, STS, ethnography.

Introduction

“Measure what is measurable, and make measurable what is not so” (Galileo Galilei)

“Accountability means living up to the norms, doing so in a way that is transparent; showing what you do, getting appraisal. I don’t mind offering a view into my ‘kitchen’, as long the norms are clear. As long as it is about things that I am able to change and as long I benefit from it.” (Dutch GP cited in Mediator 2003, vol. 14[7])

As resources are scarce and demands increasing, governments wish to have value for money and better possibilities of measuring and priorities setting in health care. Ideas and management tools from the area of public management (New Public Management) are, thus, being promoted in the Western health care services (Strong 1990). New public management argues for regionalization of health care services as well as more local governance of the health care sector. One of the tools to combine regionalization and value for money is to distribute measurements and evaluation of health care services to the health care providers themselves. This is done through official requests to carry out standardized registrations in the patient record as well as to increasingly use the records as the basis for reports and evaluations of what has been done. (Bates 1999; Berg, Schellekens et al. 2005).

In the wake of health care reforms inspired by ideas from new public management a number of new keywords and concepts are taken into use within health care. *Evidence-based medicine*, *best practice*, *bench-marking*, *transparency*, and *clinical governance* are terms that link arguments for high quality care and economical clinical practices with arguments of scientific progress and objectivity. The arguments for more intensive registration and account-giving practice that underlie the use of those terms are convincing, as it is hard to criticize quests for openness, access and responsibility. Yet the increased use of the terms and the new accountability practices also beg the question what consequences the audit culture has for everyday work within the health care sector (Strathern 2000).

Accountability practices in an audit culture go hand in hand with developments of information and communication technologies (ICT). For managers in the health care sectors current health care practices are not sufficiently transparent. For this reason ICT tools are developed that provide various kinds of solutions for the “transparency problem”. The electronic patient record (EPR) is one such solution as EPRs are increasingly being used as a means to standardize patient information to an extent that was not possible with the paper record (Berg 1999; Winthereik 2003).¹ Standardization creates an opportunity to compare registrations in the record and the record can thus be seen as a technological solution to the problem managers perceive of the high autonomy of the medical profession (especially that of GPs) (Harrison 2004). Next to being used for recording information about the clinical encounter for internal storage of information, EPRs are used for documentation purposes.

The double function of the record as the GP’s memory and as an accountability device of use for external parties is not new. For several decades the record has functioned as a legal document and has fulfilled several roles simultaneously. The new thing, however, is 1) That information in the record gets structured in a way so that filling in the information *intervenes in the clinical process* and 2) That standardized data are submitted *on a routinely basis* to health authorities for inter-practice comparisons and evaluation. As the record gets digitalized its double purpose as a clinical tool and an accountability device is thus stressed (Dourish 2001; Winthereik and Vikkelsø 2005).

Increased requests to demonstrate accountability in health care work can be looked upon as government initiatives to regulate the expensive health care sector. This regulation, however, is distributed to the actors of the field, who are largely responsible for carrying out the audit activities that in the end may lead to regulation of their own work. Flynn has studied the rise of clinical governance in the British National Health Services and uses the foucauldian notion of governmentality to understand the new systems of self-governance in health care (Flynn 2004).

He points out that clinical governance is a specific example of governmentality in which clinicians engage in their own surveillance and self-management. Flynn argues that self-management within health care does not lead to increased professional autonomy as the state's obligation to control expenditure and risk at the same time has led to intensified performance controls (ibid.).

The following article examines the relation between the use of an EPR as accounting tool and GP autonomy. It argues that GPs' different uses of an EPR and their engagement in the new accountability practices carve out a space for professional autonomy. The article uses fieldwork among GPs in Britain to address the questions: *How do GPs use information and communication technology, and more specifically the electronic patient record, to fulfill the government's request for accountability? What new (technology-mediated) accountability practices occur? What are the consequences of the accountability practices for GPs' professional autonomy?*

Theoretically the article builds on the strands of science and technology studies that focus on the constructed nature of "natural" entities (Latour 1987; Gomart 1999; Latour 1999; Gomart 2002). The entities examined in the following are primarily doctors and their electronic record systems, and it is assumed that doctors and IT-systems such as EPRs gain their "properties" and their agency through continuous interaction and engagement with each other and other entities in an actor-network. The property of an "accountable GP", thus, cannot be determined without knowledge of the socio-technical set-up, which he or she passes through or in which he or she performs.

Instead of regarding increased accountability as the result of a more or less complete mapping of certain work practices, accountability may be seen as a kind of representational activity that has profound effects on the involved actors and their relations (Latour 1990). Accountability may thus be seen as the result of translation process in which representations of work practices are "drawn together" or "summed up" in order to create a foundation for health care politics.

“A ‘state’, a ‘corporation’, a ‘culture’ or an ‘economy’ are the result of a punctualization process that obtains a few indicators out of many traces. In order to exist these entities have to be *summed up* somewhere” (Latour 1990: 55).

Accountability practices can be seen as a set of activities that sum up local work, whereby both the GP, the patient and health care politics come into being in new ways. In the following we show how GPs’ use of EPRs as accountability tools create a different role for GPs as care providers.

Methods

The article builds on data from interviews with 11 British GPs and from ethnographic fieldwork in one British GP practice in which six GPs were employed.ⁱⁱ The GPs that were interviewed all work in computerised practices referred to by the GPs themselves as “paper-light” practices. This means that the GPs had not yet fully gone over to an EPR, but would still be using paper-based record where no electronic record existed. All the practices are allowed to train doctors, who wished to follow the specialization for general practice; the practices are thus “training practices”; i.e. practices which are in some sense certified by health authorities as practices that do things well. Doctors differed in their interest in general practice research; only a couple of them took an interest in using the statistics they produced for research purposes. Most GPs, however, took an interest in keeping themselves updated with how well their practice did compared to national measurements.

The practice, in which observations were carried out, was visited on two occasions each of which lasted one week. Observations in the clinics were carried out in the consultation room during the encounter with patients as well as elsewhere in the clinic (the coffee room, the secretaries’ room, and in the reception area). Interviews were carried out with GPs and other staff in that clinic and in seven other clinics in the area.

The methods used for data generation can jointly be referred to as ethnography or ethnographic techniques. Participant observation and semi-structured interviews were thus used as a way of gaining access to everyday practices of audit and accountability practices. The main strength of ethnography as a set of research methods is the close day-to-day interaction between the researcher and the subjects/objects of study. This interaction allows for a constant re-positioning of the researcher which in turn makes re-shaping the research questions necessary. Contrary to the versions of ethnography that understand the ethnographer's main task as getting as close as possible to the subjects of study, the version presented here (and in (Winthereik, Bont et al. 2002)) does not attempt to see things 'through the eyes' of the informants. Instead, the challenge of the researcher is to constantly search for the thresholds that mark the limit of a particular practice or way of understanding this practice. The position of the ethnographer is thus constantly changing; it is, as Donna Haraway has put it "permanently mortal" (Haraway 1991).

With its focus on everyday practice observation of daily work is apt for gaining insights into the parts of for example GP practice that are usually hidden from other more quantitative forms of data generation, e.g. surveys. Semi-structured interviews proved useful as a way of generating complementary accounts of the practices observed. Within ethnography and social anthropology, interviews have often been considered 'second best' compared to direct observation, but increasingly the status of the interview is elevated and pointed to as unique site for knowledge construction (Kvale 1999). In our study, interviews formed an important site for gaining insight into how the GPs demonstrate accountability in their daily work and in the following quotes will be used to substantiate the points made.

Approaches to the study of accountability

A relatively large body of literature exists on the issue of accountability. One group of authors presents a sociologically oriented perspective on accountability. These authors roughly focus on the dehumanizing effects of audit and increased demands for accountability, and criticize the

tools, which are used to measure performance within a specific area. The tools are taken to be problematic because they are vehicles for new oppressive forms of management. Chris Shore and Susan Wright offer an example of this. According to them audit within higher education is often presented as liberating for the practitioners involved, because they no longer have to subject themselves to external control procedures, but is in fact constraining for the practitioners, who invest much time in reporting to others how they spend their time (Shore and Wright 2000). The authors question whether audit really improves the quality of the work carried out at the universities or in other places and argue that audit is a technique that redefines work in neo-liberal terms by re-inventing the sites where this work is carried out as enterprises (ibid.: 67).

In this they follow Michael Power (Power 1997), who argues that audit makes practitioners carry out 'second order operations' instead of what is supposedly the core task of an organization: education in the case of the universities and caring for and treating patients in the case of the health care sectors. Doing audit thus becomes a demonstration that one lives up to the standards of measuring what one does, but audit has no real effect on the quality of the end result as the measuring activity gains its own dynamics and becomes self-fulfilling. He claims, "what is being assured is the quality of the control systems rather than the quality of first order operations" (ibid.: 73). In his critique of the "audit explosion" Power argues that audit constitutes a form of "learned ignorance", which produces a kind of comfort that is not grounded in any practical reality (ibid.: 123).

Carolyn Wiener likewise criticizes that tools for measuring the outcome of work in a hospital have been developed without an understanding of the activities that go on inside the hospital (Wiener 2000). She shows how much work goes into preparing for surveys carried out by an external visitation committee at a hospital. Wiener uses theatre metaphors (script, players, cast, rehearsal, performance) to describe how the hospital setting is being staged in a specific way prior to the visitation, and argues that professionals need to develop "defensive strategies" (Wiener

2000: 183), which consume precious resources, to make themselves accountable in a way that fits into the criteria of the surveys.

In contrast to these authors, who see audit as a managerial strategy that primarily masks power relations and wishes to introduce neo-liberal governance, a second group of authors consider audit (and the work that goes ahead, such as classification work) as something that may transform work in an organization in ways that *may* be experienced as productive by the practitioners involved. Demands for accountability, they argue, can be made part of a professionalizing strategy, which may transform power relations in unexpected ways. An example of this is a study by Stefan Timmermans and Marc Berg of insurance physicians' use of procedural guidelines (Timmermans and Berg 2003). The authors argue that while demonstrating accountability opens up for critique and suggestions/demands for change in an organization, it also helps the physicians protect their profession's jurisdiction. In another chapter in the same book the authors describe how a nursing classification system becomes an occasion for the nurses to preserve their clinical autonomy (ibid).

Attempts to create accountability through registration may thus change the work of health care professionals. Doctors and nurses increasingly need to walk a delicate line between visibility and invisibility, but whether this is experienced as constraining or liberating cannot be determined in advance (Timmermans, Bowker et al. 1998; Bowker and Star 1999; Wilson 2002). According to this group of authors increasing demands for accountability is not problematic because medical work is represented in an "incomplete" way, but the point is made that visibility in some areas may carry with it invisibility in other areas (Timmermans, Bowker et al. 1998). To these authors a researcher's task is to study how representations of work come about and how the representations are "translated" across contexts (from the clinic to the offices of the health authorities). Making work visible and practitioners "accountable" are thus seen as achievements, not as inevitable implications of formalizing data entry and retrieval.

Common for the two perspectives outlined above is that they see audit and demands for accountability as a form of self-management that has implications for local work practices. Before moving on to the analysis we briefly sum up the two approaches outlines: According to the first group of authors practitioners, who do medical audit to increase external accountability, internalize the indicators on the basis of which they are measured, and their capacity for self-inspection increases. This internalization shifts their focus away from their real work. According to the second group, unintended effects caused by the demands for accountability may become an occasion for professional and organizational learning. The findings of this article lie somewhere in the middle of those two positions. In the following sections we zoom in on how the EPR is used for the construction of standardized data. It shows how GPs are ambivalent about requests of demonstrating accountability and about how they must use the EPR to live up to those requests. We also show how the ambivalence stimulates GPs to use the EPR in ways that are meaningful to them.

Accountability in practice

What practical work is involved in making accounts of medical work? One of the main techniques is the coding of clinical data. When a GP sees a patient he writes his observations and notes in the patient's records, but to be auditable this data must be standardized, e.g. encoded according to one of the standard classification systems (e.g. International Classification of Disease, International Classification of Primary Care, SNOMED CT, or in a British context, the Read codes/clinical terms). When writing the patient information into an electronic record a list of possible diagnoses/conditions is presented to the GP. Each diagnosis/condition has a code and when the GP chooses from the list the record entry automatically gets a code as well. If codes are used on a regular basis it becomes possible to extract statistical information from the patient records and use the statistics as basis for audit reports. In GP clinics in the UK the GPs have access to computer programs that enable them to extract the statistics from their record systems

themselves. The reports are subsequently sent to local health authorities, where they are analysed and compared to performance goals and to audit reports submitted by other practices.

When GPs start encoding patient information they also make a decision to subject themselves to the workings of the codes. Codes make it possible to demonstrate accountability in two ways.

Firstly, coding clinical information means that statistics can be made on the number and effects of certain treatments. Secondly, coding means that additional computer programs can be used during the consultation and extra functionality thus added to the EPR for example through the use of prompts. This means that a GP can make sure that s/he is being prompted if s/he tries to prescribe penicillin to a patient, who is allergic to penicillin. Just as prompts can thus be used to keep the GP from certain actions, such as prescribing medicine with adverse effects, a GP can also make sure s/he is prompted when s/he sees patients, who need examinations or tests on a routine basis.

To sum up, standardizing clinical information through means of diagnostic codes carries with it the possibility of performing accountability in two related, yet quite different ways. Firstly, the GP can perform accountability through external reporting; this way the EPR becomes a management information system for local managers and health authorities. Secondly, the GP can perform accountability by having the EPR produce prompts, which may support him/her in living up to evidence-based measures on particular diseases (e.g. prescribing statins for patients with a heart infarct); this way EPRs link GP work to scientific norms for *best practice*. The accountability practices function through a kind of self-management that relates to the Foucauldian notion of the Panopticon; accounting for one's actions "works" because the idea of being monitored disciplines the GPs. The internalization of the outside gaze on their work makes GPs feel part of a competition that is partly an imaginary, but which stimulates them to do their best, i.e. make as precise and complete registrations as they can.

In the following we will focus on UK GPs' experiences of demonstrating accountability in the above-mentioned ways. First we discuss the kind of accountability practice that is related to

auditing, and then we discuss GPs use of prompts. The objective is to outline some consequences of using the EPR as accountability technology for GP's professional autonomy.

Demonstrating accountability through audit

Health care professionals present a noticeable ambivalence when it comes to demonstrating that they live up to certain criteria for 'best practice' (Hackett 1999; Armstrong 2002). Likewise GPs are both eager to deploy and being skeptical about deploying tools that make their practice visible to external actors. We are interested in this obvious paradoxical aspect of external accountability: on the one hand GPs see performance indicators as highly constructed and of little use to outsiders. On the other hand they have a desire to produce these indicators, however arbitrary they may be, in order to demonstrate to others that their work has a certain quality.

In this section we describe GPs' ambivalences towards increased reporting for audit purposes. On the one hand, the GPs in our study did not welcome the requests to increase accountability by means of increased registration. On the other hand the idea of audit reports and quality check ups appealed to them, as this would benefit the profession as a whole. In our interviews one GP for example describes how he feels GPs are increasingly being put under surveillance, while he also enjoys the element of competition in demonstrating that he lives up to minimum standards for *best practice*.

GP: "We have the external Primary Care Groups/Trusts auditing and comparing practices. There is a bit of Big Brother there, and then again not because they are much more gentle and there is a bit of pride in it; we ought to be doing as well as if not better than the rest. Also within the practice there is a desire to do things well".

In this quote, auditing is simultaneously considered an undesirable form of surveillance – an institution comparable to Big Brother - *and* a direct stimulant to a positive form of

competitiveness in the form of the “desire to do things well within the practice”. The GP here introduces two kinds of actors that are important when producing accounts about his work for external use. The first is a group of financially interdependent GP practices (Primary Care Groups and Trustsⁱⁱⁱ); the second group consists of his colleagues within the clinic. The GP connects no clear-cut positive/negative feelings to the issue of performing accountability towards external actors. Even though it is associated with the controlling eye of Big Brother “there is a bit of pride” in showing what they do in the practice.

Few GPs are simply against auditing, but most of them are skeptical towards using standardized data as the *only* performance indicator. They argue that data produced in the consultation make little or no sense when taken out of context. If GPs are overly concerned with producing “numbers” evaluations in the form of auditing this, they argue, may even harm what according to many GPs is their main task: To stay open towards unclear conditions and see how these conditions develop over time.

Therefore, in the opinion of the GP quoted next, “numbers” produced in the clinic should not be shown to anybody outside the practice “as the only measure of performance” He argues that measuring whether one lives up to health authorities’ standards and activities “within the house” should be kept separate.

“Most of what we do on the computer is to monitor performance in quite narrow ways. It is almost always to produce numbers. And I see no problem of using that information as part of an assessment. It is always useful to have some numbers. My concern is that sometimes people who use the figures use them as the only measure of performance and don’t understand the clinical context. I am in favor of the audits that we do in the practice here because we all understand what the information means. We understand what the weakness is of the system. We understand the circumstances in which we record stuff and in which we don’t. Within the house it is better... we have an understanding. My

real fear is that the numbers are interpreted outside the house in an inappropriate way. In a way that is unhealthy for the individual patient”.

According to this GP “[i]t is always useful to have some numbers”, but when the numbers are interpreted outside the clinic this GP feels that the meaning of the data may be distorted or not properly understood. He fears that the use of an EPR for accountability purposes will influence the health authorities’ understanding of his work in a negative manner and ultimately make it harder for him to give care to patients the way he feels is appropriate.

In the quote the GP makes a clear distinction between the “people from the outside” and “we in the practice”. So when the GP talks about his “real fear” it is not the standardized data (the “numbers”) that he fears, but that “people from the outside” may turn the data into the only indicator of quality. This dilemma – that he likes to produce numbers, but fears that the numbers are misused – is closely related to what Berg and Goorman call “the (im)possibilities of the utilization of primary data for secondary purposes” (Berg and Goorman 1999). They argue that as data need a context to be meaningful, data taken out of an EPR must be provided with new contexts. Data, in other words, are not equally meaningful in two different settings and additional work has to be carried out to make the data meaningful (Berg and Goorman 1999; Winthereik and Vikkelsø 2005).

The GPs ambivalence in relation to standardization of clinical information also resembles the ambivalence nurses express when asked whether they would like to use standard classifications to describe their work. Star has coined their ambivalence:

“[L]eave the work tacit, and it fades into the wallpaper (...). Make it explicit, and it will become a target for surveillance” (Star 2002: 120).

Just like the nurses were forced to walk an increasingly narrow line between invisibility and visibility, the GP quoted fears a situation in which he does not know what the indicators for evaluations of his work are.

Using prompts

The British National Health Services (NHS) have defined five disease areas of special interest and GPs are requested to run audits by means of indicators and audit criteria developed by the NHS. The areas are mental health, asthma, chronic heart disease, diabetes and care for the elderly (see (Gray and Harrison 2004) for analyses of clinical governance and the NHS).

Diabetes patients form a group of patients, whose symptoms can be significantly bettered, and deterioration prevented or slowed down, if they are subjected to regular control and monitoring. Likewise, patients with a family history of heart disease can be monitored relatively easily and with successful results if the cholesterol in their blood is routinely measured. In spite of various ways of stimulating a GP to pay attention to these areas (letters, publications etc.), it remains difficult for GPs to remember carrying out the relevant examinations and fill in the results while seeing the patient. Preventive care simply does not have first priority when time is scarce. But with diabetes and heart disease as two of the NHS' areas of special interest, GPs can now request the EPR to prompt them to carry out certain examinations whenever they see a (diabetic/heart disease) patient. Consequently, chronic disease management becomes a central part of the consultation, and preventive medicine is no longer done only when there is a bit of extra time. The prompt thus reminds the GP of things that s/he ought to do according to the principles of clinical governance and creates the possibility for health authorities to hold GPs accountable for their actions, because they are reminded to register more information than they would have done without the reminder (e.g. patients' cholesterol level, blood pressure, BMI etc.). A GP explains his use of prompts this way:

"The computer reminds me that I ought to be doing certain things. The more you know a patient the more you start assuming things, but with the computer it stands out when you haven't done the tests you ought to do, and if there is a reminder for a repeat

prescription. If we have done it properly it's just there on the screen: that man with the angina had his cholesterol done and I can re-prescribe the statin".

Ideally, using prompts is a way in which the knowledge a GP has about a particular patient is supplemented by evidence-based knowledge. The prompt thus functions to make the GP carry out certain tests and register the results in the EPR in a standardized way. When audit reports are made GPs' work and decisions are *summed up* and visible to the health authorities. At the same time, and this is a no less important intervention, the prompt makes NHS health politics visible to the GP. This happens as the computer reminds the GP to make registrations on particular patient groups thus stimulating the GP to relate to individual patients as part of a (risk) group.

"[The prompt] reminds me that I ought to be doing certain things. The more you know a patient you start assuming things and with the computer it stands out when you haven't done the tests and if there is a reminder for a repeat prescription. So it helps me because I am not very good at doing the routine chronic management, I am much better in dealing with the person and not dealing with the routine, and so it helps me".

Above we argued that GPs are ambivalent about producing data for audit purposes. One of the reasons for this ambivalence was expressed in terms of fear of misinterpretation of the data. GPs are less ambivalent towards using prompts. Several GPs explained how prompts could easily be switched off, which meant that prompts would never really disturb the workflow in the clinic. Still, however, GPs felt the pressure to carry out the chronic disease management properly while responding to patients' "here-and-now" needs, which is expressed in the following quote.

"You must do diabetes well, you must do elderly care well, or psychiatry. Authorities are not generalists and they don't understand that we are, and that's always the dilemma in

this country, I think, that we have ten minutes for an appointment if you are lucky. So for example this morning I had a woman coming in, who is overdue for her angina check up, so I needed to do a blood pressure, make sure she is still taking her aspirin, check that her cholesterol is up to date, and that she is not having a problem taking statins, and she actually wanted to talk about her daughter, who is causing her major grief at the moment. So that is the dilemma between delivering health care, which is different from traditional general practice, which is about just responding to peoples needs, but they still have them and one has to condense all that into ten minutes, which is not very easy and that, I think, is a problem”.

The GP quoted here explains how the use of prompts makes it difficult for him to live up to his own definition of good care, which among other things is to be able to respond to patients’ (acute) needs. From an NHS point of view, using prompts to collect patient information on a routinely basis enables GPs to care better for their patients. But in this context “better” means that care is evidence-based, which stands in contrast to many health care professionals’ experience that care can only be evidence-based to a certain extent and that good care involves forms of knowledge and performances, which cannot be standardized (Mol 2002). Like the GP quoted above other GPs argued that relating to patients in a personalized way is something that is not contained in the definition of good care as evidence-based. The question, however, is whether GPs feel that the evidence-based definition has a higher priority over the definition of good care as non-standardized, personalized care. In the following section we show how this is not a matter of one “winning” definition. Instead, GPs use the EPR in a way that enables them to adhere to both definitions of good care.

The EPR as a meaningful audit tool

According to Jeannette Pols, who has analyzed accountability practices in long-term psychiatry, requests to work evidence-based have the consequence that care practices that are not evidence-based “take the shape of wordless ‘subversive’ (because unaccounted for) improvisation” (Pols 2004). She argues that evidence-based measures make health care workers unable to account for activities that are not evidence-based, and that is a problem as much of their work practice escapes this form of account-giving and is all of a sudden no longer legitimate. The caregivers at the ward in some sense are victims of the evidence-based rationality, and they find it hard to remain autonomous in relation to practicing what they see as good care.

Our interviews with GPs were often used by GPs as sites where arguments for GP autonomy were expressed. The GPs we observed and interviewed very actively tried to protect a definition of good care that contains the usefulness of tacit knowledge, but at the same time they see the EPR as a tool that might help them make their practice evidence-based and thus reliable in a larger context. They do not in the same way as the psychiatric nurses experience that their definition of good care has been fully replaced by a definition that favors evidence-based practices and seem to sympathize more with an evidence-based definition of good care than do the nurses. In contrast to the nurses described by Pols the GPs obviously are in a position to construct and maintain a distinction between forms of good care. One GP says about the EPR:

“For the routines it is very, very good. For things that are very rigidly defined it is very good, but for the more social, inter-relational aspects of general practice it does not work at all”.

It is characteristic for the GPs that they find the EPR useful for registering parts of their work (clear and well-structured conditions) and find it less useful for other parts of it (vague conditions, things they have to see how develop). They GPs have many ways of explaining why parts of their

work cannot be written down in a standardized way: “social” needs/concerns cannot be captured by a diagnostic code, certain kinds of tacit knowledge cannot be made explicit, that much of their work escapes “measuring” etc. But interestingly, they also are also very enthusiastic about using patient records that are even more standardized than what they have today.

One of the GPs for example explained how he feels he gets a firmer knowledge base to work from when treating patients, as interacting with the computer extends his repertoire as a professional. He experiences that it increases his possibilities of specializing on a certain disease area, as it allows him to register more on disease area that he is particularly interested in. Below, he explains how he and some colleagues in his Primary Care Group (PCG) attempt to formalize all available data on osteoporosis patients:

“With the osteoporosis project we are using it [the EPR] because we are looking at people with risk of osteoporosis in the age group of 60-80. Any women between those ages are being searched for electronically and get a letter. We ask them whether they have any risk factors. Some of the risk factors we can search on the computer but we also need the patients to identify themselves. The nurse organizes the project. She has all the patients’ information and the patients get an invitation for a scan, she has everything on her computer. If they need any further investigations, we have a protocol for the general practices. What we now have, at the end of the year, are records of women with osteoporosis, what tests they have done, and what the results are. Then we can go back and look for the practice records to see if all the records have been updated and if the patients had the appropriate treatment”.

This GP describes how his PCG uses the EPR to monitor themselves on *more* areas than the five areas requested by the NHS. Their aim is to develop expertise within new disease areas and get an overview of their clinic’s performance in relation to specific groups of patients. Ultimately,

collecting large quantities of data on those patient groups enables them to contribute to the scientific debate within the GP community.

“The project is evidence based. What percentage has osteoporosis? What risk factors are the most predictive? These questions we hope to answer. What we hope is that by each test a printout can be produced of every patient who has been into the project. We hope that every practice in this project downloads that information from our site on the web. So they have an up-to-date EPR. And then that EPR will be a meaningful audit tool”.

As some GPs use the EPRs in various ways for health authorities’ purposes as well as to satisfy local ambitions of using patient record information for research purposes, requests for an increased demonstration of accountability do not curtail GP autonomy. Instead GPs ambivalence toward the EPR as accountability tool enables them maintain to a certain degree of professional autonomy; GPs must send in a number of audit reports on a number of disease areas, but besides that they use it for the purposes that *they* find useful. This can be seen as a subtle way of resisting the definition of good care proposed by the health authorities (quality care = evidence-based care), but more than resistance we see it as a way in which the health authorities definition is tinkered with and extended. Instead of a strict evidence-based version of good care, GPs suggest a contextual version of good care in which they play a role as *synthesizers* of evidence-based and tacit knowledge. This definition of good care leaves a space open for GPs to determine when and how the EPR is a meaningful audit tool.

Conclusion

We have focused on two kinds of accountability practices in GP clinics: Documenting for audit purposes and using prompts as a way of following evidence-based standards during the patient encounter. Both kinds of practices can be seen as health authorities’ attempts to manage a

professional field that has traditionally been characterized by much autonomy (Harrison 2004).

We showed that GPs are ambivalent towards both kinds of intervention; audit reports can be misinterpreted and even though prompts can be switched off they are also thought of as disturbing the GP in responding to patients' "social" concerns and needs. The prompt intervenes in the clinical process through its suggestion of doing things in a certain order and register results and findings in a standardized manner.

In spite of GP ambivalence towards demonstrating accountability we did not talk to any GPs, who would resist health authorities' requests for increased accountability or the use of an EPR as accountability technology. Yet, we found that GPs use the EPR in a way that enables them to maintain a space for autonomous action in relation to health authorities. GPs thus engage actively with the EPR as accountability tool in a way that allows them to redefine the health authorities' definition of good care as evidence-based care.

GPs are active users of the EPR as accountability technologies, because - as one of the GPs pointed out - the EPR has to be *a meaningful audit tool*. What does this mean? It means that the EPR is has to be made a meaningful tool locally; it is not so from the beginning. Meaningful means that

- Performance indicators should be known to GPs and be flexible enough to change. GPs should be able to influence the interpretation of the data.
- Prompts (and more generally following standard clinical guidelines for diagnosis and treatment) should not "lock up" the GP. It must be possible to bypass prompts to ensure the workflow.
- GPs should have time for generating data on medical issues of interest to them and not merely produce reports on the disease areas that they are requested to produce by health authorities.

The GP, thus, is no victim of the requests to demonstrate accountability and no victim of the EPR as accountability tool. Use of the EPR as an electronic accountability tool for GPs thus seems to

imply something far more than increasing external control and a loss of autonomy. Throughout this paper we demonstrated how audit requests transform GPs' work because they have to document what they do in new (standardized) way. We also showed how definitions of good care gets explicated through the accountability request and through the use of an EPR. Adhering to evidence-based standards *as well as* arguing for a definition of good care as personalized and situated responses to patients' acute needs made GPs "accountable" in ways that would also extend the space for professional autonomy.

We found that GP autonomy, instead of coming into being when a GP acted "on his own", was established through the GPs' *connections* to other actors (human as well as technological).

Autonomy was thus produced in the sociotechnical network made up by the accountability tool (the EPR), health authorities' policies, GPs' definitions of good care etc. Studies from within the field of Science and Technology Studies, which emphasize the importance of relationality in order to define the cause and effect of a phenomenon, back this perspective. To STS, everything, and thus also autonomous action, achieves its form and identity as a result of the network in which it is located (Latour 1994; Moser and Law 2001). The effects of increased requests for accountability are highly unpredictable, yet, what *can* be predicted is that when requests for accountability meet local definitions of good care both are surely transformed.

Biographical notes

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Notes

ⁱ We use the definition of an EPR as primarily a database containing patients' information. The EPR can work together with a number of other computer programmes, which extends its functions beyond simple input and retrieval functions (Berg 2004).

ⁱⁱ The first author carried out the interviews and the fieldwork.

ⁱⁱⁱ PCG stands for Primary Care Group and is a unit comprised of a number of general practices. The PCG is accountable to a local health authority under NHS.