



## Review

## Using electronic patient records in practice: A focused review of the evidence of risks to the clinical interaction



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## ABSTRACT

Electronic patient records (EPRs) are increasingly being viewed as key to high quality chronic disease management, and have been advocated for epilepsy care. Whether EPRs can really deliver on their promise, however, remains a matter of debate. In this focused review, I highlight one set of risks associated with EPR use: risks to the *interaction* between health professional and patient. This review summarises a small body of evidence derived from studies that examined – in fine-grained detail – recordings of real consultations. These show that EPRs are often used in ways that prioritise the demands of the system over the needs of the patient. However, they also demonstrate that health professionals sometimes integrate EPRs in ways that enhance the clinical encounter. I argue that we not only need more of this kind of interaction-based research – as opposed to focusing on the single EPR user – but that the findings from these previous studies need to be acted upon. They indicate a need both for the *design* of EPRs and the *training* of EPR users to be sensitive to the impact of EPR use on the interaction between health professional and patient.

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## 1. Introduction

Electronic patient records (EPRs) are increasingly being viewed as key to high quality chronic disease management.<sup>1</sup> Advocated as the solution to a host of problems, EPRs have been widely argued (to have the potential) to “make health care better, safer, cheaper, and more integrated”.<sup>2</sup> In the context of epilepsy, it has been suggested that EPRs can facilitate the performance and documenting of the eight measures of quality care laid out by the American Academy of Neurology (AAN), and that “the opportunity to efficiently interrogate populations of patient records can also promote more proactive epilepsy care”.<sup>3</sup> As reported in this issue of *seizure*, an epilepsy-specific EPR has been “designed, developed and implemented” by the Epilepsy Programme at Beaumont Hospital, where it has been shown to facilitate “efficient clinical performance monitoring” and to make the “application of AAN epilepsy QIs (quality indicators) both feasible and straightforward”.<sup>4</sup>

The extent to which EPRs deliver on their wider promise, however, remains a matter of debate. For instance, a systematic review of their benefits and costs concluded that: “Especially concerning the influence of EPRs on quality of care, the studies do not provide a clear answer to the question of benefits”.<sup>5</sup> And a

review of the literature on “the EPR’s ‘people and organizational aspects’” concluded that common assumptions about how EPRs function in practice are generally not supported by the evidence. For example, while it is often assumed that the EPR can, among other things, “be integrated seamlessly and unproblematically into clinical work; [and]... increase the effectiveness and efficiency of clinical work”, the review concluded that:

seamless integration of different EPR systems is unlikely because human work will always be needed to bridge the model-reality gap and recontextualize knowledge for different uses; [and]... while secondary work (audit, research, billing) may be made more efficient by the EPR, primary clinical work is often made less efficient.<sup>2</sup>

In this brief, focused review, I want to highlight one set of risks associated with EPR use: risks to the *interaction* between health professional and patient. But first, let me be clear about my position. I am not opposed to EPRs and anticipate that their obvious benefits will make them an increasingly integral part of health care in the developed world. My concern is with the introduction of EPRs without due consideration of their impact on the clinical encounter. Research on EPR use unanimously shows that health professionals and patients structure their interaction around the use of the computer.<sup>6</sup> For example, a study of video-recorded consultations in primary care showed doctors delaying their responses to patients until completion of a series of keystrokes, and producing talk with long pauses as they focused

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on computer-based activities.<sup>7,8</sup> Likewise, patients appeared to avoid talking when it might interrupt the doctors' keyboard use. The authors conclude, therefore, that the computer system was impacting on the communicative conduct of both doctors and patients, and that many of the doctors' practices for dealing with the system "undermine and disrupt their communication with a patient".<sup>7</sup>

Such findings strongly indicate that it is inadequate to assess EPRs in relation to an individual user alone. Yet little research has focused on how EPRs are integrated into clinical interactions *with the patient*. Indeed, even when the significance of the 'human' dimension is acknowledged – as in the epilepsy-specific EPR study reported in this issue, which recognised that "the technology is only one part of a socio-technical ensemble"<sup>4</sup> – studies of EPR use (including the epilepsy one reported here) often remain heavily focused on ensuring the system itself is user-friendly, that clinicians populate templates as intended, and that the impact on clinicians' time is minimised. As Swinglehurst et al. conclude: "much less attention is paid to... the possibility that incorporating a (computer-based) template might profoundly change the way in which care is 'enacted' by professionals, and experienced by patients".<sup>1</sup>

In what follows, I summarise evidence for some key interactional risks of EPR use, derived from studies that focused – in fine-grained detail – on recordings of real consultations. I then outline evidence for alternative ways of integrating EPRs into practice, which may not only avoid such risks, but even enhance clinical communication. I argue that these studies strongly indicate a need both for the design of EPRs and the training of EPR users to be sensitive to the impact of EPR use on the interaction.

## 2. Interactional risks of EPR use

Crucially, EPRs demand that clinicians multi-task<sup>9</sup>: that they deal both with the patient and the computer record. The central risk, then, of EPR use, is that the demands of the record come to be prioritised over the needs of the patient.<sup>10</sup> The literature identifies two key consequences of prioritising the record: failure to address patient-initiated concerns, and the curtailing of opportunities for patient contributions. Both of these are well-illustrated by research in primary care. For example, a study of diabetes review consultations found that nurses tended to give precedence to a computerised checklist over the patient's stated agenda.<sup>11</sup> In a typical case, the patient, having been asked if he experienced symptoms before he was diagnosed, emphasised his on-going fatigue. Rather than address this as a current problem, the nurse simply acknowledged it (with a "yes") and moved to the next checklist item. As the authors argue: "her question about symptoms appears to have been merely to elicit information for the purpose of recording rather than to invite discussion or the expression of concerns on the part of the patient". Indeed, despite the patient's attempt to return to this problem, no solution was discussed. Similarly, observations of a range of chronic disease management consultations found that "areas of institutional relevance (such as those which attract points in the QOF<sup>1</sup>) were often privileged over patients' more immediate concerns".<sup>1</sup> And a study of General Practice found that doctors "exhibited a preoccupation with the computational task at hand by, for example, confining themselves to minimal... responses, delaying their utterances until junctures in their use of the system, and withholding their gaze from patients".<sup>8</sup>

Significantly, these behaviours were less frequent and prominent when doctors used a prescription pad instead of the computer. This appears to reflect the different practical

requirements associated with computer-use and the extent to which a pad is more readily moveable to facilitate parallel engagement with the patient. Indeed, the privileging of the system over the patient was often signalled by the health professional's physical engagement with the computer – evident in eye gaze and posture. As Goodwin puts it: "The ability to display different types of engagement in the talk of the moment provides recipients with resources for making visible to speakers not only their alignment to that talk but also their enthusiasm for it".<sup>10,12</sup> For example, the diabetes review study found that patients were often discouraged from making extended responses by the nurses' maintenance of gaze and posture towards the screen.<sup>11</sup>

An intriguing finding suggests one mechanism through which an EPR's requirements might routinely disrupt the interaction: video evidence from medical and home settings alike has shown that interactants find it difficult to maintain a topic of conversation after a pause of more than five seconds without performing additional interactional work (e.g. restarting the topic or responding first to other off-topic remarks) – which can take up valuable time.<sup>13</sup> Since many EPRs may make such pauses hard to avoid, disruption to the interaction is likely. The findings discussed above, then, should not be read as evidence of intent on the part of clinicians: that they consciously choose to value the system over the patient. Rather, they indicate the need for the design of EPRs and the training of EPR users to be sensitive to the interaction into which EPRs must be integrated.<sup>1,7,8,13</sup> As Swinglehurst et al. argue: "The challenge for clinicians and educators is to appreciate that the incorporation of templates and other technologies renders the consultation *more complex* rather than *less complex*... and hence this is worthy of explicit educational attention" (emphasis in original).<sup>1</sup>

## 3. Integrating EPR use into the interaction

Encouragingly, the above studies have also identified ways in which health professionals may retain a focus on the patient's needs while using EPRs. For example, the diabetes review study found that some nurses maintained a primary orientation towards the patient, rather than the computer screen, and suspended engagement with the checklist when responding to patients' concerns.<sup>10</sup> Similarly, some GPs were found to be successfully "backgrounding" the computer when discussing topics unrelated to what was on the screen.<sup>8</sup> Swinglehurst et al. praised the "exceptional creativity" with which some nurses were using a computerised template.<sup>1</sup> For example, some avoided the computer until relatively late in the consultation, creating space for the patient's agenda; and then, when the computer was incorporated, they included the patient in its use (e.g. by inviting them to look at the screen and to collaborate in the recording process). Along similar lines, some researchers have concluded that the computer may actually enhance clinical communication.<sup>14,15</sup> For example, enabling patients to see their record can become another means of encouraging greater patient participation.<sup>15</sup>

The above findings were strongly echoed by my own from a different setting: advisory interviews in the UK's Jobcentre Plus offices, which provide access to state benefits and work-focused support for claimants. We found a similarly marked contrast in the way advisers used their computers: typically, they structured both their information gathering and provision around the system, and spent lengthy periods typing in silence; some, however, succeeded in tailoring the interview to the individual, and invited claimant participation in the form-filling.<sup>16,17</sup> As Rhodes et al. argue, an EPR user is never simply a "passive 'victim'" of technology; "It is the way in which the technology is used that gives shape and character to the consultation".<sup>10</sup> My concern, however, is that the more tailored, collaborative examples from my study were the exception. There was a clear indication that 'personalisation' was

<sup>1</sup> The UK Quality and Outcomes Framework.

achieved despite, rather than through, advisers' computer use. Given the extent to which computerised forms and checklists are obligatory in Jobcentre Plus, this offers a cautionary tale for the medical profession at a time when increasing levels of EPR use are being proposed. Crucially, implementation should be managed in a way that empowers clinicians to enhance, rather than detract from, their skilled management of the encounter.

#### 4. Conclusion

I have focused here on *interactional* risks of EPR use because there is now a large body of literature showing the associations between good communication and improved patient outcomes and satisfaction.<sup>15,18</sup> Yet most of the research on EPRs fails to take seriously the fact that “human–computer interaction is tied to the interaction between the patient and doctor”.<sup>7</sup> Those studies that have done so typically conclude with evidence-based recommendations for the design of EPRs and/or training in EPR use. Not only do we need more of this kind of research, but previous findings need to be acted upon. As Rhodes et al. conclude: “A policy and practice initiative to develop EMRs (electronic medical records) has to be considered in the context of the contingent way in which it is implemented in the encounter. . . and in the context of what might be lost if the EMR is narrowly followed”.<sup>10</sup>

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