General Practice, as the point of first contact with the health care system, is characterized by a wide range of potential diagnoses, relatively unstructured presentations and a low prevalence of serious morbidity. Although this may seem a benign environment for patient safety, the sheer volume of episodes, 90% of contacts in many health care systems, mean that only very low risks can be tolerated. Data from medical litigation cases show that delay in diagnosis is the most common reason for settling a case in primary care.\textsuperscript{1,2} Delays in the diagnosis of serious life-threatening infections, orthopaedic conditions and cancers are reported. Failure to refer appropriately is a second major contributory factor in many successful claims against GPs and may well be influenced by diagnosis. In contrast, studies of patient safety events in primary care using self-reporting typically receive very low rates of diagnostic errors.\textsuperscript{3} This may suggest lack of awareness on the part of the clinician due to lack of feedback or unwillingness to discuss diagnostic errors.

A recent report by the UK Clinical Research Collaboration and Connecting for Health\textsuperscript{4} has highlighted the importance of bringing together e-epidemiology, electronic health records and clinical care, key aims being enhancing patient safety and supporting clinical practice. In order to support diagnosis in primary care, we need to study the diagnostic process in detail to identify points where decision support could be usefully provided. This is being seen as of increasing international importance, and a workshop was held after the recent spring meeting of the American Medical Informatics Association, in Phoenix Arizona, to draw together these disciplines. In order to design interventions to improve the accuracy of medical diagnosis, it is necessary to understand the cognitive processes underlying it. A recent study has highlighted the importance of eliciting critical cues when facing non-routine diagnostic problems in primary care.\textsuperscript{5} Eighty-four GPs solved seven complex, realistic scenarios with a computer and a researcher. The computer tracked their information search and diagnoses. Correct diagnosis was associated with eliciting a greater number of ‘critical’, that is strongly diagnostic, pieces of information (cues). Given that abdominal pain, for example, has a list of at least five potential, more or less common diagnoses, 40–50 cues that GPs can look for, of which no more than 10 are ‘critical’, and that this has to be covered within a 10-minute consultation, it is easy to see why there is potential for error. In many tasks, technology can help us to avoid errors, and computerized systems can be built to assist with diagnosis.

A focus group study from Finland in this issue\textsuperscript{6} indicated considerable enthusiasm for a range of potential uses of computerized decision support, although this was tempered by concerns both about the usability of systems and about the potential to reduce interaction with patients. A recent qualitative study of patient safety features in the GP electronic health record highlighted the potential to link information in the record with external data to provide decision support and safety alerts.\textsuperscript{7} A Cochrane review of the impact of computerized decision support systems found 10 systems that supported diagnosis, none of which were in the primary care setting.\textsuperscript{8} Four of these studies showed improvements in practitioner performance. The review also showed that systems that automatically prompted users, rather than requiring user activation, and teams where the research and system development were integrated were associated with positive effects on performance, while those that failed had been designed in isolation from the user base. The problem to be resolved is how to trigger a support system at a point where the diagnosis is being reached, rather than after the event, when support is too late, and how to do this without causing ‘decision support fatigue’, leading users to ignore the advice and over-ride alerts. Pearce \textit{et al}.\textsuperscript{9} in this issue used a dramaturgical analysis of videotaped consultations to examine the role of the patient doctor and computer in the first minute of the consultation. It is during this time that the reason for encounter is defined, early hypotheses generated and much of the later course of the consultation defined. Pearce \textit{et al}. show that the computer screen is very much a participant in this process, not merely a ‘tool’. In order to understand how computerized decision support can be provided to the

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satisfaction of both doctors and patients, further detailed analysis of the role of such systems in the process of the consultation is required.

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References

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