ICT and Learning in a Changing Healthcare Landscape: Challenges and Opportunities for Physicians at Work

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The medical profession demands training and lifelong learning to ensure patient safety and quality of treatment. Along with keeping up with the latest medical knowledge physicians have to face an increasingly digitized workplace. New information and communication technology (ICT), patients who are more aware of their treatment options and the rapidly growing amount of accessible knowledge poses challenges, but also opportunities, in terms of information, communication and learning. The deficiencies of continued training for medical specialists, mainly due to lack of time and resources, is one challenge that has gained increased attention (SLS, 2012; European Commission, 2015a). Recommendation regarding physicians professional development includes the role of ICT, and improved ICT skills has been addressed as a priority for workforce development in healthcare (European Commission, 2015a, 2015b). Integration of ICT in health care settings, such as tablets and smart phones, provides quick and easy access to current, up-to date information and are used in a variety of ways, including information management, decision making support, medical training and electronic medical record access (Boruff & Storie, 2014; Sclafani, Tirrell, & Franko, 2013; Ventola, 2014). Other studies have shown that engagement in social media and use of online tools for information sharing and collaboration can be a useful way to support training and lifelong learning among healthcare professionals (Brown, Ryan, & Harris, 2014; Kind & Evans, 2015). Within research on information behaviour, there has been an increased interest in health professionals, with respect to online information seeking (Case 2012, Younger, 2010) and how access to health information is challenging the traditional role of physician and patient (Higgins, Sixsmith, Barry, & Domegan, 2011).

Although implementation and use of ICT has proved to be useful to support continuous training and e-learning, less focus has been placed on the role and potential of ICT in relation to informal learning in the working life for health professionals. The aim of this qualitative interview...
study is to explore how physicians engage in information related activities and how ICT in various ways can support everyday learning at work.

**Methods**

The study is based on 15 individual semi-structured interviews with Swedish resident physicians. The interview guide was structured around key themes with open-ended, explorative questions, aiming to encourage the respondents to talk freely on the subjects. Each interview lasted for about 1 hour and was recorded. The interviews were transcribed and analyzed with the qualitative data analysis software NVivo 10 (e.g., Bazeley & Jackson, 2013).

**Results**

Throughout the interviews, professional development in terms of formal training seemed to be something that almost goes without saying. However when it comes to professional development, the physicians stressed “learning on the job”, i.e., clinical experience, treating the patient, and informal collegial communication as most important. Findings from this study also illustrates a shift towards evidence based medicine (EBM) that has taken place in recent years, an approach which seemed to be well integrated in the clinical work. The physicians’ information seeking behavior and choice of sources had a lot to do with what type of information that was needed at the time – mostly confirmation and fact-checking, as well as looking for short and fast answers to specific questions related to the patients or the work task at hand.

Systematic information seeking using scientific databases was less common in clinical practices. It was judged as important but was more for specialization and something done separate from the day to day work. Although collegial learning was highlighted as important, there was also the opinion that turning to trustworthy internet based sources, representing ‘the common professional knowledge’, may in fact be a better option than getting a subjective opinion from a colleague or specialist at work.

Patients who use Google to get information about their symptoms were not perceived as particularly problematic, but several of the physicians reflected on the doctor-patient relationship and commented on an ongoing change in the medical profession leading them to take on a more pedagogical or consultative role.

Regarding ICT, there was a duality of views. The physicians emphasized ICT related problems at work, but at the same time were positive towards the possibilities, especially in relation to
information access. They reflected on technological development and its major impact on medical practice, and found it hard to understand how physicians used to work before the computer and internet existed. Social media or digital tools for collaboration was seldom mentioned spontaneously and was not looked upon as work related, but even so, it was apparent that they were reading and taking part of medical information using social media, as well as having work related discussions outside of work.

Furthermore, when commenting on ICT they related more to the technological advances in patient care than its application to learning in the workplace, such as tablets for visualizing anatomy or sending images for direct expert opinion. Some of the physicians also commented on technology itself as an obstacle: standing in the way for an optimal patient meeting. But on the other hand there were physicians co-searching with the patients, talking about what they read and learning together.

Discussion

This study illustrates how evidence based practice, health related ICT and digitalization of working life and learning is changing healthcare and the role of the physician. The physicians need to navigate and balance between their own knowledge (practical and theoretical), formal guidelines and regulations, patient preferences and collegial learning.

Thus, the challenges are not caused by time and resources only, but also by a concern and anxiety about corresponding to those diverse aspects in a holistic manner, and that in turn is the engine for activating learning. Overall this study shows that better integration of information related activities in physicians’ everyday practice is called for, and that ICT has potential to function as a useful tool for support for workplace learning if fully utilized, which today it is not.

This has implications both for research and practice. How can we find or develop more user friendly tools for supporting informal learning at work? In which ways can ICT better contribute to information seeking, knowledge sharing and keeping up to date in clinical practice? How could we integrate tools for sharing and storing experiences and knowledge in everyday work? Even though new technologies and systems typically require more learning, they might actually be a part of the solution. We believe that the new era of supporting ICT must be based on the work and learning situation in clinical practice, and argue that such ICT solutions must be adopted to and integrated in the everyday work, save time and include learning usability.
References


