

What next for electronic communication and health care?

New tools that require new thinking

The past decade has brought a range of electronic communication tools that promised to improve health care. As editors of this theme issue, we invited submissions describing how these innovations had lived up to their promise.¹ These are our reflections on what we did and did not receive.

What we learnt from the submissions

The editorial announcing our theme issue resulted in the submission of nearly 100 articles—more than has been submitted for any other theme issue. The snapshot they provide shows that new media and communication tools are already transforming the way in which we communicate, learn, and think. The expansion of the internet, the launch of personal electronic assistants, and the penetration of wireless networks are making new relationships between doctors and the public possible. At the same time, they are exposing the weaknesses of our conventional approaches to clinical care, education, and evaluation of new interventions.

We believe that we are just scratching the surface of the possibilities created by electronic communications. We can no more foresee the shape or extent of their effects on the health system than our ancestors could have foreseen the blossoming of science that followed the invention of the printing press.²

Impact on health: where art thou?

Our original editorial solicited articles that shed light on how new electronic applications could improve people's health—yet many of the submissions reported process measures far removed from health outcomes. For example, several papers described clinical decision software but gave no information on whether its use actually improved patient care in practice. We discovered how new electronic tools are being used to perform old tricks (for example, data entry on to handheld computers rather than into paper records), but not adequate answers to the question, "So what?"

Many of the submitted papers reported plausible clinical interventions but were rejected because they lacked any recognisable evaluation other than "acceptance" by patients or doctors. We learnt that assessing the impact of communication technologies might not be as simple as importing conventional methods of evaluation—such as randomised controlled trials. Although these could answer many of our evaluative questions, they may not have sufficient flexibility and

power to handle the complex, dynamic, and rapidly expanding nature of the internet.³ Are the rapid developments in information and communication technologies outpacing our ability to judge their impact?

The return of the human

Although we expected the theme issue to be interesting mostly for electronic innovations, we found people's relationships with these of greater interest. A qualitative study of handheld computers was a case in point: despite almost identical equipment, doctors exhibited four distinct patterns of engagement with it—non-use, niche use, routine use, and power use (p 1162).

We also learnt that when things go wrong—as they seem to do in more than half the cases—people tend to blame "the technology," whereas social, behavioural, psychological, and cultural factors are the most likely culprits. In her editorial, Nancy Lorenzi argues that we cannot introduce new technology into a system without changing behaviour, and sets out the steps people need to go through (p 1146).

Stephen Walsh brings a careful clinician's eye to the subject of electronic health records and contrasts the naive assumptions that they embody with how doctors actually work (p 1184). Warning bells are ringing for the NHS's new National Programme for Information Technology. Michael Humber notes: "Its successful implementation will affect the ways in which people work and services are delivered" (p 1145), but the agency charged with ensuring its usability "continues to be concerned about the engagement of clinicians."⁴ These same bells are tolling everywhere else.

Enrico Coiera argues that the human element needs to be imported into health informatics. This will require a shift in its "sacred ground," which is currently dominated by computers, the web, information architectures, and the creation of enormous taxonomies. To have a meaningful impact on health, health informatics must move closer to the profane world of politics, culture, persuasion, messy implementation, and user complaints. In short, the world of humans (p 1197).

Other contributors to the issue looked at how some relatively simple technology could help with complicated human interactions. Daniel Klass's editorial on online learning and Jill Russell and colleagues' evaluation of the CHAIN network were both concerned with the transmission of "tacit" knowledge (pp 1147, 1174). This is knowledge that can't be transmitted in formal,

systematic language; its personal quality makes it hard to formalise and codify. It is what philosopher Michael Polanyi is talking about when he says: "We know more than we can tell."⁵ Harnessing this tacit dimension will be decisive in the transformation of the health system in the age of the internet.²

The barks we did not hear

At many points our expectations of what would be submitted were confounded.

When will ehealth start to focus on health?

Most submissions to this issue reflected the current emphasis of the health system as a whole—treating disease rather than promoting health. We had hoped to see more submissions on the role of information and communication technologies in keeping people healthy. For example, how could the internet help to improve levels of education of women in remote rural areas or inner cities? Epidemics of cancer and obesity are widely predicted, yet researchers don't seem very interested in exploring how online communication could promote physical activity, healthy eating, and smoking cessation.

Who will use the new systems?

Although most rich countries are investing heavily in the communication infrastructure of their healthcare systems, we do not know whether there will be enough skilled people to make these work.

With the rapidly declining costs of technology, electronic communication tools are booming. Fast internet access, coupled with cheap web cameras, is already creating opportunities for online videoconferencing through telephones and personal computers. Health professionals, policy makers, managers, patients, and other members of the public will require new skills to use these electronic communication tools efficiently. However, skills will not be enough, particularly in the clinical setting. Even if doctors become proficient in using new communication technology, their fears about the internet's impact on their workload, income, personal liability, and quality of life need addressing urgently. What work patterns, services, roles, legislation, and reward mechanisms will be required to help more doctors use the internet to communicate with their patients over issues that do not require a clinic visit? What will persuade funders and policy makers to embrace the internet as a means to improve health services and to overcome their resistance to change?

What about those who are left behind?

Ironically, those people who make the greatest demands on the healthcare system are those facing the greatest barriers to using online communication tools. The internet has the flexibility to allow communication in ways that are consistent with the physical and cognitive limitations that are often associated with disability and advanced age.

Although guidelines have been produced to maximise the accessibility of internet based resources,^{6,7} they are not being followed.⁸ If electronic communication is to help all users achieve the highest possible levels of health, we will need to define the role of the different modalities (email, online chats, videoconferencing, etc), the user-friendliness of different devices (cell phones,

personal computers), and these devices' ability to meet the needs of people with reduced cognitive functions, vision, hearing, and joint movements.

Even greater efforts will be needed to ensure access to online communication tools and services for those who are poor or who have low levels of computer literacy.

Wat bout doze hu r leavin us bhind?

In most high income countries, young people are the keenest and earliest adopters of new technologies. In western Europe and North America, teenagers and young adults are developing a new language, driven by short text messages through mobile phones and instant messaging. South Korea is leading the world in terms of broadband access to the internet, a phenomenon apparently driven by youngsters interested in online multimedia collaborative games.

Yet the unique opportunities to work with this group of techno-savvy citizens on health related projects remain largely unexplored. It is time to stop patronising or ignoring them. Young people could take a leading role in improving communication throughout the health system.² Innovative communication tools and applications could be used to enable them to preserve or improve their own health,⁹ as well as to help members of older generations less familiar with the internet.

Conclusion

The health system cannot remain oblivious to our rapidly changing technological landscape and mindset. Perhaps for the first time in history, we have the tools to create flexible services that meet the needs of the population and health professionals alike, regardless of who or where they are. Realising the potential of the revolution in electronic communications will require a major shift from our ethic of competition and narrow self interest, focused on gadgets—to one of generosity and collaboration, centred on people.

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