EDITORIAL

Open-access technology: where should it lead us?

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New computing technologies and software are becoming increasingly available for use in medical research. High-end products, including imaging of disease and analysis of big data, are being used in many high-income countries. In less well-resourced settings, however, low-cost, open-access solutions are available for operational health research, as shown in the paper by Shewade and colleagues in India.¹ The use of these new technologies not only changes the way data are collected, it also gives us new questions to ask, and new methods and designs to employ in our research.

Shewade et al. have shown that data management can be overseen through the use of DropBox or similar file-sharing capacity, while communication software can be used to enhance training, communication and feedback to study staff. Scanning and digitalisation of forms, which used to be expensive and of poor quality, can now be performed using smart phones and open access software. Audio files can be integrated and linked to data from patient files and questionnaires, again using open-access software.

What can we learn from this paper? First, data capture goes beyond surveys and electronic patient management systems to encompass paper records in remote health facilities that were previously inaccessible to most research. Second, file sharing can be used to integrate data management across multiple centres. But the true impact of the study lies not with the technological solutions themselves, but rather with the systems surrounding the technology. As Fegan et al. pointed out in 2011, many technological solutions already exist, but the true strength of the technology is that it allows many more health professionals to get involved in research.² Ultimately, this operational research will be integrated into the work of the district health team, to capture, organise and analyse the data relevant to their clinical services.

The other big impact of these technologies, which is highlighted in Shewade et al.'s paper, is the ability to bring data from multiple centres together to answer new questions. This has been demonstrated by the use of data from both clinics and population-based surveillance to understand the HIV (human immunodeficiency virus) treatment cascade. Herbst et al. outlined some of the innovations that could be used to make causal inferences about the impact of HIV treatment in Africa.³ These technological advances make the analysis of routine clinic data, including data from patient files and HMIS (Health Management Information System) data, available to health policy makers and planners, creating another new opportunity to understand the clinical services.

Where does this lead us? Many papers have outlined the way new technology has improved different areas of health service delivery and advanced the methods and design of health research. English and colleagues in Kenya argue that we need to build 'learning health systems' to take advantage of high-quality data to improve the quality of clinical services.⁴ Ultimately it is the integrated collection, management and use of these data that will transform the health systems that currently exist in many countries.

References

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