

Telepharmacy — opportunity or threat?

The pilot of remote dispensing machines in five UK hospitals has recently been announced. In this commentary, James Davies looks at the emerging field of telepharmacy and the implications for our profession.

As our population ages and people are using more medicines, the workload in pharmacy is steadily increasing. More than 886 million prescription items were dispensed in primary care last year in England alone.¹ Our profession is looking for new ways to efficiently and safely dispense prescriptions and provide extended healthcare services for patients against a background of resource limitations.

One potential answer to this challenge has been to develop innovative technological solutions. Moore's law, which predicts the doubling of the number of transistors on an integrated circuit every two years, highlights the speed with which computer technology is improving and affecting our daily lives. With this comes rising consumer expectations about speed and convenience of health service access.

While the recent election of the Royal Pharmaceutical Society board members under the 'stop remote supervision' banner dominated much of the pharmacy press, some future opportunities in pharmacy practice may have gone unnoticed.

One such example is the imminent trial introduction of 'telepharmacy' machines into a number of UK hospitals, which was somewhat under the radar until it hit the headlines this month following positive discussions with the Canadian company PharmaTrust (see News Feature, p203).

The concept of telepharmacy has been defined as "the use of electronic information and communication technologies to provide comprehensive pharmacy services when distance separates the participants".² Some may view this as being synonymous with remote supervision and therefore undesirable. But for others it is an exciting opportunity to improve access to medicines and develop the profession across difficult boundaries.

PharmaTrust has been supported by a C\$1.5million grant from the Canadian Government to help develop its telepharmacy initiative, and it is now

looking to enter the European market, starting with the UK. Lord Davies, then Minister for Trade, Investment and Small Business, offered his support for this company, stating: "I am delighted that PharmaTrust has chosen the UK for a major expansion of its business. Its new prescription drug dispensing technology will revolutionise the way medicines are dispensed across the country and beyond."

The machines, known as 'MedCentres', are already being used across Ontario after legislation was amended in 2009 to allow dispensing with these devices to take place.³ A description of how the MedCentres operate can be found in a News Feature on p203.

“Some commentators believe that remote supervision will be misused by employers to cut down their need for pharmacists.”

Although this technology may appear futuristic, telepharmacy technology was first pioneered in the US by AutoMed's Telepharmacy Solutions during the 1990s and versions of it are now used in many rural US locations. The US states of Alaska, Arizona, Idaho, Oregon, Utah, Virginia, and Washington have introduced remote dispensing, as have some countries including Australia, Singapore and Malaysia.⁴ The US military has also embraced this technology, with Pensacola Naval Hospital commanding 11 sites that allow pharmacists to verify prescriptions in remote locations.

The concept is not new to the UK either — but our initial involvement in this area was lost in 2000 when a similar telepharmacy system piloted by Pharmacy Plus in Bristol was withdrawn following legal problems.⁵



James Davies: Concerns about remote supervision must not hinder future innovation

However, some pharmacists view such advances in technology as a threat. When drug vending machines were first placed in clinics across Boston, the executive director of the Massachusetts Pharmacists Association labelled it "a continued smack in the face of pharmacy". In the UK, some commentators also believe that remote supervision will be misused by employers to cut down their need for pharmacists.⁶ Indeed, this fear may prove to have some foundation if the systems were to be rolled out on a large scale against a weak pharmacy model without sufficient regulation. In Wyoming, US, telepharmacies may only be located in a medical clinic or community health centre that is at least 25 miles from an existing pharmacy.

Opportunities

Despite these concerns, there is also the possibility that the introduction of telepharmacy systems could create more jobs, as seen with NHS Direct and the telephone advice centres offered by some insurance providers. Remote contact via the telephone has been shown to help

pharmacists provide beneficial advice,⁷ and in many UK hospitals the advantages of remote supervision could allow pharmacists to integrate their work with robotic dispensing.^{8,9}

In Canada, despite initial scepticism, pharmacists have begun to support the MedCentres as the potential opportunities for providing pharmaceutical care in new areas have been realised. These systems also allow pharmacists to have a sustained interaction with a patient without interruption — a luxury not afforded in many community pharmacies today. The use of this technology in New Mexico has helped prevent the closure of rural pharmacies¹⁰ and in some cases this technology is being used to allow pharmacists to work from home, providing flexibility in the working day and allowing an ‘on-call’ service in community pharmacy. The technology allows pharmacy to operate in a greater number of locations without forfeiting personal contact.

In Queensland, Australia, where only 42 of the 116 public hospitals employ qualified pharmacists, telepharmacy has been found to be an effective method of providing pharmaceutical reviews for patients in rural inpatient facilities.¹¹ Its use in the intensive care environment has shown increased availability of pharmacists for medical staff to contact.¹² The technology has also been adapted for improving the safety of chemotherapy preparation.¹³ In North Dakota, only six of the 47 hospitals have a 24-hour pharmacy service on site, but many have a 24-hour telepharmacy service.

A study carried out during 2007/08 of five network clinics with remotely controlled in-house pharmacies in Washington State showed improved patient access to pharmaceutical care.¹⁴ Pharmacists involved in the study commented that the webcam-enabled interviews provided better privacy and longer counselling duration than the traditional methods.

Across other professions, the role of remote clinicians is also increasing. It is nearly a decade since surgeons in New York removed a 68-year-old woman’s gall-bladder as she lay more than 3,500 miles away in Strasbourg, France.

It is now more than thirty years since the first computerised pharmacy management system was installed in a

“It is important that discussions about remote supervision do not hinder potential innovations from being developed.”

community pharmacy, and a quarter of a century since the first automated counting system was tested. The last decade has seen robotic prescription dispensing systems develop significantly, especially within the secondary care environments.

The introduction of telepharmacy machines may contribute to revolutionising the central role of pharmacists. It is important that discussions about remote supervision do not hinder potential innovations from being developed. It is the ability to adapt and change that will help our profession prosper.

In summary, although pharmacy developments in this area are still in their infancy, the benefits look promising. However, pharmacists must be prepared to adapt to these technologies as the profession moves forward. This need for adaptation is recognised by the chief pharmaceutical officer, Keith Ridge, who has encouraged pharmacists to explore the opportunities of technology with some urgency to meet the quality and volume challenges that we face.¹⁵

As a profession we must ensure that innovations are concerned with more than reducing workload. We must aim to use automated processes to lower error rates, improve quality, and free pharmacists for more productive clinical interactions with patients. Pharmacists should not lose the human element of the supply process, but instead use these innovations to enhance patient contact in a greater number of locations.

James Davies is a PhD student at the School of Pharmacy, University of London

References

1. The NHS Information Centre Prescribing Support Unit. General pharmaceutical services in England 1999-2000 to 2008-09. London: The Health and Social Care Information Centre; 2009.

2. Angaran DM. Telemedicine and telepharmacy: current status and future implications. *American Journal of Health-System Pharmacy* 1999;56:1405–26.
3. Malson G. How remote supervision is being used to benefit patients in Canada. *Pharm J* 2009;283(suppl):B12.
4. Mohamed Ibrahim MI, Phing CW, Palaian S. Evaluation of knowledge and perception of Malaysian health professionals about telemedicine. *Journal of Clinical and Diagnostic Research* 2010;4:2052–7.
5. Bellingham C. Remote supervision becomes a reality. *Pharm J* 2004;272:377–8.
6. Pharmacists Defence Association. The Health Bill: Why the concept of ‘remote supervision’ cannot be in the patients’ best interests. 2006. Available at www.the-pda.org (accessed 22 June 2010).
7. Elliott RA, Barber N, Clifford S, Horne R, Hartley E. The cost-effectiveness of a telephone-based pharmacy advisory service to improve adherence to newly prescribed medicines. *Pharmacy World Sci* 2008;30:17–23.
8. Goundrey-Smith S. Pharmacy robots in UK hospitals: the benefits and implementation issues. *Pharm J* 2008;280:599–602.
9. Purkiss R. Decentralising services — a pharmacy without walls. *Hospital Pharmacist* 2007;14:318.
10. Kaufman A, Powell W, Alfero C, Pacheco M, Silverblatt H, Anastasoff J. Health extension in New Mexico: an academic health center and the social determinants of disease. *Ann Fam Med* 2010;8:73–81.
11. Poulson LK, Nissen L, Coombes I. Pharmaceutical review using telemedicine — a before and after feasibility study. *J Telemed Telecare* 2010;16:95–9.
12. Forni A, Skehan N, Hartman CA, Yogaratnam D, Njoroge M, Schifferdecker C et al. Evaluation of the Impact of a tele-ICU pharmacist on the management of sedation in critically ill mechanically ventilated patients. *Ann Pharmacother* 2010;44:432–8.
13. Koutnik-Fotopoulos E. Telepharmacy improves safety in chemotherapy preparation. *Pharm Times* 2008;74:61.
14. Lam AY, Rose D. Telepharmacy services in an urban community health clinic system. *J Am Pharm Assoc* 2010;50:88–92.
15. Ridge: use technology to meet quality and volume challenges. *Chemist and Druggist*. 2 March 2010. Available at www.chemistanddruggist.co.uk (accessed 22 June 2010).