

With improved access to IT and a clear professional strategy, the future is ours

In this third article in a series leading to a consultation among members about the Royal Pharmaceutical Society's Pharmacy 2020 project,

Lindsay McClure, head of information services at the Pharmaceutical Service Negotiating Committee, asks "are we ready for IT?"

With a budget of over £20 billion, the English National Programme for IT in the NHS (NPfIT) is one of the most ambitious projects of its kind in the world. Designed to connect the capabilities of modern IT to the delivery of the NHS plan, the programme will, in the future, impact on every sector of the profession including how pharmacy is practised in the community and in hospitals, how the safety of new medicines is monitored and how tomorrow's health care managers will plan services using the wealth of information that will be available to them. Similar initiatives are under way in each of the other home countries.

Dispensing in the community

The first national NHS IT project to impact on community pharmacies in England has been the electronic prescription service (EPS), which enables the electronic transmission of prescriptions between the prescriber, pharmacy and reimbursement agency. The service is being rolled out in phases with release 1 of the software already in use at over 50 per cent of pharmacies. Functionality that will be rolled out in coming years includes electronic repeat dispensing, electronic reimbursement claims, the cancellation of e-prescriptions by prescribers and the ability for patients to nominate their preferred pharmacy to receive e-prescriptions direct. The system may one day also support reimbursement claims for other pharmacy services, such as minor ailment schemes.

In Scotland, the electronic acute medication service (eAMS) and the electronic chronic medication service (eCMS) will provide similar functionality to the English EPS but there are currently no plans to allow patients in Scotland to nominate a pharmacy to receive prescriptions in advance. In Wales, the Welsh Assembly Government has opted for "intelligent paper" as an alternative interim solution: rather than sending a prescription message electronically, a 2D barcode printed on the prescription will hold information such as the patient's name and address and the prescribed medication. A timetable for deployment of the Welsh solution will be agreed later this year with additional functionality, such as the e-transfer of reimbursement claims added over time.

In the long term, the implementation of ETP may encourage the uptake of complementary technology such as robotics. Although dispensing robots have been shown to reduce dispensing errors, save storage space



and increase the efficiency of dispensing in hospitals, their use in community pharmacies is still limited.

Robots are becoming more sophisticated all the time, with the latest models offering features such as automatic loading, automatic labelling and part-pack dispensing. Linked to a pharmacy system which is pre-populated with an e-prescription there may, in future, be little human involvement in the mechanical aspects of dispensing.

There is much that can be done now to maximise the potential benefits of integrated robotic systems, for example, agreeing changes to policy to enable full patient pack dispensing. Work is also in progress to standardise the future tagging technology that may be used by manufacturers, including 2D barcodes and RFID (radiofrequency identification) tags; these technologies may allow further safety checks to be carried out by robots and could support the tracking and tracing of individual packs as they pass through the supply chain.

ETP technology may also impact on the organisation of the pharmacy market and drive the development of emerging dispensing models. Once NHS prescriptions can legally be sent electronically, we may see pharmacies with an internet or mail order business model increasing their market share. We may also see an increase in hub-and-spoke dispensing, with repeat prescriptions being sent to an automated central "hub" pharmacy to be prepared and then sent to the "spoke" pharmacies to be collected by the patient.

If regulatory barriers can be overcome, wholesalers equipped with sophisticated automation at wholesaling depots are ideally placed to act as the hub for independent pharmacies, delivering medicines that are already labelled and packaged, ready to hand to patients. These developments would free pharmacy staff time to provide additional professional services and would allow pharmacies to reduce their stock holdings. Future regulatory change to enable remote supervision could also potentially lead to the development of controversial new uses for

automation, such as unmanned dispensing kiosks to support patient access to medicines out of hours.

Supporting efficient hospital pharmacy

Although most GPs use their IT systems to support prescribing, few hospitals support e-prescribing, with prescriptions still being written by hand. In England, the NHS Connecting for Health (CfH) e-prescribing programme aims to enable medicines to be managed electronically from prescribing through to administration, realising benefits such as improved patient safety and improved efficiency. Earlier this year, CfH published a functional specification for e-prescribing systems which will guide system suppliers in their development of systems for the NHS. In Scotland and Wales, similar initiatives are being scoped and developed.

There is potential for e-prescribing systems to be linked to electronic messaging functionality to send prescriptions and discharge medication information electronically from secondary to primary care and, as in community pharmacy, systems could be integrated with dispensing robots. Estimates suggest that approximately 10 per cent of hospitals in the UK have already installed dispensing robots, with this number steadily increasing by the day.

Supporting service delivery

While ETP and robotics will support the existing pharmacy role of dispensing, access to electronic patient records is likely to support the evolving clinical role of pharmacists and enable the delivery of new services in the primary care setting.

In England, the NHS care records service is an electronic record management service that will allow authorised care professionals access to an individual's medical record 24 hours a day, seven days a week. It is a nationwide system that will help join up care across the NHS, including primary and secondary care and social services. Protected by a range of access controls, the system comprises both detailed records, which will be made available to be shared within a locality, and a summary record, held nationally on the system's central "spine". The summary care record is currently being piloted but no deadlines have been set yet for full implementation of the service.

Similar initiatives are being developed in the other home countries. The individual health records service (IHR) forms the heart



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of Informing Healthcare (IfH), the Welsh national IT programme. Following a recent pilot, work is ongoing to support information sharing between GP practices and out-of-hours services across Wales. In Scotland, an emergency care summary (ECS) record was set up in 2003 using extracts from GP records. With explicit patient consent, out-of-hours medical centres and certain NHS24 staff can use the service to access data on patients' current and repeat medication, allergies and basic demographic information.

Providing community pharmacists with appropriate role-based, read-and-write access to patient records has the potential to improve patient safety, improve interdisciplinary working and increase the quality and continuity of care provided to patients by pharmacies. It will allow roles such as independent and supplementary prescribing to be carried out more effectively in primary care and will enable the efficient delivery of new services, for example, by allowing pharmacists to share information such as diagnostic tests results with other health professionals.

No decision has yet been made in any of the home countries on what information community pharmacists will be granted access to in the future and this is likely to be a key topic for debate in the coming years. How much access do pharmacists need to

undertake future roles? Do other members of the pharmacy team also need access? Are pharmacists sufficiently skilled in maintaining and interpreting medical records to meet the challenges ahead? Potentially, different health professionals with different levels of training and experience in medical record keeping will be sharing the same information. Should consideration be given now to extending undergraduate and postgraduate training in these areas?

It is likely that the future will also bring widespread patient access to medical records. In England, this will be provided through the NHS "healthspace" website and has raised a number of difficult ethical issues, for example the use of clinician "sealed envelopes" to limit patient access in certain scenarios. This, together with the growing use of the internet as a patient information resource may see tomorrow's pharmacists increasingly acting as interpreters of information that patients have found from other sources.

Supporting efficient communication

Although the sharing of electronic records should, in time, greatly improve interdisciplinary working there is also other functionality which could be developed to improve the efficiency of current NHS pharmacy services. For example, secure coded messaging, inte-

grated into pharmacy and GP systems could support the transmission of medicines use review forms electronically from community pharmacies to prescribers, improving communication, decreasing workload and ensuring that the results of the review become part of the patient's medical record. In advance of a more sophisticated solution being available, a quick win would be to provide community pharmacies and pharmacists with access to an e-mail service, such as NHSmail, approved for secure clinical communications.

Messaging could also be used to support the timely transmission of information to pharmacies about drug recalls. One system supplier has already developed an innovative solution that allows messages to be sent to its entire customer base at the touch of a button, with a pop-up message appearing on computer screens to alert pharmacy staff to an urgent issue.

The challenge ahead

All of these developments are clearly on the horizon and most are expected to be implemented within the next five years. But what will happen beyond that time? And are all the existing pharmacy system suppliers capable of delivering the future? The next raft of changes could be enormous.

Will there be a need for the pharmacy service as it is provided today, or could technology and advanced communications support different models of pharmaceutical care? IT systems prompting pharmacists to check up on their patients are already in use. Medicines packs that record the time and date each medicine is removed from the pack are in existence. These could be used to monitor and promote adherence to medication regimens.

One emerging area is tele-health and the use of assistive technologies to support the monitoring of patients in their homes. During the past year, there have been over 100 government- or EU-funded research projects in this area testing diverse technology such as movement detectors, on-body sensors and "smart clothes". One notable study has been looking at the use of intelligent miniaturised biosensors that allow patients to be monitored as they go about their daily lives; the sensors can warn health professionals of potential critical events such as heart attacks. This "big brother" technology could allow continuous monitoring of patients and improve our knowledge of the effects of medication.

This level of monitoring will only be used for a small minority of patients with specific needs. For the rest, future IT developments will aid convenience for patients, accuracy of information and dispensing, transfer of information between health care professionals, and administration for the NHS. There are clear risks and challenges ahead but also many opportunities. With a clear strategy for the development of the profession's roles and responsibilities, the future is ours for the taking.