

Where are we now with “Connecting for health”?

Progress and problems in the information technology field were the themes of the Guild of Healthcare Pharmacists IT interest group annual seminar. Christine Clark reports

Implementing “Connecting for health” (the new name for the National Programme for IT) will not be easy, because health care processes are complex and involve large numbers of people, according to Mike McKenna, assistant chief information officer for clinical services at Cumbria and Lancashire Strategic Health Authority.

Driving factors for the programme in the UK include a fundamental failure to share medical records, because, in their paper form, they are bulky, messy, vulnerable to damage during storage and are often difficult to retrieve. Other issues include failure to progress from exemplar sites to the bulk of NHS institutions, failure to invest and failure to ensure delivery. Mr McKenna also pointed out that old-fashioned prescription documents are cluttered and often illegible. Moreover, more patients are now being treated with faster turn-round times. Up to 40 per cent of nursing time can be spent on medicines’ administration and it is believed that decision support systems for prescribing could reduce expenditure and save lives, he added.

Connecting for Health brings a fundamentally different approach to issues, coupled with a doubling in the level of investment. Hitherto, spending on IT has averaged 2.11 per cent of revenue nationally, but is now set to rise to 4 per cent. “We will not see this level of investment again and we must spend it properly,” said Mr McKenna. Key differences include a unified approach to systems throughout clusters, instead of each trust “doing its own thing”. Whereas previously all the risk and implementation effort had been in the hands of the NHS, local service providers now have responsibility for the main areas of delivery and are only paid on completion. Finally, the national shared record is a central feature, in contrast to the silo-type implementations of yesteryear. Implementation is set to occur over a 10-year period.

The Guild of Healthcare Pharmacists IT interest group seminar was held in Birmingham on 27 April. Christine Clark is a freelance medical writer and independent consultant



Mike McKenna: IT programme brings a different approach and more investment

Central elements of the programme, such as the national data spine, the new national network and nationwide “choose and book” will be handled by national application service providers. For local services, England has been divided into five clusters, each covering between five and seven strategic health authorities.

Where are we now?

Reviewing progress to date, Mr McKenna explained that the national spine is now in place and the user directory and role-based access and control systems have been developed. In addition, the personal demographic service (PDS) is in place. The national network is not yet in place and, at this stage, attention is being focused on acute sites, primary care trusts and GPs. Seven “focus projects” for the national care record system have been delivered so far and a further 33 are expected to end by October.

Early experiences have shown that the system for updating the spine from the PDS is working and that the response times from the Maidstone-based central server are good. In addition, sites have shown a willingness to work together and to make compromises to design a common patient administration system (PAS) and there appears to be genuine support for a shared record. On the downside, many steps have taken longer than expected to implement. Key milestones for

2005 include the roll out of electronic transfer of prescriptions in November.

The next steps will involve phased implementation of functionality bundles — packages of software designed to support specific elements of activity. In the first instance these will cover replacements for existing PASs, simple scheduling, simple assessments, emergency bundles for theatres and maternity, and spine services. A later part of the first phase will cover assessments, orders and results. The next two phases will tackle basic alerts, advanced assessments and scheduling followed by prescribing and a shared drug database. An optional pharmacy stock control package will also be available.

While there is widespread agreement on what should be in a patient administration system, clinical systems throw up many more challenges, explained Mr McKenna. There are wide variations in practice and few agreed, documented standards. Moreover, there are no traditional structures in the NHS to facilitate this level and pace of structural change. Clear communication and wide consultation will be essential.

Asked about security of data transfer, Mr McKenna explained that encryption is built into the software.

Panel 1: Key features of “Connecting for health”

- National data spine
- Electronic transfer of prescriptions
- Primary care options:
 - Data centre provision of main three GP systems (expected mid 2005 onwards)
 - Integrated GP system within the iSoft NHS CRS product, ie, “GP Lorenzo” (expected 2007/08 onwards)
- Picture archiving and communications systems with a shared cluster-wide store
- Integrated acute, mental health, community and primary care record solution

Implementing a closed-loop prescribing and medicines administration system reduces errors

A closed-loop electronic prescribing and medicines administration system — ServeRx — has been implemented on a pilot basis at the Charing Cross Hospital, Hammersmith Hospitals NHS Trust, London. Bryony Dean Franklin, principal pharmacist and director of the trust's and University of London's academic pharmacy unit, described how the system works and how it is being evaluated.

The system comprises an electronically controlled drug cupboard with integral medicines trolley, fixed PC terminals and handheld computers. The cupboard is made up of banks of drawers built into a former medicines preparation room. Each drawer holds a single ward stock item.

Medicines rounds are completed in two stages: first, loading of the trolley and, second, administration. The nurse logs on to the computer and obtains a list of patients who are due to receive medicines at the next round. She selects the medicines on screen and, as she does so, the corresponding drawer is opened. She removes the required dose and places it in a drawer in the medicines trolley. Each drawer is assigned to an individual patient with an electronic label.

To carry out the medicines round, the nurse disconnects the trolley and takes it around the ward in the usual way. At the bedside, she reads the patient's barcode and only the appropriate drawer in the trolley is released. Administration (or the reason for non-administration) is recorded on screen. At the end of the round, the trolley is returned to the medicines room and docked with the rest of the system. Administration data are then automatically uploaded into the system database.

Moving on to the evaluation exercise, Professor Dean Franklin explained that its objectives were to assess the impact of the system on one ward in terms of prescribing and administration errors, adherence to prescribing policies, time requirements and acceptability to nurses and patients.

— Evaluating errors

Prescribing errors were monitored prospectively for two four-week periods, before implementation and again at least six months after implementation. The clinical significance of the errors recorded was determined using validated methods. Before implementation, 94 errors were recorded (an error rate of 3.8 per cent), of which 48 per cent were rectified before administration. After implementation, a significant fall



Bryony Dean Franklin: implementing the ServeRx system cuts prescribing errors, but increases the staff time required

in the error rate to 2.8 per cent was observed, with 67 per cent being rectified before administration. Most of the decrease in errors resulted from improvements in prescription writing, rather than decision-making, she said. The errors observed after implementation mostly stemmed from incorrect product selection from the on-screen menu. The most common error was prescribing “as required” medicines without indicating a maximum daily dose. Other errors included failing to amend the “as required” default direction of hourly to a realistic dosing interval and selecting an incorrect formulation (eg, vancomycin capsules instead of injection).

Administration errors were quantified by direct observation of 1,500 doses in each phase. This was approximately equivalent to one week's administrations. The overall error rate before implementation was 8.6 per cent, which is consistent with other studies in the UK, while after implementation it was 4.4 per cent.

Subgroup analysis showed that the administration error rate was highest for intravenous doses both before and after implementation. The most common error category before implementation was “wrong dose”. Although the total number of errors was reduced after implementation the proportion of “wrong route” errors increased. Professor Dean Franklin put this down to the fact that route can be altered on a prescription card by crossing out, whereas in the computerised system it has to be re-

entered. “Wrong patient” errors, which occurred on five occasions before implementation, were eliminated altogether.

Observations showed that, before implementation, patient identification was checked for just 17 per cent of all doses administered, whereas afterwards it was checked for 81 per cent. However, some informal, work-around practices had been developed, for example, patient barcodes were stuck to walls, notes or cabinets for ease of scanning.

— Time considerations

Observations showed that electronic prescribing takes longer for a single item, but is quicker if several medicines are prescribed at once. The time taken for a ward pharmacy visit increased from one hour and eight minutes to one hour and 38 minutes. However, the pharmacist is now seeing all patients' charts whereas previously only 70 per cent were seen, so there is little change in the time per chart screened.

The time required to top-up medicines on the ward increased from one hour and 18 minutes to seven hours and one minute. The amount of stock held was reduced by 16 per cent. Nursing time for the medicines round was increased to two hours and 41 minutes. However, the way in which the time was used changed considerably. Preparation for the round took longer, but could be done largely undisturbed, whereas the medicines round itself took only 20 minutes. Nurses said that they preferred the new system because the medicines round was considerably shorter and easier to carry out than before. They were keen not to lose the equipment when the pilot study finished. Patients surveyed found the system to be acceptable.

Adherence to medicines policies had been increased as a result of introducing the system, Professor Dean Franklin added. However, the amount of staff time required had increased, and it was not clear whether investing the additional time in the old system in place at the trust would have yielded similar benefits.

Asked about reliability, Professor Dean Franklin said that there had been no problems with the electronic cupboard, but there had been some teething problems with software and some initial problems with the batteries for the trolley. In response to a question, she pointed out that the system does not lend itself to self-administration or one-stop-dispensing schemes.

Clinical trials regulation database wins award

The 2005 First DataBank Europe information technology award was presented to Anita Jena-Smol, pharmacy IT project manager at University College London Hospitals NHS Foundation Trust, for her project: "Complying with clinical trials regulations: Using IT without working harder".

The objective of the project had been to design a secure web application to record key clinical trial information, so as to comply with the EU requirements for good clinical trial practice. Before the clinical trial management software had been developed, the trust normally had more than 100 trials running with a variety of different procedures and invoicing policies. Ms Jena-Smol had set out to computerise the existing trial folders, but also worked with trial sponsors to ensure that the patient accountability information that they required was also recorded. Clinical research associates are now given access to the system, but they are restricted to their own trials.

The immediate benefit of introducing a standardised, computerised system to manage clinical trials was that information was much easier to find. The accountability records gave a clear picture of events and

there had been a noticeable increase in understanding and ownership of data by the dispensing technicians. In addition, income management had become easier and there were fewer interruptions of routine work in connection with problems about clinical trials. The computerised system meant that more time was needed when a trial was being set up, but this was balanced by a reduction in workload at later stages.

The clinical trials management system was not originally designed to be used outside UCLH. Jason Wakelin-Smith, a pharmacist at UCLH, said that the trust was happy to share the system with other NHS trusts, but that it did not have the capacity to support the product.

More information about clinical trials developments

Information about the launch of practice guidance for pharmacy clinical trials services and the setting up of a new clinical trials network is set out in a news story on p197. A meeting report on p226 looks at the impact of the EU clinical trials directive one year after its implementation.



Anita Jena-Smol and Jason Wakelin-Smith (right) with their prize

First DataBank Europe Award 2006

Details of how to find out about next year's First DataBank Europe Award are set out on p197 of this issue of *Hospital Pharmacist*.

Travel Medicine for Health Professionals

Larry Ivan Goodyer, Head of Leicester School of Pharmacy, De Montfort University, UK



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