

Electronic Prescribing: Briefing for IM&T Team



Introduction

Electronic prescribing (ePrescribing) systems can help improve the safety and efficiency of healthcare by aiding the choice, prescribing, administration and supply of medicines.

The safety and effectiveness of ePrescribing systems depends on all staff groups being actively engaged in their development and use.

Benefits of ePrescribing include:

- Prescribers accurately and clearly enter complete medication orders.
- As they do this the system can provide relevant patient information, for example on allergies, as well as details about drugs. ePrescribing systems can also offer advice or warnings as prescribing takes place.
- Prescription data can be stored securely and communicated to other members of the healthcare team without the risk of paper records being lost.
- Pharmacists can access drug orders remotely using the computer, and check and amend as required.
- Nurses who administer medicines have clear and legible medication orders. The system may help them to prepare for drug rounds, confirm the identity of patients, and record administration.
- Medication records can be accessed remotely by healthcare professionals.

Not all ePrescribing systems fully support all these aspects of medicines use, but most do to some degree.

ePrescribing systems provide a full audit trail and the data they hold allow many innovative uses that can help in medicines management and support a culture of reflective practice.

ePrescribing is a powerful and important innovation for the whole care team. When ePrescribing projects are being planned it is important that all healthcare professional groups are involved and that they remain involved as the system comes into use.

A successful initial implementation is the start, not the end, of running a successful system.

ePrescribing systems depend on well specified, configured and managed information and communications technologies.

The professional skills of information management and technology (IM&T) staff are essential for a safe, reliable and successful implementation of ePrescribing. As members of the multidisciplinary implementation team, IM&T staff should focus in particular the reliability and integrity of the system and the infrastructure it runs on.

The primary software for ePrescribing will, in all probability, be bought as a 'package' from an established supplier, and developing a good relationship with suppliers is essential. This software will provide the basic functions required for prescribing, administration and recording of medicines use. The system will also make use of some standard drug dictionaries and databases to allow the system to offer various levels of decision support to clinical staff.

This software and associated databases will need careful work in order for them to be installed in any particular hospital setting and integrated with existing systems and databases (for example the patient administration system, chemical pathology, pharmacy systems).

The ePrescribing system will need to be configured to provide the particular mix of functions required for the various clinical specialties in any given hospital. This work will be principally led by clinical staff but IM&T involvement is important.

ePrescribing systems can, to a degree, run on existing infrastructures, but experience suggests that, given the central clinical role of these systems, they will often demand their own servers and back-up systems. To achieve highly reliable 24/7 availability and

system integrity requires careful attention to the system's architecture and management practices; for example, how to safely perform periodic scheduled updates on software and operational databases while allowing the possibility to revert to a previous version.

Most contemporary implementations of ePrescribing use hand-held or mobile devices and wireless networks, as well as fixed workstations and wired networks. Reliable networking is critical and so demands careful design and rigorous testing.

Experience from a number of NHS hospitals suggests that wireless networks are often the weak link. As a system starts to be more intensively used, slow transmission, network failure and dead spots can quickly emerge. Nothing but a complete and reliable coverage of all beds on all wards and all clinics will be safe or considered acceptable to users.

Clinical Decision Support

ePrescribing systems provide various degrees of clinical decision support (CDS) to help prescribing and administration of medicines. CDS ranges from the very basic - access to a drug dictionary – to the more complex, such as checking medication orders against patients' laboratory results.

CDS can be roughly divided into two areas: decision constraint, stopping people doing daft things, and decision support, guiding and informing users.

Initial ePrescribing implementations will usually have limited decision support – focused mostly on constraints – but, with experience, more active support, warnings and context-specific guidance can be added.

IM&T agenda for ePrescribing



IM&T staff have a key role when planning a move to ePrescribing and as part of the multidisciplinary implementation team. Amongst the important issues to which they can contribute are:

- Participation in the multidisciplinary implementation team for ePrescribing.
- How the software is selected, set up and tested, and how data is transferred from the old (probably paper-based) system to the new.
- How support services are organised both during the initial implementation phase and throughout the life of a system.
- Training clinical staff for roles as super-users and to take responsibility for the further development of the system.
- What the back-up and recovery procedures are, given that computers can and do stop working.
- How reporting on the data generated by ePrescribing can be made easily available for audit and other management tasks.

ePrescribing systems can contribute to better healthcare

Reduction in the risk of medication errors as a result of:

- More legible prescriptions.
- The requirement for complete medication orders.
- Alerts for contra-indications, allergic reactions and drug interactions.
- Useful guidance for both inexperienced and experienced prescribers.

Process improvements as a result of:

- Improved communication between different departments and care settings.
- Reduction in paperwork-related problems - fewer unavailable or illegible drug charts.
- Clearer, and more complete, audit trails of medication administration.
- Data made available for analysis, including audit and research.

ePrescribing projects naturally divide into three phases: before, during and after implementation

Before is about establishing what is to be done, bringing the right people together and mobilizing resources. In almost all cases this is undertaken by a multi-professional steering group or project board where, together with doctors, pharmacists, nurses and managers, IT specialists must be represented.

Among the most important issues that the project board must consider, and to which IM&T staff should contribute, is the sequence of testing and piloting, and the establishment of appropriate procedures for quality assurance as all manner of changes, updates and upgrades are applied.



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ePrescribing will require new client devices in substantial numbers, work stations on wheels and handheld devices, as well as sufficient fixed workstations. These devices must meet the needs of various clinical staff and many contexts of use. How many devices, and in what mix, needs to be carefully analysed and specified in collaboration with clinical staff. The equipment must be maintainable over time, and its maintenance and replacement fully resourced. These devices will be heavily used day in and day out (and at times abused). High standards of active maintenance are required and partial failure, such as a sticking keyboard key or a dim flickering screen, can endanger patient safety.

IM&T staff need to work closely with their clinical colleagues and help them to develop necessary skills. For example, the skills to be able to specify and generate their own summary reports drawn from the system's data as and when they require them. Some clinical staff will take on a role as super-users - informed advocates for the system within their work setting. IM&T staff should

work closely with these people, who will not only provide support but should also take a leading role in helping to develop and improve the system over time.

During the change over period from paper-based prescribing to ePrescribing, special care is needed to support people when they start to use the new system, and special care needs to be taken to ensure that the safety of care is monitored and maintained. If safety concerns are raised, particularly if they relate to the functionality of a system - for example response times, download times, log-in procedures - then they must be swiftly addressed. At the time of changeover, extra people including IM&T staff, will need to be available round the clock to transfer data to the new system, offer support to new users and deal promptly with issues as they arise.

One common question that all clinical staff quite reasonably ask is, "What happens if the computer crashes?"

Of course, the first responsibility of IM&T is to minimise that possibility, but the probability cannot be reduced to zero. For this reason, back-up and recovery procedures need to be well established and everybody needs to know what to do and who is in charge. It is sensible to have practiced using these procedures.

Aspects to consider might include: who is in charge of making decisions on operating fall back practices; how will back-up paper



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medication records be produced and distributed; which areas should have the highest priority; and how will data be safely added back to the system once it recovers (and by whom).

It is common to have duplicate 'shadow' servers which can be quickly brought into use if one of the main servers fails. There may also be separate computers and printers with uninterruptible power supplies holding a recent (perhaps up to 30 minutes old) back-up of the patient prescription data. Paper drug charts can then be printed out if it is anticipated that the

electronic prescribing system will be unavailable for any length of time.

After, when ePrescribing is established and in use, it still needs to be actively supported and managed. For example, when new staff join they need to be trained, given log-in rights and supported in their initial use.

For IM&T staff, the direct focus will be on software upgrades, network improvements, further integration with parallel clinical systems and database improvements. In all cases these types of development need to be carefully and safely managed using appropriate testing and quality assurance procedures.

ePrescribing systems require a dedicated user support service once they are in use. The day-to-day problems of clinical users need to be solved, their questions answered and their comments and suggestions listened to. Just as the implementation team needs to be multidisciplinary, so too does the support team, able to draw on a good mix of technical and clinical resource.

Experience suggests that users prefer a single point of contact where all manner of problems and situations can be dealt with confidently, rather than separate points of contact for different types of query.

With experience, healthcare professionals will find that some tasks are not as easy to do as they could be, or that some aspect of the

routine of medication administration could usefully be changed. A good ePrescribing support team will be eager to hear about such requests and insights. Their job, beyond the initial implementation, will be to continue to adapt and develop the ePrescribing system to gain extra benefits in terms of medicines management, patient safety and patient care.

ePrescribing in hospitals

This briefing is one of the outputs of a project commissioned by NHS Connecting for Health (NHS CFH). The project involved gathering experiences and opinions from people in a number of hospitals in England who had been part of the implementation of ePrescribing systems. The ideas presented here are based on the actual experiences of NHS staff who have worked on ePrescribing implementations.

A copy of the full report and briefings aimed at other staff groups can be found at: www.connectingforhealth.nhs.uk/eprescribing

Any comments or queries about the briefings or report should be directed to the ePrescribing programme at NHS CFH at eprescribing@nhs.net



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