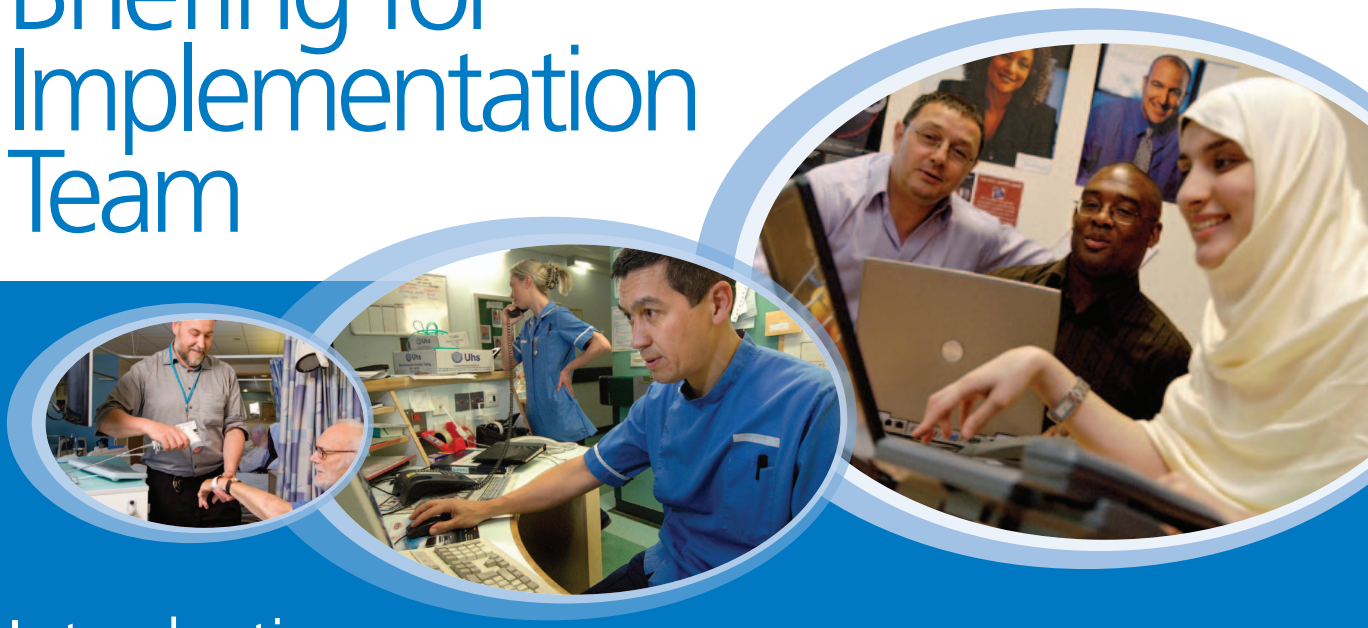
NHS
Connecting for Health

Electronic Prescribing:

Briefing for Implementation 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.

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Planning for ePrescribing needs to be done by a multidisciplinary team.

This team needs committed representatives from the main clinical disciplines - doctors, nurses and pharmacists - as well as IM&T specialists and trust managers. The team members must maintain good links back to their professional and operational groups. In this way an ePrescribing project can communicate with, and draw on the whole hospital community.

At the start this team has primary responsibility for developing a vision for ePrescribing that can be communicated to this wider community and which will, over time, attract their commitment. All experience suggests that the more clinical participation there is drawing from all disciplines, the more likely it is that a system will succeed, and that the inevitable problems along the way will be overcome.

In order to make well judged decisions as to how the project will proceed, it is important that the team look beyond their own institution, and talk to and visit other sites using ePrescribing, as well as talking to software suppliers.

The team will need to specify and procure software, database and technical infrastructures. This takes time. ePrescribing can share infrastructure and technical resources with other information systems - for example networks - but there is no free lunch. Network resources may indeed need to be significantly enhanced.

The team, in particular the clinical members, must think through the various changes in work practices that are an essential part of ePrescribing. They will also need to monitor such changes once ePrescribing is in use.

Early on the team will need to establish the proposed sequence of pilot testing - perhaps on one ward - and then roll-out across the hospital. Many subtle decisions and trade-offs will need to be made when choosing how this roll out will be phased and the speed with which it will be attempted.

The level of functionality in the first version of the system put into use will also need to be carefully considered. Too little functionality may disappoint users; too much may overwhelm them (and you!).

In any case, and what ever these decisions, there will need to be substantial technical and clinical support available during the roll-out phase, and much of this support will need to be retained throughout the operational life of the system. A successful initial roll-out and ePrescribing in use is just the beginning.

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.

The team's agenda for ePrescribing

Among the important issues that the team needs to address are:

- Working to secure wide stakeholder commitment.
- Establishing and communicating the vision for ePrescribing and its relationship with wider hospital strategy.
- Building and sustaining links to senior management and clinical leaders.
- Talking to other people and other sites that have experience with electronic prescribing.
- Specifying, selecting, procuring and installing software and equipment.
- Configuring software and building required databases.
- Exploring changes in work practices that are necessary, desirable and safe.
- Establishing training and support resources.
- Designing robust back-up and recovery procedures, given that computers can and do stop working.
- Collecting baseline data against which to monitor implementation outcomes.
- Identifying pilot sites and the roll-out sequence.
- Ensuring strong and active two-way links with both the users and the suppliers.
- Continuing to ensure that once in use ePrescribing is actively managed, with ongoing support and a positive development trajectory.

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.

Active management for ePrescribing

In most cases, the ePrescribing team has to make a choice as to what software they purchase, there being a number of system suppliers active in the UK marketplace. This decision needs to be approached on the basis of an analysis of needs, functional requirements and constraints. Among the specific issues that the ePrescribing team will need to consider are the existing systems (such as pharmacy) and databases in use and with which ePrescribing will need to interface. The existing technical infrastructure and user workstations that may be shared with the new system may also need to be considered as well as the peak transaction loads expected and their consequence for the performance of databases and networks. The experience of reference sites offered by various suppliers or identified independently can be very useful in establishing critical areas to consider such as the level of support needed once systems are in use.

> *Among the most important issues that the project board must consider, and to which nurses should contribute, is the phasing of the implementation.*

The ePrescribing team need to assess and specify some areas of functionality in detail, for which purpose the *ePrescribing functional specification for NHS trusts (2007)*[1] prepared by NHS Connecting for Health is the appropriate starting point.

The experience of UK sites suggests that building a good relationship with the software supplier is an important factor in successful system implementations. At an early stage the project team should investigate other sites that use particular types of software, and seek information on how supportive the supplier has been during implementation and how responsive they are to change requests and responding to reported system faults.

As with other information systems projects, ePrescribing can be rolled-out in a number of different ways. Among the elements of choice are:

- A pilot site - perhaps one or two wards or clinics - where software, equipment and re-designed work processes can be tested out.
- Parallel running, where a new system is run alongside an older system for a period of time to validate its outputs.
- Incremental implementation, in which a system is launched with limited or restricted functions, and further functions are added over time.
- A big bang, where work is moved in one swift activity from old system to the new.

All of these approaches can be a part of the plan, although parallel running should be very carefully evaluated since parallel systems, far from enhancing safety, can introduce new opportunities for error and certainly put an additional load on people who have to do everything twice.

The approach adopted by a number of the UK sites, is to use a pilot site running for a period of two or three months, followed by a swift roll-out across the rest of the hospital – not quite a big bang, more rolling thunder. In choosing a pilot site the enthusiasm and competence of the staff is an important factor.

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The impetus to roll-out faster rather than slower is to minimise the period of time in which staff and patients have to cross the boundaries between one way of working and the other. There is also the possibility of other parallel change programmes underway. By limiting the period of this change, it is possible to limit the problems of interference between different change initiatives.

There will almost certainly be some incremental implementation too. For example, a function such as enforced allergy documentation may not be part of the initial roll-out, but can be implemented in a second or subsequent phase.

Whatever the decision as to how ePrescribing is rolled-out, the period of initial use will require extra dedicated resources. The level of availability of these resources will influence how fast the roll-out can be. With more support capacity, in particular extra nurses and pharmacists, a faster rate can be safely sustained.

Equally, there needs to be coverage in depth by the technical support team at this time. At 'go live', the most annoying and debilitating bugs can emerge. System testing and pilot site usage will reveal some such problems, but it cannot reveal all of them, so a rapid and intelligent technical response may be needed. In the worst case, of a failure of the system, there must be well understood plans to fall back to a paper-based system for a period of time, and then to return to ePrescribing.

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

References

[1]NHS Connecting for Health (2007). ePrescribing functional specification for NHS Trusts. http://www.connectingforhealth.nhs.uk/systemsandservices/eprescribing/baselinefunctspec.pdf
Accessed 5 December 2008

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