Action deadlines for the Safety Alert Broadcast System (SABS)

Category: ACTION
For action by: pharmacists

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NHS
National Institute for Health and Clinical Excellence

National Patient Safety Agency

Technical patient safety solutions for medicines reconciliation on admission of adults to hospital

The aim of medicines reconciliation on hospital admission is to ensure that medicines prescribed on admission correspond to those that the patient was taking before admission. Details to be recorded include the name of the medicine(s), dosage, frequency, and route of administration. Establishing these details may involve discussion with the patient and/or carers and the use of records from primary care. This does not include medicines review.

1 Action

1.1 All healthcare organisations that admit adult inpatients should put policies in place for medicines reconciliation on admission. This includes mental health units, and applies to elective and emergency admissions.

1.2 In addition to specifying standardised systems for collecting and documenting information about current medications, policies for medicines reconciliation on admission should ensure that:

- pharmacists are involved in medicines reconciliation as soon as possible after admission
- the responsibilities of pharmacists and other staff in the medicines reconciliation process are clearly defined; these responsibilities may differ between clinical areas
- strategies are incorporated to obtain information about medications for people with communication difficulties.

2 Other interventions evaluated

The Patient Safety Advisory Committee considered there was insufficient evidence to make recommendations for action on the following potential patient safety solutions for medicines reconciliation on admission of adults to hospital:

- packages for medicines reconciliation
- IT-based information transfer initiatives.

Further information is given in section 5 (Basis for guidance).

3 The patient safety problem or harm

3.1 Medication errors pose a threat of harm to hospital inpatients, leading to increased morbidity, mortality and economic burden to health services. Errors occur most commonly on transfer between care settings and particularly at the time of admission.

3.2 Two recent literature reviews reported unintentional variances of 30–70% between the medications patients were taking before admission and their prescriptions on admission.

NICE patient safety guidance 1

This guidance is written in the following context

This guidance represents the view of the Institute and the NPSA, which was arrived at after careful consideration of the available evidence. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. This guidance does not, however, override the individual responsibility of healthcare professionals to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

NICE patient safety guidance advises on how to improve the safety of patients in the NHS in England and Wales.

3.3 Errors may occur at a number of stages during the admission process, including when:

- determining the medication the patient is currently taking, from written records or the accounts of the patient, their families or carers
- transcribing details of the patient's medication to the hospital clinical record
- prescribing medication for the patient after admission.

3.4 The aim of medicines reconciliation on admission to hospital is to ensure that medicines prescribed on admission correspond to those that the patient was taking before admission. The National Prescribing Centre defines medicines reconciliation as:

- collecting information on medication history (prior to admission) using the most recent and accurate sources of information to create a full and current list of medicines (for example, GP repeat prescribing record supplemented by information from the patient and/or carer), and
- checking or verifying this list against the current prescription chart in the hospital, ensuring any discrepancies are accounted for and actioned appropriately, and
- communicating through appropriate documentation, any changes, omissions and discrepancies.

3.5 Medicines reconciliation can occur when patients are admitted to hospital, transferred to other units within the hospital or to another hospital, or discharged from hospital.

3.6 Factors that may contribute to medicines reconciliation errors include the following.

- No access to the patient's prescription list from primary care.
- Discrepancies between the primary care prescription list and the medications the patient is taking. This may happen because the patient is no longer taking prescribed medications, because they are taking medications they have obtained themselves (for example, over-the-counter medicines, herbal medicines or vitamins), or because they are taking the incorrect dose.
- Difficulties in obtaining an accurate account of a patient's medication, which may be caused by an acute condition, sensory or cognitive impairment, lack of access to family or carer support, or language barriers.
- Errors in transcribing medication details to the hospital clinical record.

3.7 Admission to hospital provides an opportunity to make appropriate changes to medication. However, the process of medicines review is beyond the scope of this guidance, as is medicines reconciliation on transfer to other units or on discharge.

4 Current practice

4.1 Taking a medication history and prescribing medication on admission is traditionally done by junior (foundation) doctors, who have many competing priorities during the assessment and initial care of the patient.

4.2 In some units, pharmacists are involved in medicines reconciliation at the time of admission or shortly afterwards. However, practice varies, and pharmacists may not be readily available, particularly out-of-hours.

4.3 Some units have developed processes to minimise medicines reconciliation errors. However, variations in care settings, staffing structures and admission times make standard solutions difficult to establish.

4.4 There are a number of 'patient's own drugs' (POD) schemes that encourage patients to bring their usual medicines from home so that they can continue taking them after admission.

4.5 In May 2007, the World Health Organization (WHO) published guidance on assuring medication accuracy at transitions in care, which included recommendations on medicines reconciliation at hospital admission. The National Prescribing Centre is developing implementation tools for medicines reconciliation (publication expected January 2008).

5 Basis for guidance

Children under the age of 16 years were outside the scope of this guidance.

5.1 Pharmacist-led interventions

5.1.1 Involvement of pharmacists in medicines reconciliation was examined in one randomised controlled trial (RCT), two before-and-after trials, and five observational studies presented in the systematic review. The RCT reported that the number of discrepancies between hospital and home medication fell after pharmacist involvement compared with standard care (nurse-conducted history and surgeon-generated orders). The number of discrepancies fell from 44 per 100 patients (68/154) to 19 per 100 patients (30/154). Interpretation of the results of all of the studies was complicated because of different definitions of medication error, lack of a gold standard for correct medications, and other methodological flaws in study design.

5.1.2 In general there was support from the Specialist Advisers and consultees for increased involvement of pharmacists in medicines reconciliation. It was believed that involving pharmacists benefited not only medicines reconciliation but also medicines review. The most commonly cited obstacles to greater involvement of pharmacists were lack of time and availability of staff, particularly out-of-hours.

5.1.3 The pharmacist's role in medicines reconciliation is often in an advisory capacity, supervising pharmacy technicians or other trained staff, and the Committee considered that this was appropriate.

5.1.4 The Committee considered whether it would be appropriate to include a time limit for pharmacist-led medicines reconciliation after admission. Lack of evidence and variation in current practice made it difficult to specify a timeframe. However, the WHO guidance on assuring medication accuracy at transitions in care suggests that medicines

reconciliation should take place within 24 hours of admission. The Committee agreed that this would be a reasonable target to include in policies.

5.2 Packages for medicines reconciliation

5.2.1 Three studies were identified that compared medication errors before and after packages were introduced to reduce medicines reconciliation errors at the time of admission. Each study described a different package of care for medicines reconciliation. All included a specially designed medicines reconciliation template and involved a trained member of staff responsible for data collection (for example, a nurse or pharmacy technician). In the first study, which enrolled a total of 767 patients, there were 145 errors per 100 patients without the package compared with 76 per 100 patients with the package. In the second study, the rates fell from 213 to 80 errors per 100 patients (total number of patients not stated). In the third study, the rate of errors per patient was reduced by 53% using medicines reconciliation packages (total number of patients not reported). None of the studies were carried out in the UK, so their applicability to UK practice is uncertain. All of the studies were of poor methodological quality. It was therefore not possible to make any recommendation concerning packages of care for medicines reconciliation.

5.2.2 The Specialist Advisers were unanimous in their opinion that packages of care prevented medication errors at the point of hospital admission, and the majority thought that they should always be used. The Specialist Advisers commented that these packages of care need to be piloted, implemented in full and audited in order for their benefits to be realised. The Specialist Advisers said that packages have not been implemented in full because of a perception that they are time-consuming. A range of packages is likely to be required across different clinical settings.

5.3 IT-based information transfer initiatives

5.3.1 Little evidence was found relating to IT systems for improving medicines reconciliation. One before-and-after study was identified that compared standard care with the use of a template faxed between the admitting ward and GP practices. This reduced the number of errors from 55 to 17 per 100 patients (total number of patients not stated). The percentage of treatment sheets written correctly within 24 hours of admission increased from 45% to 83%. This study was presented as a conference abstract and full methodological details were not available.

5.3.2 The Specialist Advisers considered that data on the effectiveness of IT solutions were sparse. They highlighted lack of equipment and lack of training as barriers to the introduction of IT solutions. They also commented that IT interventions may be difficult to distinguish from pharmacist-led programmes that include an IT element. They also noted that potential problems relating to unfamiliarity with new IT systems may result in the transmission of incorrect information.

5.3.3 The Committee considered that any kind of improvement in communication is likely to reduce transcription errors, but there was insufficient evidence to recommend any particular method.

5.3.4 Electronic methods of communication between primary and secondary care are developing rapidly. While such developments are likely to reduce transcription errors, they will not reduce the need to involve trained experts to check what medication the patient is actually taking and to prescribe accurately.

5.4 Cost effectiveness

5.4.1 The economic evaluation estimated the incremental costs and quality adjusted life years (QALYs) of five potential technical patient safety solutions. These potential solutions aim to improve the medicines reconciliation process through the use of pharmacist-led interventions, IT-based information transfer initiatives using fax machines, or three different packages of care for medicines reconciliation. QALY gains were derived from reduction in the number of preventable drug-related adverse events. The results showed that pharmacist-led interventions are likely to be the most successful way of preventing medication errors.

5.4.2 For further information please see the systematic review on medicines reconciliation at hospital admission. Available from: www.nice.org.uk/PSG001

6 Implementation

The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the Department of Health in 'Standards for better health' issued in July 2004. Implementation of action 1.1 in this guidance (putting policies in place for medicines reconciliation on admission) will be assessed against core standard C1(b). Implementation of action 1.2 in this guidance (applying all aspects of policies referred to in action 1.1) will be assessed against developmental standard D1. 'Healthcare Standards for Wales' was issued by the Welsh Assembly Government in May 2005 and provides a framework both for self-assessment by healthcare organisations and for external review and investigation by Healthcare Inspectorate Wales. Standard 12b requires healthcare organisations to ensure that patients and service users are provided with effective treatment and care that conforms to NICE guidance.

6.1 Assessing the impact of the guidance

The impact of the action alert will be tracked in England through SABS (www.info.doh.gov.uk/sar2/cmopatie.nsf) and in Wales through the regional offices of the Welsh Assembly Government. In addition, healthcare organisations are expected to use indicators, audit tools and patient safety incident reports to monitor the continued implementation of the patient safety recommendations. Clinical governance groups in organisations should review these data annually and take

appropriate action to ensure patient safety. Healthcare commissioners and performance management groups should also review these data and any resulting actions taken by the organisation annually. The NPSA will also review these data to gain feedback on the impact of the patient safety guidance.

6.2 Implementation tools

NICE has developed tools to help organisations implement this guidance (listed below). These are available on the NICE website: www.nice.org.uk/PSG001

- Slides highlighting key messages for local discussion.
- Local costing template incorporating a costing report to estimate the savings and costs associated with implementation.
- Audit tool.

7 Research recommendations

7.1 The evidence base relating to medicines reconciliation was considered to be weak. More research is needed to guide practice. There are many local initiatives that might provide valuable contributions if well evaluated and described. Support should be given to collaborative projects, and to research in different settings (for example, mental health units).

7.2 The evidence reviewed by the Committee on packages of care for medicines reconciliation was insufficient for recommendations to be made on their clinical effectiveness. The publication and evaluation of further research on well-defined packages of care and their implementation is needed.

7.3 The development and evaluation of IT-based solutions for medicines reconciliation is needed. Research should evaluate the practicalities of implementing IT solutions and identify any problems that may need to be addressed.

8 Further information

8.1 Ordering information

You can download the following documents from www.nice.org.uk/PSG001

- Patient safety guidance – this document.
- 'Understanding NICE guidance' – information for patients and carers.
- Details of all the evidence that was looked at and other background information.

For printed copies of the patient safety guidance or 'Understanding NICE guidance', phone the NHS Response Line on 0870 1555 455 and quote:

- N1425 (patient safety guidance)
- N1426 ('Understanding NICE guidance').

8.2 Related NICE/NPSA guidance

- Actions that can make anticoagulant therapy safer. NPSA patient safety alert 18 (2007).
- Improving compliance with oral methotrexate guidelines. NPSA patient safety alerts 3 (2004) and 13 (2006).

These and other medication-related alerts can be found at www.npsa.nhs.uk/alerts

NICE is developing the following guidance (details available from www.nice.org.uk).

- Medicines concordance. NICE clinical guideline (publication expected December 2008).

9 Review of guidance

9.1 The review date for this patient safety guidance refers to the month and year in which the Guidance Executive will consider whether the patient safety guidance should be reviewed. This decision will be taken in the light of information gathered by NICE and the NPSA, and in consultation with stakeholders.

9.2 This patient safety guidance will be considered for review in December 2010.

Andrew Dillon
Chief Executive, NICE
December 2007

Sources of evidence

The evidence considered by the Patient Safety Advisory Committee is described in the following documents.

- Systematic review for clinical and cost effectiveness of interventions in medicines reconciliation at the point of admission (2007).
- Economic model for interventions in medicines reconciliation at the point of admission (2007).
- Specialist adviser comments on interventions in medicines reconciliation at the point of admission (2007).
- Patient group feedback on interventions in medicines reconciliation at the point of admission (2007).

Available from: www.nice.org.uk/PSG001

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