Infusion device project – products developed:
Decision-making checklist
Two baseline assessments
Usability questionnaire
Centralisation advice (business case scoping)
Economic appraisal indicator (spreadsheet)
Patient information leaflet
PaSA-hosted website
Six pilot sites willing to share their experiences with others.
E-learning (in development)
Safer practice solution

Standardisation and centralising of infusion devices brings key safety benefits

Problem

Through a pilot study, the National Patient Safety Agency (NPSA) has identified significant potential for acute trusts to improve the way that infusion devices are purchased and managed, reduce risk to patients and save money in the process.

It is estimated that there are over 15 million infusions per annum in NHS care. Infusion devices are commonly used to deliver fluids and medication via a drip into the veins of patients requiring re-hydration therapy or medication treatment. The Medicines and Healthcare products Regulation Agency (MHRA) receives over 700 incident reports a year involving infusion devices. User error accounts for 19% of these incidents and on average there are ten related patient deaths reported per year.

The results of the NPSA pilot study with six acute trusts show that:

• there were 321 incident reports linked to infusion device use in the six trusts within a one-year period. There were no reported deaths;
• with on average 31 different types of infusion device available for use in each trust, there is a high risk of staff error due to confusion over device functionality and use;
• with on average 65% of infusion devices idle for most of the time in each trust, significant cost savings could be made;
• five trusts, in response to their findings, are now implementing a centralised system for purchasing, managing and maintaining these devices – to both reduce incident rates and deliver cost benefits.

The pilot study evaluation report can be found on the NPSA website: www.npsa.nhs.uk
Action for the nhs

This safer practice solution sets out four actions that NHS acute trusts in England and Wales are advised to take to reduce the risk of patient safety incidents involving infusion devices:

1. Review the system in which infusion device purchasing decisions are made.
2. Implement an infusion device evaluation process before purchase.
3. As far as possible, standardise choice of infusion device types and within each type standardise agreed default configurations.
4. Scope the potential for a centralisation facility, such as an equipment library, to manage and control devices more efficiently and improve patient safety.

A toolkit of solutions is available on the website: www.pasa.nhs.uk/infusiondevices

These solutions assist trusts in reviewing the quality of their existing device management systems, as well as assessing the potential for significant cost benefits and improved patient safety.

For the attention of acute NHS trusts in England and Wales:

Clinical governance lead (for action)
Chief executives (for information)
Finance directors (for information)

For action by:

Clinical governance lead
Heads of Clinical/Medical Engineering departments

For information to:

To be disseminated by the NPSA to:

NHS acute trust chief executives, finance directors and heads of clinical governance/risk managers in England and Wales
Heads of Clinical/Medical Engineering departments
Chief executives and clinical governance leads of Strategic Health Authorities (England) and Regional Offices (Wales)
Medicines and Healthcare products Regulatory Agency (MHRA)
Within trusts – to be disseminated by clinical governance leads to:
Board member with responsibility for device management (for action)
Directors of nursing
Medical directors
Medical device liaison officers
Risk managers
Procurement managers
Communications leads
PALS officers (England)

A popular format of the safer practice solution will be made available at www.npsa.nhs.uk for use by organisations briefing NHS staff or patients.

**Date: Insert issue date**
Purpose of safer practice solution

The purpose of this safer practice solution is to reduce the number of patient deaths, and incidents causing patient harm, associated with infusion device use.

Implementing the actions recommended below will bring the following benefits:

1. Improving the quality of device-management systems will contribute to reducing the risk of patient harm or death.

2. Financial savings will be achieved through standardisation, economies of scale purchasing and centralisation promoted through the solutions. The pilot study showed that the trusts involved had an average stock of 1,000 devices costing £1.6 million – with 65% idle for most of the time.

3. An economic assessment based on information provided by pilot trusts carried out by the Department of Health suggests that trusts might achieve net financial savings of £120,000 per annum by having a central equipment library and reducing the stock of devices.

4. Standard default configurations for the infusion devices in the trust will contribute significantly to reducing patient risk and increasing the effectiveness of user training.

5. The principles of centralisation identified in point 2 above are equally applicable to other medical device groups. Pilot sites identified other equipment for inclusion into their systems such as overlay pressure mattresses, cardiac monitors and pulse oximeters. Improved management of these medical devices is projected to reduce costs.

6. The steps will help trusts improve Controls Assurance, CNST and Welsh Risk Pool scores.

7. The steps will enable a standardised approach to staff training in the use of infusion devices.

8. There may be a reduction in the number of patient safety incidents that could lead to litigation. This will be achieved by improving the processes in which infusion devices are purchased (standardisation), managed (centralisation) and used (e-learning).
Existing guidance/standards on infusion device management

Controls Assurance: Standard 15 (Medical Device Management) National Health Service Litigation Authority (NHSLA) – This standard covers medical device management providing national guidance on purchasing, management and user practice. Trusts are assessed on a yearly basis to ensure progress is being maintained against standards. www.casu.org.uk/standards/standard/Medical%20Devices.htm

Clinical Negligence Scheme for Trusts (CNST) NHSLA. www.nhsla.co.uk/

Please note that Wales is covered by separate risk standards under the Welsh Risk Pool Scheme (Welsh Risk Management Standard 30). http://howis.wales.nhs.uk/


Action for the NHS

- The NPSA recommends that the clinical governance lead should identify a senior member of staff to lead, develop and coordinate this work, e.g. Trust clinical governance lead, manager or Head of Clinical/Medical Engineering.

- We recommend that this lead should be responsible for the review of the NPSA’s solutions toolkit, which is available on www.pasa.nhs.uk/infusiondevices. The toolkit will lead trusts through a range of actions to help establish baseline assessments, identify system weaknesses and provide a rationale for action. It includes supporting information to assist in the decision-making process.
How the NPSA can help

The solutions website will provide a one-stop information source. This site, hosted by the NHS Purchasing and Supply Agency (PaSA), will provide information and guidance such as:

- a toolkit of solutions that includes:
  - baseline assessment and decision-making guidance;
  - access to a usability questionnaire to assist in the evaluation of device functionality prior to purchase;
  - documentation that sets out how to scope the potential for the development of centralisation facilities, eg an equipment library;
  - a spreadsheet to help trusts to establish a local economic appraisal;
- access/contact with manufacturers’ websites;
- the full NPSA pilot study evaluation report;
- purchasing and tendering advice and guidance from PaSA;
- a patient information leaflet, tested in pilot sites, for trusts to use in their own patient information publications.

The six trusts who participated in the pilot study found that the solutions toolkit gave them the guidance they needed to develop a structured view of their purchasing and infusion device management arrangements. All have begun to put together a business case to support the creation of an equipment library.

For more information on the evaluation of this study please visit: www.pasa.nhs.uk/infusiondevices

Future action for the NPSA

We will review uptake of the solutions after one year.

In support of the solutions toolkit, the NPSA is working closely with the NHS University to develop an accredited e-learning programme for all staff who use infusion devices, utilising a national competency framework. This is likely to be available late autumn 2004.
**Background**

The NPSA sponsored a project to establish the root causes of infusion device incidents, where no fault with the equipment was identified, and establish solutions to prevent their recurrence.

Solutions have been developed to address five key ‘root causes’ of incidents linked to the way devices are used, stored and maintained. Five main issues emerged from the project:

1. there was uncontrolled purchasing which lead to a wide range and high numbers of devices available for use – ultimately this was confusing for staff and potentially dangerous for patients;

2. there was limited device usability evaluation, resulting in the unnecessary purchase of high-specification devices;

3. the management of devices in the clinical setting was uncoordinated, e.g. confusion over device use caused by the availability of a wide range of (non-standardised) infusion device stock;

4. staff training was not a priority or competency-based.

5. devices of the same type had multiple configurations, meaning they could react differently under the same circumstances.

Pilot work in six sites identified that:

- on average 65% of infusion devices were idle for most of the time in each trust;
- on average 31 different devices were available for use in each trust;
- the average stock of infusion devices was around 1,000 per trust;
- the average infusion device asset cost was £1.6m per trust.

Solutions provided focus for pilots to identify the scope for development. Pilot sites quickly established that their purchasing and device-management processes needed to be improved. A review of their existing systems highlighted areas where trusts could make significant savings. The use of solutions and supporting information on the PaSA website helped pilot sites to ensure that:

- appropriate stakeholders were involved in the purchasing process;
- appropriate information was used to assist decision making;
- standardisation of infusion devices was identified as a key objective;
- device usability evaluation data was collected and shared with other purchasers and with feedback to manufacturers;
device centralisation was promoted via an equipment library. After six months' work all pilot sites are now in the process of developing a business case for centralisation and are committed to standardisation. All have recognised the potential to improve the quality of their systems and reduce the associated costs.

Further details

For further details regarding this safer practice solution please contact the patient safety manager in your area. To identify your local patient safety manager visit the NPSA website: http://www.npsa.nhs.uk/static/contacts.asp

Representatives from the trusts involved in the pilot of the infusion device solutions are also available to advise organisations on the implementation of the solutions toolkit. They can be contacted via your patient safety manager.

National Patient Safety Agency
4–8 Maple Street
London
W1T 5HD

www.npsa.nhs.uk

Tel: 020 7927 9500
We recognise that healthcare will always involve risks. But that these risks can be reduced by analysing and tackling the root causes of patient safety incidents. We are working with NHS staff and organisations to promote an open and fair culture, and to encourage staff to inform their local organisations and the NPSA when things have gone wrong. In this way, we can build a better picture of the patient safety issues that need to be addressed.