

Patient safety alert

05



Alert

21 February 2005

Immediate action	<input checked="" type="checkbox"/>
Action	<input type="checkbox"/>
Update	<input type="checkbox"/>
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Reducing the harm caused by misplaced nasogastric feeding tubes

Nasogastric tube feeding is common practice in all age groups, from neonates to older people. Thousands of feeding tubes are inserted daily without incident. However, there is a small risk that the nasogastric feeding tube can be misplaced into the lungs during insertion, or move out of the stomach at a later stage. Although misplacement can be recognised at an early stage, i.e. before the tube is used, studies have shown that conventional methods used to check the placement of nasogastric feeding tubes can be inaccurate.

The NPSA is aware of 11 deaths and one case of serious harm due to misplaced nasogastric feeding tubes over a two-year period.

Action for the NHS

NHS acute trusts, primary care organisations and local health boards in England and Wales should take the following steps immediately:

- 1 Provide staff, carers and patients in the community, with information on correct and incorrect testing methods:
 - measuring the pH of aspirate using pH indicator strips/paper is recommended;
 - radiography is recommended but should not be used 'routinely'. Local policies are recommended for particular groups of patients e.g. those in intensive care units and neonates. Fully radio-opaque tubes with markings to enable accurate measurement, identification and documentation of their position should be used;
 - DO NOT use the 'whoosh' test - this practice must cease immediately;
 - DO NOT test acidity/alkalinity of aspirate using blue litmus paper;
 - DO NOT interpret absence of respiratory distress as an indicator of correct positioning.
- 2 Carry out individual risk assessment prior to nasogastric tube feeding.
- 3 Review and agree local action required.
- 4 Report misplacement incidents via their local risk management reporting systems.

For response by:

- NHS acute trusts (including foundation trusts), primary care organisations and local health boards in England and Wales

For action by:

- Directors of Nursing in England and Wales

We recommend you also inform:

- Medical Directors
- Clinical governance leads and risk managers
- Medical staff (including radiologists, neonatal staff and intensive care staff)
- Nursing staff (including community nurses)
- Nutritional nurse specialists

- Speech and language therapists, physiotherapists, dieticians
- General practitioners
- Chief pharmacists/pharmaceutical advisers
- Patient advice and liaison service staff in England
- Procurement managers

The NPSA has informed:

- Chief executives of acute trusts, primary care organisations and local health boards in England and Wales
- Chief executives/regional directors and clinical governance leads of strategic

health authorities (England) and regional offices (Wales)

- Healthcare Commission
- Healthcare Inspectorate Wales
- NHS Purchasing and Supply Agency
- Welsh Health Supplies
- Royal Colleges and societies
- NHS Direct
- Relevant patient organisations and community health councils in Wales
- Independent Healthcare Forum
- Commission for Social Care Inspection

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Action deadlines for the Safety Alert Broadcast System (SABS)

Deadline (action underway): 8 March 2005

Action plan to be agreed and actions started

Deadline (action complete): 1 September 2005

All actions to be completed

Further information about SABS can be found at

www.info.doh.gov.uk/sar/cmopatie.nsf

Further information on the action points

1 Provide staff, carers and patients in the community, with information on correct and incorrect testing methods

Staff should be informed that none of the existing methods for testing the position of nasogastric feeding tubes are totally reliable. The trusts should reproduce and distribute the advice for staff, carers and patients. This advice should be followed when using pH indicator strips/paper and radiography.

Advice for infants, children and adults can be found at www.npsa.nhs.uk/advice

Separate advice for carers and patients in the community can be found at www.npsa.nhs.uk/advice

Further advice specifically for neonates will follow shortly.

The following methods MUST NOT be used:

Auscultation of air insufflated through the feeding tube ('whoosh' test)

There are many reports on the ineffectiveness of this method^{1, 2, 3, 4}. In several cases where results indicated correct tube placement, feedings were started with disastrous results³.

Testing acidity/alkalinity of aspirate using blue litmus paper

The Medicines Healthcare products Regulatory Agency (MHRA) distributed an alert in June 2004 advising all staff to stop using blue litmus paper to test the acidity/alkalinity of aspirate. Blue litmus paper is not sensitive enough to distinguish between bronchial and gastric secretions⁵.

Interpreting absence of respiratory distress as an indicator of correct positioning

Observing for signs of respiratory distress is often ineffective in detecting a misplaced tube^{6, 7}. This method is also less effective with the increased use of small bore tubes that can enter the respiratory tract with few, if any, symptoms⁸. Additionally, even large bore tubes can enter the respiratory tract and the patient can fail to show symptoms, especially if the patient is unconscious⁹.

Monitoring bubbling at the end of the tube

Observing for bubbling at the proximal end of the tube is unreliable because the stomach also contains air and could falsely indicate respiratory placement⁷.

Observing the appearance of feeding tube aspirate

Research and anecdotal evidence indicate that relying on the appearance of feeding tube aspirate to rule out misplacement is unreliable because gastric contents can look similar to respiratory secretions^{2, 10}.

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2 Carry out individual risk assessment prior to nasogastric tube feeding

Prior to feeding each patient, a risk assessment needs to be carried out by a competent person. A decision needs to be made that balances the risks with the need to feed. Patients who are comatose or semi-comatose, have swallowing dysfunction or recurrent retching or vomiting, have a higher risk of placement error or migration of the tube, whereas patients on antacid medication are more likely to have pH levels of 6 and above. Actions to reduce risks and the rationale behind these actions should be documented prior to the commencement of feeding. This information will support staff in making the correct clinical decisions.

3 Review and agree local action required

Changing and improving clinical practice in relation to nasogastric feeding tube placement will require a local programme to facilitate change¹¹. Trusts need to ensure that: pH indicator testing strips/paper are stocked in all relevant clinical areas, and are made available to carers and patients in the community; staff and carers are trained, on a competency framework basis, in the placement and testing of nasogastric feeding tubes and on how to risk-assess this procedure; radiographs to confirm the position of the tube are interpreted by appropriately trained clinical staff; fully radio-opaque tubes with markings to enable accurate measurement, identification and documentation are used.

4 Report misplacement incidents via their local risk management reporting systems

Ensure that all staff report misplaced feeding tube incidents through their local risk management systems. The NPSA will automatically receive this information through the National Reporting and Learning System (NRLS). This will enable both local and national monitoring of nasogastric feeding tube misplacements and inform our understanding of the problem.

Next steps

Different testing methods

The University of Birmingham Patient Safety Research Group has been commissioned to further assess the existing testing methods. The research will include specific work on the neonatal population. A further revision to the information contained in this alert may therefore be made in light of this research.

Further work may also include a one-day audit of tube insertions in order to identify the extent of the use of nasogastric feeding tubes.

Other organisations

Further work will be undertaken with industry to investigate the feasibility of having pH levels of the feed identified on all enteral feed packaging.

The NPSA will work with the MHRA and industry to identify and rectify any further contributing factors.

The NPSA will work collaboratively with the editors of the Royal Marsden Manual of Clinical Procedures to ensure that the guidance given reflects that contained within this document.

NPSA review of actions implemented

In September 2005 the NPSA will review how the action points have been implemented through the Safety Alert Broadcast System in England. Alternative arrangements will be made for Wales. Where actions have not been implemented, the NPSA will expect the relevant strategic health authority or regional office to provide a full explanation.

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Contacts

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A patient safety alert requires prompt action to address high risk safety problems.

This patient safety alert is written in the following context:

It represents the view of the National Patient Safety Agency, which was arrived at after consideration of the evidence available. It is anticipated that healthcare staff will take it into account when designing services and delivering patient care. This does not, however, override the individual responsibility of healthcare staff to make decisions appropriate to local circumstances and the needs of patients and to take appropriate professional advice where necessary.

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