NHS
National Patient Safety Agency

Rapid Response Report

NPSA/2012/RRR001

From reporting to learning

22 March 2012

Harm from flushing of nasogastric tubes before confirmation of placement

Issue

Misplaced nasogastric tubes leading to death or severe harm are 'never events.' The Patient Safety Alert *Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants* was issued by the NPSA on 10 March 2011 with an action complete date of 12 September 2011. Alongside other actions, this Alert requires all organisations to ensure that *"Nasogastric tubes are not flushed, nor any liquid/feed introduced through the tube following initial placement, until the tube tip is confirmed by pH testing or x-ray to be in the stomach."* This advice is repeated in the National Nurses Nutrition Group *Good Practice Guideline: Safe Insertion of Nasogastric Feeding Tubes in Adults*.

The advice not to flush until after gastric placement is confirmed is important because:

- any flush could cause an aspiration pneumonia if the tube is misplaced in the lungs;
- pH testing for gastric placement relies on collecting aspirate via the tube; anything introduced down the tube will contaminate this aspirate, potentially leading to false positive pH readings.

Evidence of harm

The NPSA is aware of two patient deaths since 10 March 2011 where staff had flushed nasogastric tubes with water before initial placement had been confirmed. Staff then aspirated back the water they had flushed into the tube, including the lubricant within the tube that this water had activated. Because this mix of water and lubricant gave a pH reading below 5.5, they assumed that the nasogastric tube was correctly placed and went on to give medications and/or feed, although the tube was actually in the patient's lung. We are also aware of a similar incident which did not lead to harm to a patient.

The three organisations where the incidents occurred were aware of the NPSA Alert, but there appeared to be a widespread belief amongst their frontline staff that the 'never flush' rule did not apply where nasogastric tubes had a water-activated lubricant. This belief is incorrect, and the manufacturer's written guidance, enclosed with each new nasogastric tube, clearly states that gastric placement must be confirmed BEFORE the tube is flushed. The lubricant is not needed for placement, only to aid removal of the guidewire/ stylet from the tube **after gastric placement has been confirmed**.

FOR IMMEDIATE ACTION by all organisations in the NHS and independent sector where nasogastric feeding tubes are placed and used for feeding patients. The deadline for action complete is 21 September 2012.

1. Assign a named clinical lead to coordinate implementation of the actions in this Rapid Response Report (RRR) with any actions outstanding from the earlier Alert
2. Remind all staff responsible for checking initial placement of nasogastric tubes (including staff who support parents/carers who check initial placement of nasogastric tubes):
    a. NOTHING should be introduced down the tube before gastric placement has been confirmed;
    b. DO NOT FLUSH the tube before gastric placement has been confirmed;
    c. Internal guidewires/ stylets should NOT be lubricated before gastric placement has been confirmed.
3. This reminder should be given through:
    a. Distributing this RRR to all relevant staff;
    b. Providing warning notices and/ or overwraps with warning labels on all current and future stock of nasogastric tubes, until these are provided as standard by manufacturers;
    c. Reviewing and, if necessary, amending all local policy, protocol and training materials.

The NPSA has alerted device manufacturers of this risk and will promote the need for safer design and labelling. Any concerns related to manufacturers' instructions for use or labelling should be reported to the Medicines and Healthcare products Regulatory Agency.

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Further information: This RRR should be read in conjunction with the previous Alert *Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants*. This remains in force and should be referred to for all other issues, including repeat placement checks after initial gastric placement has been confirmed.
For further queries contact rrr@npsa.nhs.uk, Telephone 020 7927 9500.