Reducing the Harm Caused by Misplaced Nasogastric & Orogastric Feeding Tubes Policy

April 2017
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| Ownership | Western Health and Social Care Trust (WHSCT) |
| Original Implementation Date | September 2008 | Review Dates | September 2010  
December 2012  
April 2017 |
| Review Date | March 2020 |
| Version No | Version 3 | Supersedes | Version 1 September 2010  
Version 2 December 2012 |
| Reference number | PrimCare08/11 |
| Links to other policies, procedures, guidelines or protocols | WHSCT (2014) Risk Management Policy  
WHSCT (2014) Incident Reporting Policy and Procedures  
National Patient Safety Agency NPSA/2012/RRR001: Harm from Flushing of Nasogastric Tubes before Confirmation of Placement  
GAIN (2015) Guidelines_for_Caring_for_an_infant_child_or_young_person_who_requires_enteral_feeding  
Staff must refer to the Royal Marsden Hospital Manual of Clinical Nursing Procedures 9th Edition 2015 (http://www.rmmonline.co.uk/) for all procedures relating to the management of Nasogastric feeding. |
1.0 INTRODUCTION

1.1 Background

Nasogastric (NG) 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.

1.2 Purpose

This policy is designed to guide all Western Health and Social Care Trust Healthcare Professionals in the safe insertion and maintenance of nasogastric feeding tubes in adults, children and infants.

2.0 SCOPE OF POLICY

This policy applies to all staff caring for patients within a hospital and community setting who are undergoing Nasogastric feeding in the WHSCT.

2.1 Target Groups

Adults, children and neonates.

2.2 Linked Policies

This policy is based on the standards and recommendations from


NPSA/2012/RRR001: Harm from Flushing of Nasogastric Tubes before Confirmation of Placement

GAIN (2015) Guidelines for Caring for an infant child or young person who requires enteral feeding

Staff must refer to the Royal Marsden Hospital Manual of Clinical Nursing Procedures 9th Edition 2015 (http://www.rmmonline.co.uk/) for all procedures relating to the management of Nasogastric feeding.
3.0 PROFESSIONAL ROLES/RESPONSIBILITIES

Insertion and care of an NG tube should only be carried out by a registered doctor or nurse who has undergone theoretical and practical training and is deemed competent or is supervised by someone competent. Practitioners must have documentary evidence that competence has been achieved. Removal of an NG tube should only be carried out by a registered doctor or nurse (GAIN, 2015).

It is also the responsibility of all professionals and groups of staff to ensure that this Policy is adhered to.

4.0 KEY PRINCIPLES

NPSA/2012/RRR001

The National Patient Safety Agency (NPSA) has reported 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.

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.

All staff responsible for checking initial placement of nasogastric tubes (including staff who support parents/carers who check initial placement of nasogastric tubes): INCLUDING

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 guide-wires / stylets should NOT be lubricated before gastric placement.
In the interim, until the issue of procurement of naso-gastric tubes which meet the HSC (SQSD) 2/12 standards has been resolved warning notices and/or overwraps with warning labels will be provided on all current and future stock of nasogastric tubes in relation to the correct use of lubricants.

5.0 INAPPROPRIATE TESTING METHODS

TESTING METHODS THAT MUST NEVER BE USED TO DETERMINE THE POSITION OF AN N/G TUBE:

The following methods MUST NOT be used to determine the position of an N/G Tube:

5.1 Auscultation of air insufflated through the feeding tube (“whoosh test”).

There are many reports that this method is unsafe and unreliable. In several cases where results indicated correct tube placement, feedings were started with disastrous results.

5.2 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 secretions.

5.3 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. This method is also less effective with the increased use of small bore tubes that can enter the respiratory tract with a few, if any, symptoms, especially if the patient is unconscious.

5.4 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 placement.

5.6 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.
6.0 USE OF OTHER EQUIPMENT

Safety and Quality Learning Alert AL/SAI/2012/010(AS)

Staff should not attach oxygen to a Salem Sump nasogastric tube and staff should take extra care with patients with nasogastric tubes if they require oxygen.

No equipment other than that identified as compatible in the manufacture’s instruction should be used to facilitate drainage or prevent leakage from a Salem Sump nasogastric tube.

7.0 CLINICAL INCIDENT REPORTING

All staff must report misplaced feeding tube incidents through the Trust’s Clinical Incident reporting mechanism.

8.0 CONFIRMING CORRECT POSITION OF THE TUBE

8.1 Confirmation of the position of the nasogastric feeding tube must be made using the appropriate PH indicator strips designed to test the PH of gastric aspirate. pH testing is the first line testing method following nasogastric feeding tube insertion. All areas where nasogastric feeding tube placement is likely to occur should have access to CE marked pH indicator paper.

8.2 X-rays are only used as a second line test where pH indicator paper has failed to confirm the location of the nasogastric tube.

8.3 The necessary interventions and decisions to ensure the correct positioning of the feeding tubes must be carried out and based on the enclosed flowcharts (Appendix 1-3). This must be completed by staff undertaking the procedure of ascertaining the nasogastric tube position.

To assist staff in making a decision regarding ensuring the correct position of a feeding tube, a care bundle is attached for adults (Appendix A).

Further information regarding reducing harm caused by misplaced nasogastric feeding tubes in infants, children and young persons can be found in the Gain Guidelines (2015).

9.0 IMPLEMENTATION

Responsibility for ensuring the application of this policy lies with Director of each Directorate as appropriate or relevant. It will be the responsibility of the
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Directorates and Divisions to ensure the implementation of this policy in their clinical areas.

10.0 **EQUALITY STATEMENT**

In line with duties under the equality legislation (Section 75 of the Northern Ireland Act 1998), Targeting Social Need Initiative, Disability discrimination and the Human Rights Act 1998, an initial screening exercise to ascertain if this guidance should be subject to a full impact assessment has been carried out. The outcome of the Equality screening for this guidance is: **No Impact.**

11.0 **REFERENCES**

Gain Guidelines (2015) accessible at:


Decision tree for nasogastric tube placement checks in **ADULTS**

- Estimate NEX measurement (Place exit port of tube at tip of nose. Extend tube to earlobe, and then to xiphisternum.
- Insert fully radio-opaque nasogastric tube for feeding (follow manufacturer’s instructions for insertion)
- Confirm and document secured NEX measurement
- Aspirate with a syringe using gentle suction

**Aspirate obtained?**

**YES**

- Test aspirate on CE marked pH indicator paper for use on human gastric aspirate

  **pH between 1 and 5.5**

  **PROCEED TO FEED or USE TUBE**
  Record result in notes and subsequently on bedside documentation before each feed/medication/flush.

  **pH NOT between 1 and 5.5**

  **NO**

  **Try each of these techniques to help gain aspirate:**
  - If possible, turn adult onto left side
  - Inject 10-20ml air into the tube using a 50ml syringe
  - Wait for 15-30 minutes before aspirating again
  - Advance or withdraw tube by 10-20cm
  - Give mouth care to patients who are nil by mouth (stimulates gastric secretion of acid)
  - Do not use water to flush

  **Aspirate obtained?**

  **YES**

  Proceed to x-ray: ensure reason for x-ray documented on request form

  **NO**

  **DO NOT FEED or USE TUBE**
  Consider re-siting tube or call for senior advice

**A pH of between 1 and 5.5 is reliable confirmation that the tube is not in the lung, however it does not confirm gastric placement as there is a small chance the tube tip may sit in the oesophagus where it carries a higher risk of aspiration. If this is any concern, the patient should proceed to x-ray in order to confirm tube position.**

**Where pH readings fall between 5 and 6 it is recommended that a second competent person checks the reading or retests.**
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Diagram: NPSA DECISION TREE FOR NASOGASTRIC TUBE PLACEMENT CHECKS IN CHILDREN AND INFANTS (NOT NEONATES)

- Estimate NEX measurement (Place exit port of tube at tip of nose. Extend tube to earlobe, and then to xiphisternum)
- Insert fully radio-opaque nasogastric tube for feeding (follow manufacturer’s instructions for insertion)
- Confirm and document secured NEX measurement
- Aspirate with a syringe using gentle suction

Aspirate obtained?

YES

Try each of these techniques to help gain aspirate:
- If possible, turn child/infant onto left side
- Inject 1-5ml air into the tube using a syringe
- Wait for 15-30 minutes before aspirating again
- Advance or withdraw tube by 1-2cm.
- Give mouth care to patients who are nil by mouth (stimulates gastric secretion of acid)
- Do not use water to flush

Test aspirate on CE marked pH indicator paper for use on human gastric aspirate

pH between 1 and 5.5

PROCEED TO FEED or USE TUBE

Record result in notes and subsequently on bedside documentation before each feed/medication/flush.

pH NOT between 1 and 5.5

Aspirate obtained?

YES

Proceed to x-ray; ensure reason for x-ray documented on request form

DO NOT FEED or USE TUBE

Consider re-siting tube or call for senior advice

NO

Competent clinician (with evidence of training) to document confirmation of nasogastric tube position in stomach

A pH of between 1 and 5.5 is reliable confirmation that the tube is not in the lung, however it does not confirm gastric placement as there is a small chance the tube tip may sit in the oesophagus where it carries a higher risk of aspiration. If this is any concern, the patient should proceed to x-ray in order to confirm tube position.

Where pH readings fall between 5 and 6 it is recommended that a second competent person checks the reading or retests.
Reducing the harm caused by misplaced gastric feeding tubes in babies under the care of neonatal units

1. Check for signs of tube displacement (if not initial insertion)
2. Reposition or repass tube, if not initial insertion
3. Aspirate using a syringe and gentle pressure

Aspirate not obtained

DO NOT FEED
1. If possible, turn baby onto his/her side
2. Re-aspirate
3. Check pH level

Aspirate not obtained

DO NOT FEED
1. Inject 1-2ml of air into the tube using syringe
2. Re-aspirate
3. Check pH level

Aspirate not obtained

DO NOT FEED
1. Advance or retract the tube 1-2cm, if initial insertion, any resistance, STOP
2. Re-aspirate
3. Check pH level

Aspirate not obtained

CAUTION: DO NOT FEED AND:
1. If initial insertion, consider replacing or re-passing tube
2. If tube in situ, seek senior advice,
3. Only consider chest and abdominal x-ray if timely
4. Document decisions and rationale

CAUTION: DO NOT FEED AND:
1. Consider waiting 15-30 minutes then re-aspirate
2. Consider replacing or re-passing tube and re-aspirating
3. If still pH 6 or above, seek senior advice and ask about:
   • Medication
   • The tube – is it the same as that documented on last x-ray and is the length the same.
   • The feeding history
   • Balancing risks
4. Only consider x-ray if timely
5. Document decisions and rationale

DOCUMENT
1. Measure length of tube and document, if initial insertion
2. pH of aspirate
3. Length of tube advancement/retraction, if done

Produce to feed

Test on pH strip or paper

pH 6 or above

pH 5.5 or below
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**LABEL**

The tube length should be estimated before insertion using the NEX measurement

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**DATE TUBE DUE TO BE CHANGED:** Consider changing a wide-bore tubes to a fine bore tube at or before 7 DAYS, if patient is tolerating feeds

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**NGT/OGT Safety Checks – please refer to Decision Tree for NGT placement in Adults**

- pH reading (1-5.5)
- External length *at nasal flares or lips* (cm)
- External length changed (Y/N)
- Presence of coiling in mouth (Y/N)
- Tapes secure (S) or renewed (R)
- CXR performed (Y/N N/A)
- Position confirmed on CXR & documented in medical notes (Y/N N/A)

The position of NGT/OGT must be checked:
- following initial insertion
- at least once daily during continuous feeds
- before administering each feed
- before giving medications
- in the event of any new/ unexplained respiratory symptoms
- after episodes of vomiting, retching/ coughing spasms or when there is suggestion or suspicion of tube displacement (NPSA 2011)