Barts Health NHS
NHS Trust

TRUST CLINICAL POLICY
NASOGASTRIC / OROGASTRIC TUBE POLICY (ADULTS)

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EFFECTIVE FROM	Date of approval: 18th April 2019
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	Barts Health	Trust's Nutrition Steering Group Committee Adult Nutrition Support Team Safeguarding Adults Team Critical Care + Anaesthetics Specialist Medicine Surgery, Head and Neck MDT Therapies Leads, Infection Control Legal Services, Clinical
	External Partner(s)	GB Enteral UK (www.gbukenteral.com)

EXEMPTIONS OF APPLICATION AND SCOPE	**Included in policy:** *For the groups listed below, failure to follow the policy may result in investigation and management action which may include formal action in line with the Trust's disciplinary or capability procedures for Trust employees, and other action in relation to organisations contracted to the Trust, which may result in the termination of a contract, assignment, placement, secondment or honorary arrangement.*
	All Barts Health Clinical Staff both medical and nursing who work with Adults who are being considered or have NG Tube in situ
	External Staff and students including locum medical staff and agency nurses who are deemed competent to care for Adult patients with NG tubes by designated manager in the area they are working.
	Exempted from policy: *The following groups are exempt from this policy*
	Individuals exempt from this arrangement include staff employed by the Trust's private sector partners (or seconded to them under the Retention of Employment arrangement) providing Facilities Management services (Capital Hospitals Limited and its Service Providers).
	All staff who cannot demonstrate competence as per Appendix and authorised by manager of area where adult patients with NG tubes are cared for.

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ADULT NASO/ORO-GASTRIC TUBE POLICY

1 INTRODUCTION AND AIMS OF POLICY

1.1 This policy is necessary to maintain the safety of all adult patients who have a naso/oro-gastric tube. Current best practice and learning from serious incident investigations have informed the principles within this. The policy applies to all patients with naso/oro-gastric tubes; in all clinical areas and departments including operating theatres, intensive care units and outpatient departments. Published guidance has been referenced from The National Patient Safety Agency (NPSA) which has now been incorporated within the organisation NHS Improvement.

1.2 Whilst the majority of patients will be able to meet their nutritional requirements orally, there is a group of individuals who will require enteral tube feeding either in the short or longer term. It has been identified that there are a number of risks with the management of patients with Nasogastric Tubes (NGT), in particular when used for feeding. The use of NGTs for drainage is usually for short-term but potentially carries risks similar to those of feeding Nasogastric tubes.

1.3 The evidence for and published standards that underpin this policy include those published by NICE, NNNG, NHS England, and NHS Improvement. This includes the Never Events list (2018), the full references for these are given in **Appendix 15**.

1.4 **Following two Never Events – a Safety Notice was issued on 13 December 2019 which is included at Appendix 16. Please refer to this in the first instance.**

This policy aims:

1.5 To ensure the safety of and minimise risks to every patient with a nasogastric tube in situ.

1.6 To ensure ethical considerations and goals of treatment are discussed and documented in a patient's integrated healthcare record prior to insertion of an NGT for feeding.

1.7 To ensure the need for the NGT is clinically indicated, appropriate and this is also documented in a patient's integrated healthcare record.

1.8 To ensure the correct technique and tube is used for NGT insertion.

1.9 To ensure correct checking and rechecking of NGT position and this is documented correctly.

1.10 To ensure when community discharge is being contemplated, the appropriate considerations, training and competency assessments are carried out for all who will be involved to ensure the safe discharge of the patient.

Definitions

1.11 Define any specialist terms used in the policy whose meanings may be open to ambiguity or not obvious to those using the policy.

NGT	Nasogastric tube: a tube inserted into the stomach via the nose. It is generally used for short term feeding (< 4 weeks) or short-term drainage of the stomach (7-10 days).
Feeding NGT	A fine bore, fully radio-opaque, self-lubricating NGT with a guide-wire and centimetre markings along its length and only compatible with enteral syringes is required. (NPSA 2005).
Drainage NGT	Tubes can be used for continuous and intermittent drainage of the gut. Please note: a fine bore feeding tube can also be used for short- term intermittent drainage purposes and so if one is in situ it should not be removed/changed unless continuous drainage is required (in order to minimise patient discomfort). The frequency of the device change is guided as per manufacturers' recommendations.
Oro-gastric tube	A fine bore feeding tube inserted into the stomach via the mouth rather than the nose. Oro-gastric feeding is often used in patients who have suffered a head injury, or fracture to the base of the skull, in whom passing a nasogastric tube may be dangerous.
NST	Nutrition Support Team, Multidisciplinary team comprising of Nutrition Consultant, CNS's, Dietitians and Pharmacists with expertise in artificial nutrition support.
PPE	Personal protective equipment, for example, gloves, gown, eye protection.

2 INDICATIONS FOR NASO/ORO-GASTRIC TUBES

2.1 Fine-bore naso/oro-gastric tubes are most commonly used for **feeding** in patients with the following features or disorders (NICE 2006):

- Unconscious
- Neuromuscular swallowing disorders
- Physiological anorexia
- Increased nutritional requirements
- Specific treatment e.g. Crohn's disease

2.2 Naso/oro-gastric feeding, is usually a short-term solution (<28 days) for a patient who is unable to meet their nutritional requirements by mouth, and they have a functional and accessible gastrointestinal tract.

2.3 Wide-bore naso/oro-gastric tubes are most commonly used for **drainage** of the stomach in patients with the following features or disorders:

- Gastrointestinal dysfunction e.g. ileus

- Gastrointestinal obstruction
- Post gastrointestinal surgery

3 CONTRAINDICATIONS TO BEDSIDE NASOGASTRIC TUBE PLACEMENT

The main contraindications for bedside placement of a nasogastric tube are:

- Suspected or confirmed base of skull fracture
- Nasal injuries including deviation of the nasal septum
- Recent Head and Neck Surgery
- Hiatus hernia and gastro-oesophageal reflux - if severe the risk of aspiration may be high
- Oesophageal or gastric abnormalities e.g. varices, ulceration, tumours, stricture, pharyngeal pouch, pharyngeal compression, perforation, fistula, haemorrhagic oesophagitis (due to possibility of causing trauma)
- Postoperative patients who have had upper GI surgery, with or without an anastomotic leak
- Trauma from poisoning (e.g. oral consumption of bleach)

3.1 If NG tube placement is contraindicated please consult with the Adult Nutrition Support Team for further advice Monday - Friday 9-5pm. Out of hours please discuss with Gastro on call or ENT on call for specialist advice.

3.2 Oro-gastric tubes are only inserted in theatre/critical care by anesthetists or surgeons and tend to be tolerated by unconscious patients.

4 HIGHER RISK PATIENTS

4.1 There are a number of patients who will be at a higher risk of complications from:

- The placement of NGT's
- The management of enteral feeding or gastric drainage using NGT.

4.2These include patients with:

- An altered level of consciousness
- Impaired protective reflexes, i.e. gag /weak cough
- Head injured patients, especially trauma related
- Confused/disorientated patients
- Altered anatomy e.g. pharyngeal pouch, oesophageal strictures/varices

4.3 These patients are at greater risk of:

- Tube misplacement
- Tube dislodgement or displacement
- Silent aspiration (choking without evidence of coughing/gagging)

5 COMPLICATIONS ASSOCIATED WITH INSERTION OF A NGT

5.1 Potential insertion complications include:

- Malposition
- Coiling of tube into posterior pharynx
- Haemorrhage caused by trauma to any of the surrounding tissues
- Oesophageal or pulmonary perforation
- Pneumothorax
- Effusion, empyema, hydrothorax
- Respiratory failure

5.2 If a patient starts to show signs of distress or shortness of breath (cyanosis, tachypnoea and decreased oxygen saturation), the practitioner must stop inserting the NGT and reassess immediately.

5.3 Misplacement and use of a naso or oro-gastric tube in the pleura or respiratory tract that is not detected before starting a feed, flush or medication administration is listed in the NHS Improvement Never Event list (2018). If this occurs it must be immediately escalated to the service senior nurse or the site manager, if out of hours, and a Datix completed.

6 COMPLICATIONS ASSOCIATED WITH PRESENCE OF A NASO/ORO-GASTRIC TUBE

- Accidental pulmonary feeding
- Displacement
- Unwanted removal
- Blockage/breakage/leakage/cracking*
- Local complications – Rhinitis*, pharyngitis*, oesophagitis*, gastritis*, erosion related upper GI haemorrhage*
- Airway occlusion*
- Gastric reflux*

* More likely to occur with larger bore (>12 Fr) and Polyvinyl chloride (PVC/Ryles) tubes.

7 INSERTION OF A NASO/ORO-GASTRIC TUBE

7.1 NHS Improvement set out a specific set of steps to go through **every** time a nasogastric feeding tube is inserted and asks clinicians to consider three essential questions:

a) Is nasogastric feeding the right decision for this patient?

b) Is this the right time to place the nasogastric tube and is the appropriate equipment available?

c) Is there sufficient knowledge/expertise available at this time to test for safe

d) placement of the nasogastric tube?

7.2 Nasogastric placement for feeding purposes should be avoided from 5.00pm - 8.00am except when specified and documented by a senior clinician or in critical care areas.

7.3 Before a decision is made to insert a nasogastric tube, an assessment of the risks and benefits is undertaken by at least two competent health care professionals, including the senior doctor responsible for the patient's care, to identify if nasogastric feeding is appropriate for the patient, and the rationale for any decision is recorded in the patient's medical notes. (NPSA 2011)

7.4 Documentation must include a signed, dated and timed entry and the process of the initial risk assessment that evaluates the benefits against the risks of introducing an NGT for the purpose of feeding. The Nutrition Support Team can be contacted for extra support if there are any concerns regarding appropriateness of Artificial Nutrition and Hydration.

7.5 A decision must be made whether or not to insert an NGT for Artificial Nutrition and Hydration within 24 hours of identifying the possible need. For further advice contact the Adult Nutrition Support Team or on call gastro/ ENT at weekends/Bank Holiday.

7.6 Should there be any doubt whether a patient can safely swallow; a qualified practitioner (having had appropriate training) must perform a swallow screening assessment. If there is continued concern, a referral should then be made to the Speech and Language Therapy Service for further assessment. Only those patients who are alert with a GCS of 11 or more should be referred.

7.7 Obtain consent from the patient for the procedure where possible and ensure family/carers are fully informed of the treatment plan. Consent must be obtained or a best interest's decision must be taken about insertion. Refer to Trust Consent Policy.

I:\all_trust\Nutrition Team\Nutrition Nurses\NG competencies\Consent to examination and treatment Policy.pdf

I:\all_trust\Nutrition Team\Nutrition Nurses\NG competencies\Safeguarding - Protection of Adults at Risk of Harm.pdf

7.8 Insertion of NGTs MUST ONLY be undertaken by registered practitioners (nurse, doctor or GI physiologist) who have undergone the required training and have been assessed as competent to undertake the procedure (**Appendix 3)**.

7.9 Up to a maximum of 3 attempts should be made by a competent practitioner. If still unable to insert the NGT, please contact your Nutrition Support Team for further support (see **Appendix** 4).

7.10 If a decision has been made to proceed with NGT feeding, please ensure that a referral is made to the Nutrition and Dietetic Service. If the Dietitian is already involved with the patient, please bleep or call this individual on the number they have provided in the patient's integrated healthcare record.

8 INSERTION PROCEDURE

Equipment required:

Nasogastric tube - fit for purpose

- For feeding – fully radio-opaque, polyurethane, with 1cm markings along length of the tube and only accessible by oral/enteral syringes. See **Appendix** 5.
- For drainage – PVC, smallest Fr gauge suitable

- PPE
- Securing device
- pH testing strip (Johnson 0-6)
- Purple oral/enteral syringes
- Cup of water and straw (if patient safe to swallow)
- Sterile water
- Tissues
- Inco pad
- Bowl

ACTION	RATIONALE
Ensure patient privacy.	To protect their privacy and dignity during an uncomfortable procedure.
Review patient's integrated healthcare record and check against Section 3.1 and 4 for potential contraindications or higher risk patients.	To ensure bedside insertion of NGT is possible and in the patient's best interest.
Explain procedure to patient, carers and/or family and establish that they understand the procedure.	To ensure the patient knows why they need the procedure, what to expect during it, and their role within it.
Arrange a signal the patient can use if they want to stop the procedure.	The patient feels that they have some control over the procedure.
Obtain informed consent from the patient, document; refer to the Barts Health Safeguarding Adults at Risk of Harm (includes Mental Capacity Act and Mental Health Act).	To be able to document that the patient has given their informed consent. Verbal consent is sufficient for this procedure.
Decontaminate a tray/trolley, collect equipment required. Perform hand hygiene and wear PPE.	To minimise risk of cross infection.
Position patient, sitting upright, neck in neutral position. If patient is unconscious – lateral position.	This position optimises swallowing and ensures the epiglottis is not obstructing the oesophagus.
Select nostril – if necessary, carry out nasal hygiene, check for obstruction.	To enable the smooth insertion of the tube. To identify any potential problems with inserting the tube.
Take NEX measurement (Tip of Nose - Earlobe - Xiphisternum) (see Figure 1)	To measure the minimum length of tube required to reach the stomach.
Lubricate outside (tip) of fully radio-opaque	Fine bore NGT's are self-lubricating in

nasogastric feeding tube with water but DO NOT flush tube. Use a water-based lubricant when inserting a Ryle's type tube for drainage.	water avoiding the need for additional lubrication. Ryle's tubes are not self-lubricating, so need additional lubrication.
Insert NGT into agreed nostril approximately 10 cm, aiming in the direction of the patient's ear. The patient may cough or gag at this stage and reassurance needs to be given. If obstruction is felt you may need to try a slightly different angle, gentle rotation of the tube or the other nostril. **Never force tube when passing.** Do not advance the tube any further than this until the patient has stopped coughing.	To facilitate the passage of the tube by following the natural anatomy of the nasopharynx. To reduce the risk of damage or perforation of any structure. To prevent placement of tube in the trachea.
Encourage a natural swallow as the tube is advanced. Unless Nil By Mouth – give sip of water using a cup and straw.	A swallowing action closes the glottis enabling the tube to pass into the oesophagus. If the patient has dysphagia they will be unable to swallow water but a dry swallow still aids insertion.
Unless contraindicated – Tilt chin downwards (Figure 2) and continue to advance tube to NEX measurement and a few centimetres beyond. Check tube is not coiled in throat or mouth. If there is any significant resistance, **STOP** and seek medical advice.	Reduce the risk of tracheal intubation. NEX measurement is the minimum length required. If NEX measurement <55, NGT to be inserted to 55cm length at the minimum.
If at any time during the procedure the patient experiences respiratory distress, coughing, gasping, cyanosis or sudden onset ear pain, withdraw tube immediately.	May indicate incorrect placement of the NGT into the trachea. Please note, signs of respiratory distress may be absent in unconscious patients or patients with a poor gag reflex. Absence of respiratory distress SHOULD NOT be taken to indicate correct placement.
Secure NGT to nose with product dressing and attach to cheek with small Tegaderm or Mepore for added security.	To prevent accidental removal of tube.
Aspirate using gentle suction. Only purple oral /enteral syringes are to be used for accessing the device. An aspirate volume of 1ml is required for testing.	To remove gastrointestinal secretions to confirm tube position in the stomach
Test aspirate on CE marked pH testing strips. pH must be equal to or less than 5 to confirm gastric placement.	First line method of assessing whether the NGT tip has reached the patient's stomach in line with NPSA Alert. 0.5 pH increment of measurement on CE marked pH testing strips used for testing

	human gastric aspirate.

Follow the decision tree for NGT placement in adults if aspirate is not immediately obtained (see Figure 3).	To ensure tip of NGT is under level of fluid and to prevent unnecessary or excessive use of X- ray.
Only once correct placement is confirmed can the NGT be flushed with water and guide-wire removed. Hold the tube end firmly at the tip of the nose and gently withdraw the guide wire.	To prevent administration of any solution into a misplaced NGT (NPSA Alert March 2012). To prevent tube trauma
Use a non-toxic permanent marker to mark the tube at the nose.	To enable prompt visual evidence of a tube that has been partially withdrawn.
Complete the "Nasogastric tube (NGT) Position Record Chart" (**Appendix 12**), the medical device record sheet and product sticker and place in patient's integrated healthcare record by the person who performed the insertion and checking of placement.	To provide a record of medical devices inserted into the patient. To have a record of the batch number of the tube if a problem is detected and to highlight a difficult insertion or what steps were required to obtain an aspirate.

8.1 Insertion in the operating theatre

Ryle's tubes are frequently placed by anaesthetists peri-operatively. These tubes are for drainage and should not be used for medication or feeding. Correct positioning can be confirmed by a combination of: -

- Placement of the tube under direct vision.
- Aspiration of a significant quantity of gastric contents.
- Checking for tracheal tube cuff leak, which may indicate incorrect placement.
- Flushing with air which may indicate curling in the pharynx or upper oesophagus.
- Surgical palpation of the tube in the stomach during laparotomy.
- pH testing of aspirate in theatre.

Further checks such as pH or chest X-Ray needed must be explicitly handed over to ward /critical care staff at the end of surgery. Fine bore feeding tubes, placed for subsequent feeding, should be rechecked according to policy, prior to use, as if they had just been inserted.

Figure 1: Taking a NEX measurement (Tip of Nose - Earlobe - Xiphisternum)

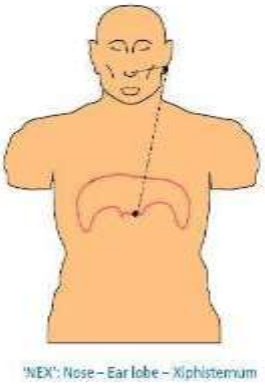
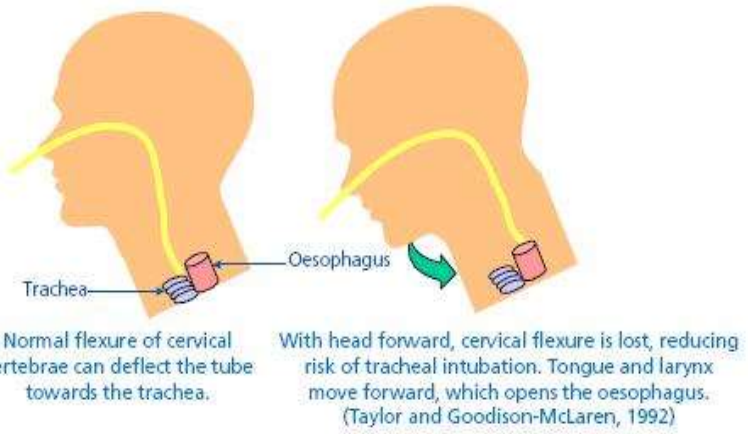


Figure 2: Head tilt to reduce the risk of tracheal placement of NGT.



(Please see **Appendix 11** for Administration of medication via naso-gastric tube)

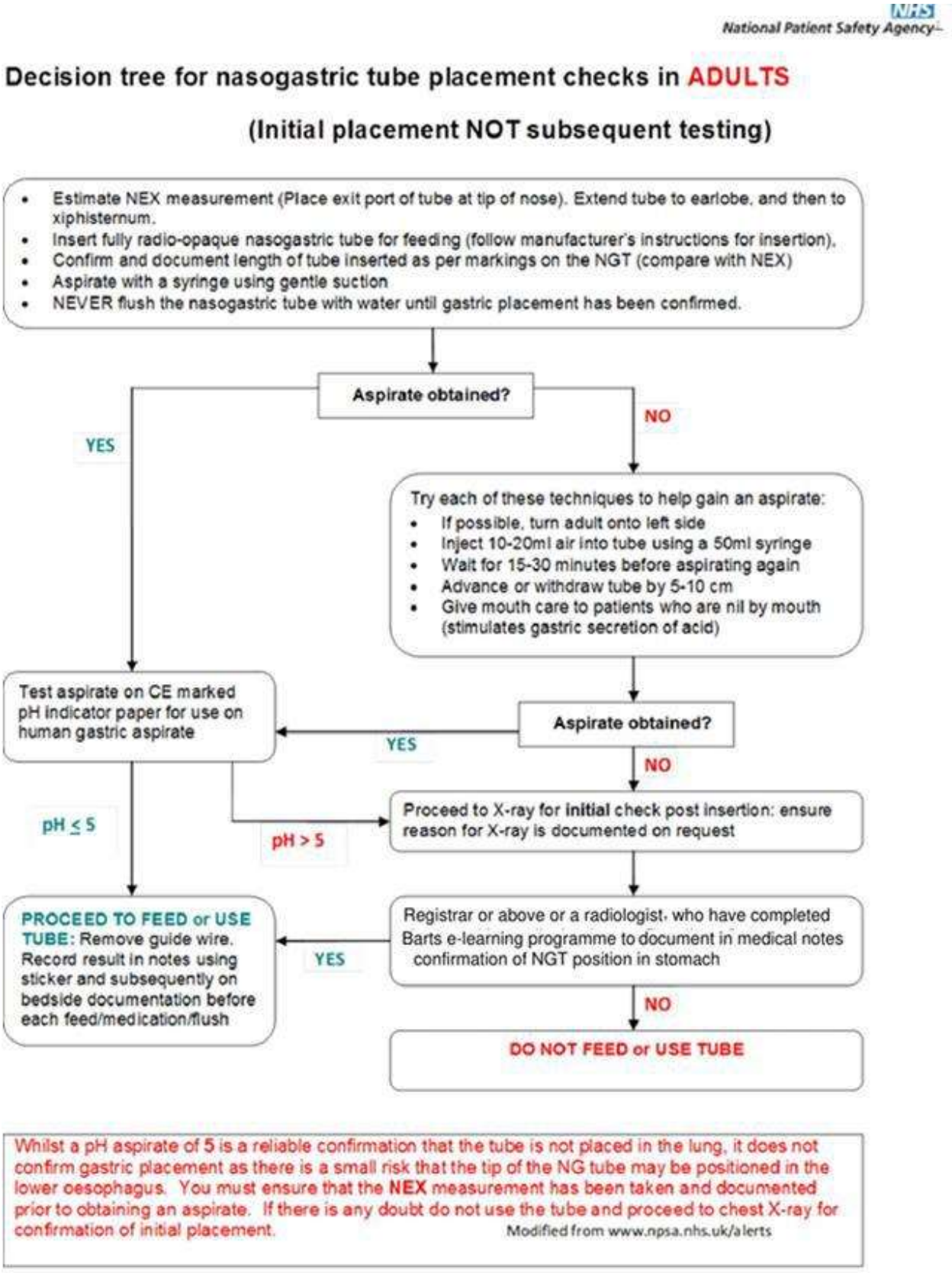
9 CHECKING THE POSITION OF THE NASO/ORO-GASTRIC TUBE

9.1 Checking the position of NGTs MUST ONLY be undertaken by registered practitioners (nurse, doctor or GI physiologist) who have undergone the required training and have been assessed as competent to undertake the procedure. Safe placement must be ensured only by one of the following approved methods:

9.1.1 Firstly - gastric aspirate that registers a pH of 5 or below on CE marked pH indicator paper intended by the manufacturer to test human gastric aspirate as per NPSA algorithm (see Figure 3).

9.1.2 Only if these steps are unsuccessful proceed to chest X-ray for the positive identification of the tip of the tube either in or beyond the patient's stomach.

Figure 3: Modified NPSA algorithm for checking initial placement of NGT's



The required method for checking pH of NGT aspirate is:

9.1.3 Aspirate 1ml from the NGT using a newly opened oral/enteral syringe and test this with a clean, dry NPSA compliant pH indicator strip (Rollins, 1997; NPSA, 2005). Before aspirating, inject the tube with 10-20ml of air to clear the lumen of other substances (Metheny, et al, 1993). Not to be confused with the "whoosh" test.

9.1.4 Ensure pH Indicator strips can distinguish between gastric acid (pH 0-5) and bronchial secretions (pH ≥6) (Rollins, 1997; NPSA2005).

9.1.5 Instances where it may not be possible to obtain pH≤5 on initial placement are:

- If a patient is on antacids or any other drugs that increase gastric pH
- If a patient has had previous gastric surgery e.g. partial gastrectomy
- If a patient has recently received food, water or medications orally

9.1.6 **If pH is not obtained at insertion time of NGT,** then CXR must be performed and continued to confirm the position. In instances where repeated gastric aspirates pH are more than 5, a chest X- ray will be required for initial insertion confirmation.

9.1.7 Re test regularly but do not wait more than 1 hour before aspirating to enable the food, water or medication to be absorbed and the pH to fall; otherwise an inaccurate test result may be obtained.

9.2 Confirming NG placement by X-ray

9.2.1 The use of X-rays for NGT confirmation should not be used routinely as:

- There are multiple reports of X-rays being misinterpreted by physicians who are not trained in radiology (NPSA 2005).
- X-rays, even when interpreted correctly only confirm tube position at the time the X-ray was taken.

9.2.2 If a chest x-ray is indicated it must be requested by a practitioner qualified to request x-rays and the following wording must be put on the request "*Unable to clinically confirm naso-gastric tube placement. Chest X ray for naso-gastric tip placement please*". This NGT is required for enteral nutrition.

9.2.3 When a chest X-ray is needed to confirm correct NG tube placement in the stomach for feeding purposes the position must be reported as correct by a Radiologist, Registrar or Consultant who have completed the Barts online Learning and Development (BOLD).

9.2.4 The X-ray must be viewed on a suitable XR viewing screen via PACS, and NOT the portable screen of the mobile XR machine.

9.2.5 If the initial placement of the NGT is confirmed by chest X-ray, the documentation should include:

1. Who confirmed the position of the nasogastric tube and evidence they are competent to do so.
2. Confirmation that any X-ray viewed was the most current X-ray for the correct patient.
3. How the position of the nasogastric tube was interpreted using the 'four criteria' e.g. NG tube follows path of oesophagus, bisecting bronchi, remains

midline to level of diaphragm and deviates to left thereafter. Tip is seen about 7cm below diaphragm.

4. Clear instructions as to required actions e.g. NG tube safe to use for feeding.

(See Appendix 6: NGT insertion record sticker)

9.2.6 Where an NGT has been confirmed as misplaced the staff member must ascertain where the tube tip is and remove any feed or fluid that may have been administered. Once this has been done the NGT must be removed immediately. A misplaced gastric tube which has been accessed for feeding or drug administration constitutes a Never Event. See Section 5.3.

10 DOCUMENTATION REQUIREMENTS POST INSERTION

10.1 It is the responsibility of the professional who inserted the NGT to document the:

- Date and time inserted
- Clearly document their name and position
- Site of tube (i.e. left or right nostril)
- Type, size and batch number of tube inserted
- Measurement in cm at left or right nostril (e.g. 55cm marked on tube)
- pH and amount of aspirate obtained in order to confirm position
- Any additional comments, e.g. how well the patient tolerated the procedure, difficulties in insertion, steps taken to obtain an aspirate, etc.

10.2 The confirmation of the position of the tube must be documented in the patients' integrated healthcare records/CRS by the practitioner confirming its placement, prior to use and communicated to other practitioners caring for the patient. NG feeding must not commence until this documentation has been checked as complete and indicates that it is safe to use the tube.

10.3 The persons who performed the NGT insertion and checking of placement must complete the 'Nasogastric tube (NGT) Position Record Chart' **(Appendix 12)**, the Insertion and Removal Device Record, and the product sticker to be placed in the patient's integrated healthcare record, (this may be the same person).

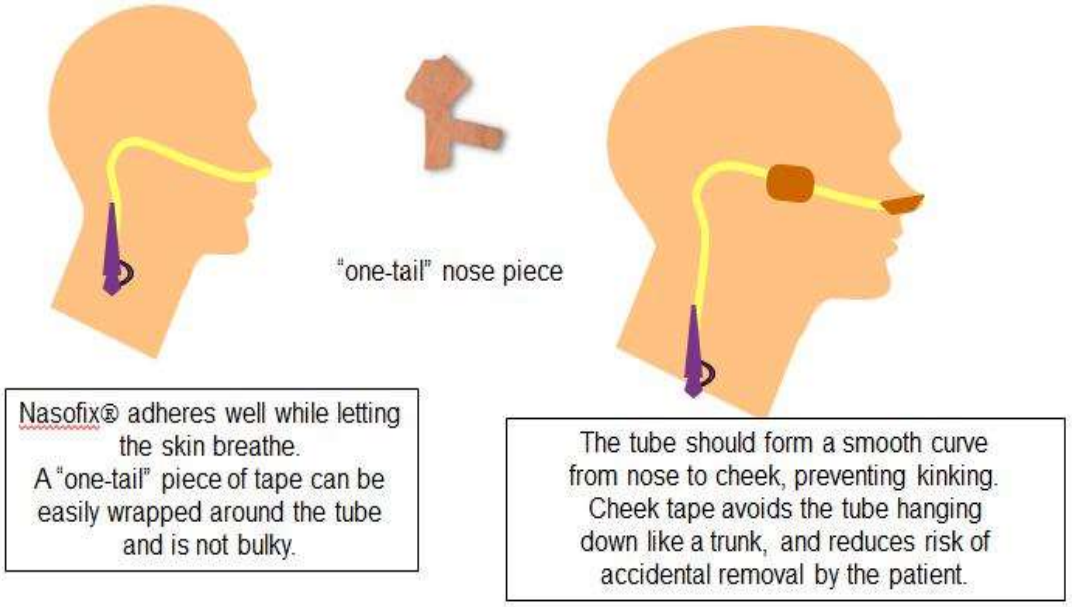
10.4 If a patient with an NGT in situ requires a chest X-ray for any reason, then it is the responsibility of the Radiographer to ensure that the nasogastric tube and tip can be clearly seen on the X-ray and used to re-confirm the NGT position at that time.

11 MARKING AND SECURING NASO/ORO-GASTRIC TUBES

11.1 Once the position of the tube has been confirmed as correct, the tube must be marked as it exits the patient's nose or mouth with a non- toxic permanent marker to easily identify that the visible portion of the tube has changed length.

11.2 The tube must be secured with soft medical tape e.g. Mefix (not sutured) to the patients' nose and face, aligned with the patients' earlobe (Figure 4), to give two points of securement, to improve patient comfort and prevent displacement.

Figure 4: Two-point securement of the NGT.



12 ONGOING MANAGEMENT OF THE NGT

12.1 Once an NGT is accessed initial placement must have been confirmed by using pH test of aspirates ≤ 5 or a CXR, there after subsequent checks need to be carried out.

12.2 When the position has been confirmed on initial placement and the tube has already been in use (NOT valid for initial placement), subsequent testing and risk management of an NGT is essential to deliver safe management of NGTs. For higher risk patients, the tube position must be checked using the recommended methods (pH test of aspirates ≤ 5).

12.3 Checking the position of NGT's **MUST ONLY** be undertaken by suitably trained practitioners (qualified nurse or doctor) who have undergone the required in-house training and have been assessed as competent to undertake the procedure.

12.4 All patients must have their NGT position checked:

- Following initial insertion
- Before administering each feed
- At least once daily during continuous feeds, or when tube is used for drainage
- Before giving medication
- Following an episode of vomiting, retching or coughing
- After suctioning at ward level including naso- tracheal (Arrowsmith, 1993; Worcestershire NHS Trust Policy, 2018)/ oropharyngeal (Northern Health and Social Care Trust, 2010) / endotracheal or tracheostomy (Bwrdd Iechyd Prifysgol Abertawe Bro Morgannwg University Health Board, 2018) or physiotherapy
- Following evidence of tube displacement (e.g. loose tape or visible tube appears longer)
- If the patient complains of discomfort or develops respiratory distress
- Following any transfer between units, departments or another hospital.

- Following any rehabilitation session that involves transfer between bed to chair, walking with support, repositioning the patient or similar activities
- During patient transport or when placing the head of the bed flat for patient repositioning, turn the tube feeding off, especially if the patient has a high aspiration risk. However, be aware that no conclusive evidence shows that pausing tube feeding during repositioning reduces aspiration risk for patients with high Gastric Residual Volumes (Houston and Fuldauer, 2017).

12.5 **On subsequent testing** only, if there is difficulty obtaining aspirates or aspirates are pH > 5 (refer to: **Appendix 12**) and there is no reason to believe that the position of the NGT may have changed, some clinical judgments can be applied to confirm position of an NGT. The following factors should be considered (NNNG 2016):

- The external marking (in cm) should be the same as that which was documented at the time of initial insertion.
- The tape, which secures the NGT at the nose and cheek, should be intact.
- Check if the NGT is curled at the back of the patient's mouth (To check you can observe using a touch and tongue depressor and also inject 10 mls of air via the tube and observe for burping, this differs from auscultation)
- Is the patient showing any signs of respiratory distress? (Please note: signs of respiratory distress may be absent in unconscious patients or patients with a poor gag reflex. Absence of respiratory distress **SHOULD NOT** be taken to indicate correct placement).
- Check whether the patient is on medication which may increase the pH of gastric contents (antacids, H 2 antagonists and proton pump inhibitors).

12.6 Ensure these findings are documented in the patient's integrated healthcare record and on the NGT position record chart.

12.7 If the Practitioner is unable to confirm the correct placement of the NGT on **subsequent testing risk assessment** using pH indicator strips, then a second opinion from a senior competent person should be sought before the NGT is used. **These judgments should not be made by one clinician in isolation.**

12.8 During feeding the patient should be in a semi upright position (at least) of 30 - 45° angle at all times to reduce the risk of regurgitation and aspiration of feed.

12.9 The tape used to secure the tube and area around the tube should be checked each 12-hour shift in order to prevent any inflammation, irritation, and allow early detection of a nasal pressure sore. Change the tape and reposition the external tube if irritation has occurred. Change the tape if it is not secure.

12.10 The type of feed administered should be as recommended by the Dietitian on the feeding regime or the starter regime. Always ensure that the feed is the one that has been prescribed, that it has not expired and is in a sealed, sterile bag.

12.11 The length of time the tube is in-situ prior to removal or re-insertion must comply with Manufacturers guidelines. However, if a tube remains in situ longer then a risk assessment by the Adult Nutrition Team should be carried out and documented.

12.12 If a patient with capacity is not tolerating the NG tube then the risks, benefits and alternatives of treatment should be discussed with them and a referral made to the Dietitian and Nutrition Support Team.

12.13 If a patient who has been assessed as lacking capacity and for whom a best interest decision has been made to continue NG feeding (in accordance with the Trust's Safeguarding Adults at Risk of Harm policy) is non-concordant then reassess the methods used to secure the tube and consider increasing supervision of the patient in accordance with Enhanced Care Policy.

12.12 Report and document to medical team any dislodgements or lack of tolerance of NG tube.

12.13 The re-insertion of nasogastric tube for feeding purposes should be avoided between 5.00pm – 8.00am. In cases where the risk of not feeding or administering medication could result in patient harm the decision to re-insert an NGT must be made with senior nursing/medical discussion. The senior decision maker agreeing that a NG tube can be placed outside of 08:00 to 17:00 is responsible for ensuring that senior support (Radiologist or a Registrar and/or above who have completed Barts online Learning and Development) is readily available to confirm placement.

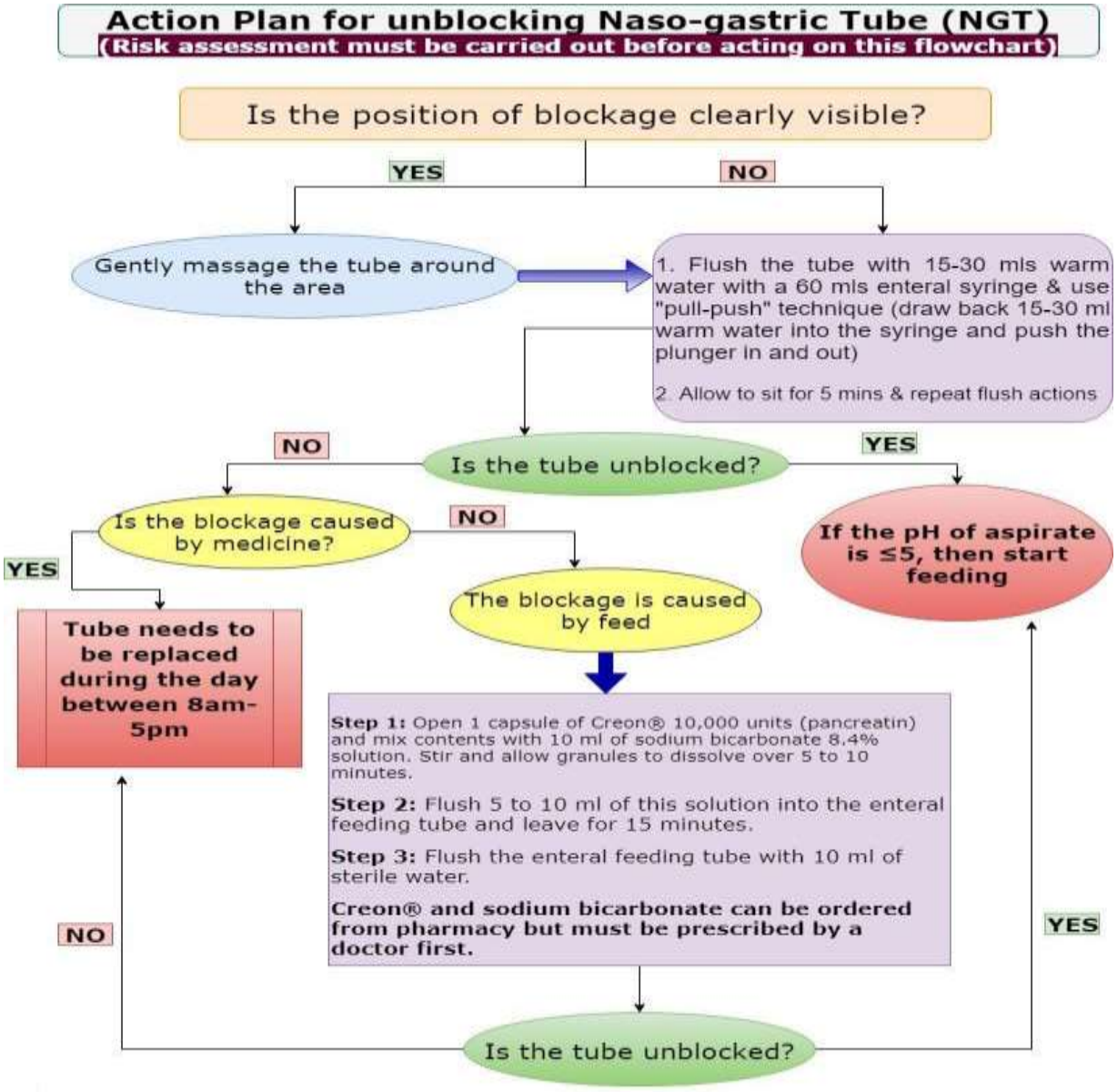
12.14 If there are concerns that a patient receiving NGT feeding is not meeting their nutritional or fluid requirements contact the ward Dietitian for review.

12.15 If feeding remains problematic inform the Nutrition Support Team for further assessment.

12.16 If long term feeding routes are being considered, e.g. Percutaneous Endoscopic Gastrostomy (PEG) tube or Radiologically Inserted Gastrostomy (RIG) tube ensure a referral is made to the Nutrition Support Team for consideration of this.

12.17 If NG tube blockage occurs, please refer to Figure 5 below.

Figure 5: Action plan for unblocking Naso-gastric tube (NGT)



13 PREVENTION OF ACCIDENTAL REMOVAL OR DISPLACEMENT – USE OF NASAL BRIDLE

13.1 When NGTs are inserted, they remain in-situ to provide predictable amounts of nutritional support. Good nursing care, an explanation of the indication for the NGT and a well secured tube are usually enough to keep the tubes in place.

13.2 However, NG tubes can become displaced for a variety of reasons and a small group of patients appear to be particularly intolerant of the NG tubes, requiring frequent re-insertions. This can be distressing for the patient, their family, can put the patient at significant risk of aspiration and be detrimental to their recovery and/or treatment.

In these situations, a multidisciplinary discussion including the patient (if able to participate) their family/ next of kin and the clinical teams must take place and consider the risks and benefits and alternatives of continuing with NG feeding must take place and the outcome recorded.

13.3 If the decision is made to continue with NG feeding in these circumstances, then additional measures may be required to prevent tube displacement. These include the use of:

- Nasal Bridle
- Hand restraints

13.4 The hand restraints used in this Trust are large, soft, fingerless gloves of an approved design with a Velcro wrist strap. They are used to prevent a patient from displacing devices and dressings and to allow necessary care to be safely given. Any team considering the restriction of movement for a patient must contact the Safeguarding Adults Team who will support them through the safe use of restraint within the parameters of the law.

13.5 Nasal bridle devices do not restrict movement but provide a means of securing a nasogastric tube to prevent intentional or accidental removal of the tube by the patient. They should be considered for patients, who have pulled out their NGT multiple times and feeding or medication administration is proving problematic and putting the patient at risk. Any tube/bridle placement will only be undertaken if it is considered to be solely in the patient's best interests (RCP Guidelines 2010).

13.6 Potential complications of the nasal bridle:

13.6.1 Nasal redness and pressure sore

13.6.2 Nasal damage / septum trauma may occur:

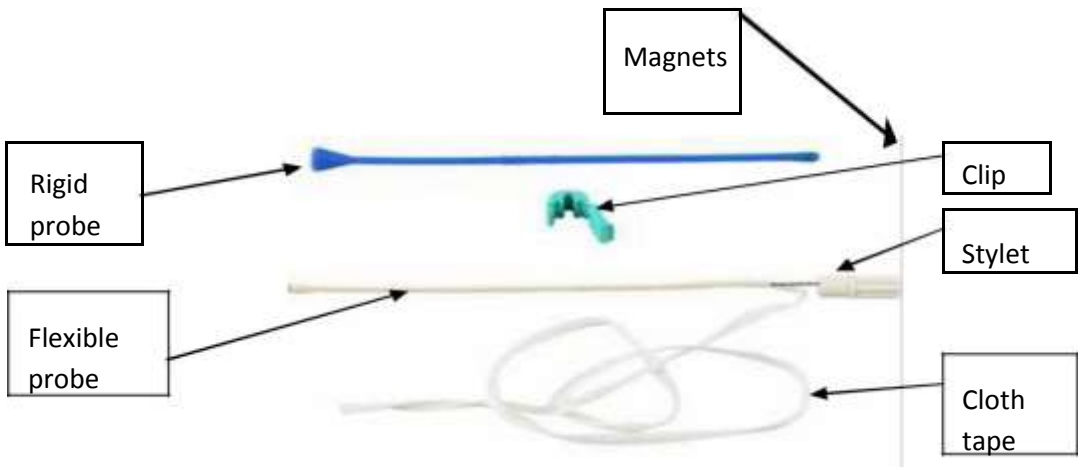
- on insertion
- pressure necrosis
- from patient pulling on the nasal bridle

13.6.3 Epistaxis

13.6.4 Sinusitis / rhinitis

13.7 The nasal bridle consists of a rigid probe and a flexible probe with a tape attachment. The flexible probe has a removable stylet. Each probe has a magnet at the end. The probes are inserted by a competent member of staff, into each nostril, until the magnets join at the back of the nose; the stylet is then removed. The rigid probe is then pulled out of the nostril bringing the flexible probe and the loop of tape around the back of the nasopharynx and exiting from each nostril. The tapes from each nostril are then secured to the NGT, using the supplied clip, to reduce the risk of the patient dislodging their NGT (See Figure 6).

13.8 **Figure 6: Nasal bridle kit**



13.9 **Contraindications** for the use of nasal bridles include:

- Suspected or confirmed base of skull fractures
- Deviated nasal septum
- Structural deformity of the nose or nasopharynx
- Recent head and neck surgery/oncology treatment
- Patients with an INR >1.3
- Patient refusal

13.10 Nasal bridle should not be used if the Consultant in charge of the patients care at the time refuses permission to use a nasal bridle.

13.11 Informed Consent to be obtained from patient and if patient cannot give verbal consent the mental capacity status to be documented by Medical Team. Patients without capacity will be considered on an individual basis after consultation with multi-disciplinary team and the family. Any tube/bridle placement will only be undertaken if it is considered to be solely in the patient's best interests (RCP Guidelines 2010).

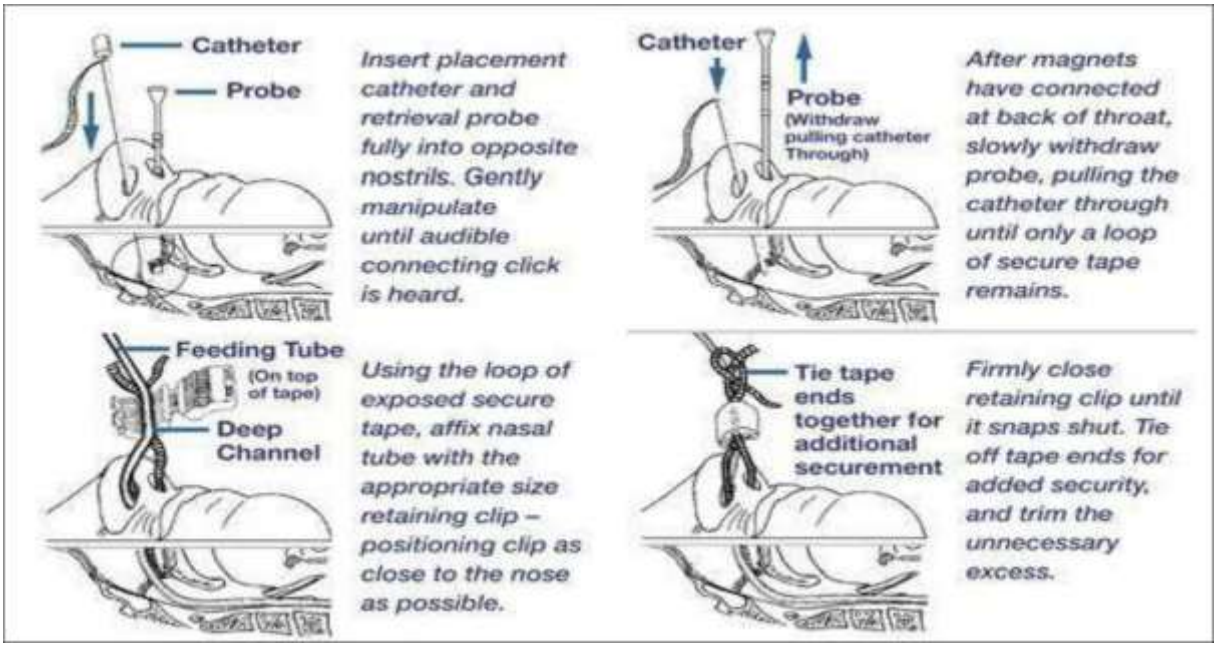
13.12 For an adult without capacity, the clinician in charge of the patient's care is responsible in law for any decision to withhold, give, or withdraw a medical treatment. The doctor's duty is to act in the patient's best interest. Please refer to Trust's Consent and Safeguarding Adults at Risk of Harm policies (see section 7.7).

13.13 Placement of nasal bridle should be carried out by staff that are trained and can demonstrate competence and up to date training.

13.14 Nasal bridles are available after consultation with the Nutrition CNS.

13.15 Once the nasal bridle device is in place, the NG tube should be treated in the same way as an ordinary NG tube as the presence of a bridle does not guarantee the tip of the NGT remains in the stomach. Ensure the NGT position record chart is completed.

Figure 7: Procedure for the insertion of the AMT Nasal Bridle in adult patient



13.16 **Insertion of a Nasal Bridle**

Equipment required:

- PPE
- Alcohol based hand rub
- Nasal bridle pack (Fr gauge equal to that of the NGT)
- Glass of water and straw (if appropriate) or oral sponges
- Tissues
- Inco pad and bowl
- Clean scissors

Procedure
1. Ensure patient privacy.
2. Review patient's integrated healthcare record and check against Section 14.7 for potential contraindications, to ensure insertion of nasal bridle is possible, indicated and in the patient's best interest.
3. Explain procedure to patient, carers and/or family and establish that they understand the procedure.
4. Arrange a signal the patient can use if they want to stop the procedure.
5. Obtain informed consent from the patient, document; refer to the Barts Health Health Safeguarding Adults at risk of harm and Trust Consent Policy if required.
6. Decontaminate a tray, collect equipment required. Perform hand hygiene and wear PPE.
7. Insert the retrieving probe into the nostril until the first rib is at the bottom of the nostril.
8. Insert the loop catheter into the opposite nostril. An audible click signifies contact between the magnets which may or may not be tactilely felt. (See Figure 7)
9. If necessary, gently move the retrieving probe from side to side and/or up and down to encourage contact between the magnets. If no contact has occurred, then advance the loop catheter and the retrieving probe to the second rib.
10. Once contact has occurred, remove the stylet completely from the catheter.
11. Slowly withdraw the retrieving probe while allowing the bridle catheter to advance into the nose. Continue until only the cloth tape is in the nose. (See Figure 7)
12. Using scissors cut the loop catheter off of the cloth tape leaving only the tape in the nose. Dispose of both catheter tube and probe. **Note: If the NGT is not already in place, it should be inserted according to Trust policy and procedure and arranged into final position now.**
13. Lay both ends of umbilical tape in the clip's deep channel near the tip of the nose. Both ends of the cloth tape must be placed in the clip prior to the feeding tube.
14. Push the NGT into the deep channel on top of the cloth tape. The clip should be positioned just beyond the tip of the nose, so that it will rest on the upper lip when released.
15. Fold the two halves of the clip together & press tightly until the clip snaps shut. Double click to verify clip is fully closed. (See Figure 6) **Note: The clip cannot be re-opened after closing, so ensure proper position of the feeding tube, cloth tape & clip prior to closure.**
16. After the clip has been placed; verify that it is fully closed by holding the feeding tube in a fixed position while gently pulling the tape ends away from the feeding tube. If the clip happens to open, reposition the components as listed above then repeat the fully closed verification.
17. After the clip has been fully closed, tie the two tapes together (excluding the tube) creating a simple knot. The excess length of cloth tape may then be trimmed as desired using scissors. (See Figure 7)

13.17 **Monitoring and Care**

This must be undertaken daily to detect potential complications of the tube or nasal loop including sinusitis, damage to the nose, and tube migration.

Equipment required:	• PPE • Alcohol based hand rub
Procedure	
1. Ensure patient privacy.	
2. Explain procedure to patient, carers and/or family and establish that they understand the procedure.	
3. Perform hand hygiene and wear PPE.	
4. Observe the face for swelling or discoloration.	
5. Inspect the external nasal passage for pressure or other damage.	
6. Observe the presence or absence of purulent secretions from the nose or in the mouth or oropharynx	
7. Observe for any signs of tube migration.	
8. Document findings on Nasogastric tube position record chart	

13.19 **Procedure for removal of the Nasal Bridle**

The nasal bridle should be removed safely when it and the NGT are no longer required, if the NGT becomes displaced or if there is evidence of pressure damage caused by the nasal bridle or NGT.

Equipment required:

1. PPE
2. Alcohol based hand rub
3. Scissors
4. Tissues

Procedure
1. Ensure patient privacy.
2. Explain procedure to patient, carers and/or family and establish that they understand the procedure.
3. Perform hand hygiene and wear PPE.
4. Cut one side of cloth tape (between nose and clip).
5. Gently pull both the loop and feeding tube out of the nose.
6. Inspect the external nasal passage, ears for pressure or other damage.
7. Document removal of NGT on Medical Device chart / CRS.

(Nasal Bridle guideline with assessment procedure before insertion, insertion and aftercare & maintenance are under development, however in the meantime we recommend referring to the

NNNG guidance on NGT retaining device).

14 NASOGASTRIC FEEDING IN THE COMMUNITY

a. If longer term feeding routes are not medically or surgically possible nasogastric feeding in the community is an option that can be explored but only after Nutrition Team involvement, MDT meeting and careful consideration of the individual case.

b. Factors that would affect the possibility of this being an option include:

- If the patient or their carer is competent in caring for the NGT.
- CCG commissioning of services in each borough.
- If the patient or their carer can be trained and become competent in insertion of NGT's.
- If there is sufficient professional support in the community. District Nursing services do not provide care to these patients.

c. A full multidisciplinary supported risk assessment must be made and documented before a patient with a nasogastric tube is discharged from the acute setting to the community.

d. Prior to discharge a nurse trained in NGT insertion must ensure the patient and/or carer is competent in the skills required to safely monitor the NGT **Appendix** 7. Patient/carer competencies for inserting and feeding via NGT (Self insertion) in **Appendix 8**.

All adult patients being discharged with an NGT will require a Nasogastric passport completed prior to discharge. A copy of this must be given to the patient when being discharged to the community (**Appendix 10**).

e. The nurse must also complete the checklist in **Appendix 9** to ensure everything is in place for a safe and efficient discharge.

15 REMOVAL OF THE NG TUBE

Before the NGT is removed ensure it is no longer clinically required or there is a clearly documented reason for removal. If the NGT has been used for feeding, please inform the patient's Dietitian prior to tube removal.

Equipment required:

- PPE
- Tissues
- Inco pad
- Bowl
- Spigot (if necessary)

Action	Rationale
Ensure patient privacy.	To protect their privacy and dignity during an uncomfortable procedure.
Review patient's integrated healthcare record.	To ensure medical team has approved NGT removal.

Explain procedure to patient, carers and/or family and establish that they understand the procedure	To ensure the patient knows why they need the procedure, what to expect during it, and their role within it.
If able, sit patient upright (the patient may find taking a deep breath during the removal helpful)	Improve patient comfort. Reduces risk of aspiration if patient vomits during procedure.
Wash hands and put on PPE.	Universal precautions and adherence to infection control policy.
Ensure feed has been stopped and detached or spigot drainage bag if appropriate.	To prevent spillage/leakage of feed or gastric contents.
Remove tape.	To enable NGT to be removed.
Remove the tube in one swift action.	To improve patient comfort.
Dispose of in the clinical waste bag.	Universal precautions.
Wipe patient's nose and ask patient to blow their nose.	To improve patient comfort and clear airways.
Document in patient's integrated healthcare record and on the Insertion and Removal Device Record	To aid communication.

16 DUTIES AND RESPONSIBILITIES (Trust board and chief nurse strategic responsibilities for ensuring safe use of NGT and compliance with relevant safety alerts)

All staff working in the Trust	**Ward Nursing Staff** Ward nursing staff are responsible for inserting nasogastric tubes and must not do so unless they have completed competency-based training for this procedure. They are responsible for all nursing care of patients with nasogastric tubes including the rechecking of gastric placement and documenting of the same. They should undertake patient observations (see monitoring by ward nurses) alerting members of the primary clinical team and NST as appropriate. They should stop NGT feeding immediately if there is any concern that the tube may have become dislodged.
Managers	**Ward Managers** Ward Managers are responsible for ensuring compliance with this policy on their wards, i.e. all their nursing team members involved in the care of patients with nasogastric tubes have adequate knowledge, skills and competencies to do so.
Other posts	**Primary Medical/Surgical Team** is responsible for: • Identifying the need for a nasogastric tube. • Having initial discussions with the patient, their cares and/or family about the risks versus the perceived benefits of having a nasogastric tube inserted. • Documentation of the above discussions and indication for NGT in the patient's integrated health care record. • Requesting chest X-rays to confirm gastric placement if indicated ensuring that it is recorded clearly that the x-ray is intended to confirm position of NGT.

	• Ensure all staff are aware of the serious complications of misplacement and how to avoid them. • Arranging ongoing blood tests, monitor biochemistry results and treating abnormalities accordingly, after liaising with the patient's dietitian. • Requesting diagnostic tests. • Prescribing any additional medications indicated, for example, Pabrinex, Electrolytes, motility agents. • Liaising with the dietitian over changes in the patient's management plan. **Radiographer** • Ensuring that if a patient with an NGT in situ requires a chest X-ray for any reason, that the NGT and tip can be clearly seen on the X-ray and used to re-confirm tube position. **Radiologist or a Registrar and/or above who have completed Barts online Learning and Development** • Confirming correct position of NGT. **Dietitian** • Assessing nutritional status. • Estimating nutritional requirements. • Monitoring and adjusting enteral regimen as appropriate. **Nutrition Support Team** The NST is responsible for: • Troubleshooting problems associated with NGT feeding e.g. NGT unblocking. (Please see Figure 7). • Assisting in ethical decisions around artificial nutrition support. • Monitoring effectiveness of policy.
Committees	Barts Health Nutrition Steering Committee (overall responsibility) Nutrition Action Groups (Site responsibility) Patient Safety Team (Safety alerts)

17 MONITORING THE EFFECTIVENESS OF THIS POLICY

Issue being monitored	Monitoring method	Responsibility	Frequency	Reviewed by and actions arising followed up by
Training on Chest x-ray interpretation	Review of records of training	Medical Director	6 monthly eLearning audits	Learning and development team

Documentation of indication for NGT	Review of patient's Integrated healthcare record and NGT position record chart.	Director of Nursing and Medical Director	On-going NGT Audit (minimum 6 monthly clinical Friday)	Nutrition support team and Nutrition Action Team on each site
Request for Chest X-ray confirmation of NG placement	Review of CRS requests.	Radiology	Annually	Radiology
Documentation of pH testing of NG placement	Review of patient's Bedside documentation and NGT position record chart	Director of Nursing	On-going NGT Audit (minimum 6 monthly clinical Friday)	Nutrition support team and Nutrition Action Team on each site
Serious harm or death caused by misplaced NGT's	Datix reports	Clinical teams	Ongoing	Trust Patient Safety Team / Governance & Lead Nurse in Nutrition Support

Appendix 1: Change Log

Change Log – NASOGASTRIC / OROGASTRIC TUBE POLICY (ADULTS)		
Substantive changes since previous version	**Reason for Change**	**Author & Group(s) approving change(s)**
Reorganisation of material	Feedback from audits Feedback from Datix and SI's	Adult Nutrition Support Team
9 Updated pH strips manufacturer's name and order no. (pg. 30) 10 Updated NG tube manufacturer's name. (pg.30) 11 Added Unblocking NGT flowchart (pg. 18) 12 Added NGT audits form sample (pg.39, Appendix 14) 13 Added NGT passport as a hyperlink (pg.31, Appendix 10) 14 Added new Sticker for Enteral fine- bore NGT (pg. 30, Appendix 6). 15 Updated NGT position record chart (pg.34, Appendix 12). 16 Updated NG tube competency for	Feedback from never event cluster analysis. Feedback from ward staff while troubleshooting NG tube.	Quality and Safety standards board

HCPs & Nurses' (pg.29, Appendix 3). 17 Added NG tube competency for Senior Nurses'(pg.29, Appendix 3). 18 Consent section 7.7 streamlined and advised to refer to Trust's Consent policy (pg.8).		

Appendix 2: Impact assessments

Equalities impact checklist - must be completed for all new policies

Equalities

Organisational impact checklist - must be completed for all new policies

Organisational impact assessment

Appendix 3: Nasogastric tube training for staff

- E-learning module for medical staff available via Barts Intranet page →e-learning →Barts Online Learning and Development (BOLD)

  X-ray interpretation of nasogastric tube position

  Radiologist or a Registrar and/or above who have completed Barts online Learning and Development. The Barts Health training department maintains a database of those who have completed the e-learning programme successfully.

- Competency based training for nurses

  Link to: 'NG tube competency for HCPs & Nurses' and 'NG tube competency for Senior Nurses' following:

I:\all_trust\Nutrition Team\Nutrition Nurses\NG competencies\Senior Nurses'Competency.doc

I:\all_trust\Nutrition Team\Nutrition Nurses\NG competencies\HCPs & Nurses'Competency.doc

(The above competency guideline documents are in line with 'NHS Improvement Patient Safety Alerts and Never Events', 2018 by McLean and May)

The Barts Health Nutrition Team maintains a database for those registered nurses who have successfully completed the competency-based training. A 'train the trainer approach is in place to ensure wards are compliant.

Appendix 4: Nutrition Support Team contact details

CONTACT	RLH & SBH	WXUH	NUH
Nutrition Nurses (Office hours)	0203 594 2223 07703890134 Bleeps 1164	0208 535 6776 Internal ext 5223 Bleep 2959	0208 535 6776 Internal ext 5223 WXUH Bleep 2959 via WXUH Switch board
Dietitian (Office hours)	0203 594 1129 Bleep 1255	0208 535 6829 Internal ext 5774/ 5773	02074764000 Ext 8720 Bleep 234
Pharmacist	Bleep 1465		
Gastro Registrar (24 hours)	0207 377 7000 Bleep 1011 / 1618		

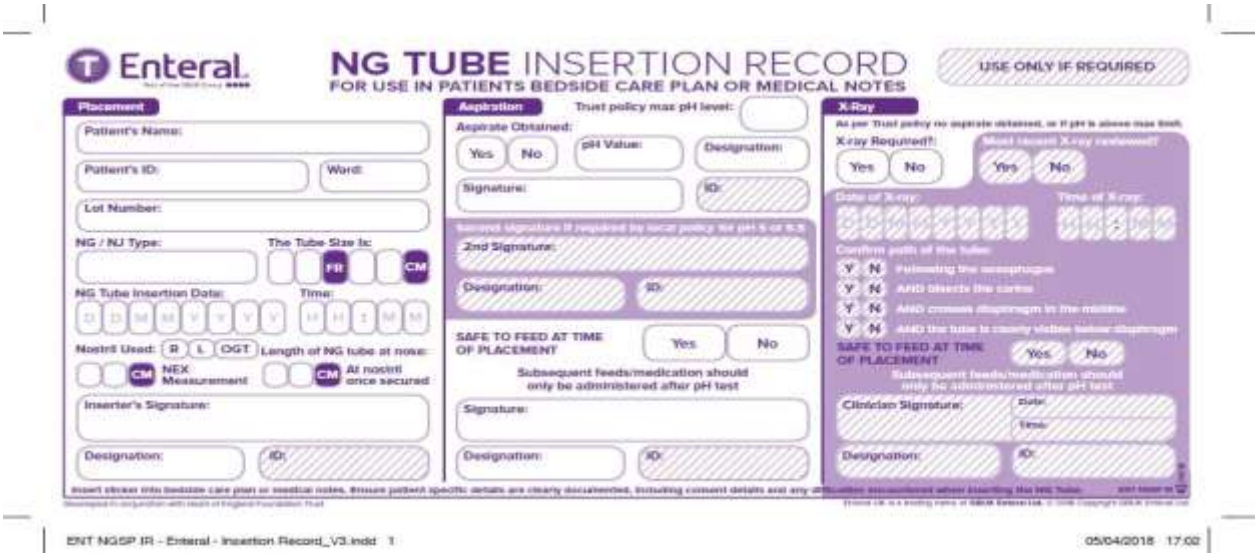
Appendix 5: Nasogastric tubes used in adults at Barts Health.

Fine bore Nasogastric tubes	Characteristics	Duration of
Enteral 10Fr 	• Polyurethane • Not Compatible with IV syringes • Compatible with catheter tip syringe • Compatible with female Luer syringe • Completely radiopaque (40% barium) • Regular centimetre markings • Colour coded ports Enteral Nasogastric Feeding Tube (Un-weighted) 10Fr x 92cm Order number: FWM2409 through the supply chain.	90 days
	Johnson pH indicator strips 0 - 6.0 Order number: FWM3043 (one pot of 100 strips)	Single use

Due to an international safety initiative enteral feeding systems and associated equipment have been standardised and changed to ENFit design to reduce misconnections and enhance patient safety.

Appendix 6: NGT insertion record sticker

Sticker for Enteral fine-bore NGT in every packet. Placement of sticker in medical notes after every new/ initial placement.


Enteral

NG TUBE INSERTION RECORD

FOR USE IN PATIENTS BEDSIDE CARE PLAN OR MEDICAL NOTES

USE ONLY IF REQUIRED

Placement

Patient's Name:

Patient's ID:

Ward:

Lot Number:

NG / NJ Type:

The Tube Size is:

NG Tube Insertion Date:

Time:

Nostril Used:

Length of NG tube at nose:

Inserter's Signature:

Designation:

ID:

Aspiration

Trust policy max pH level:

Aspirate Obtained:

Yes

No

pH Value:

Designation:

Signature:

ID:

2nd Signature:

Designation:

ID:

SAFE TO FEED AT TIME OF PLACEMENT

Yes

No

Subsequent feeds/medication should only be administered after pH test

Signature:

Designation:

ID:

X-Ray

X-ray Required?

Yes

No

Yes

No

Date of X-ray:

Time of X-ray:

Confirm path of the tube:

Y N Following the oesophagus

Y N AND bisects the carina

Y N AND crosses diaphragm in the midline

Y N AND the tube is clearly visible below diaphragm

SAFE TO FEED AT TIME OF PLACEMENT

Yes

No

Clinician Signature:

Date:

Time:

Designation:

ID:

ENT NGSP IR - Enteral - Insertion Record_V3.indd 1

05/04/2018 17:02

Appendix 7: Patient/carer competencies for feeding via NGT.

For patients discharged with nasogastric tube in situ: Health care professionals should be responsible to provide appropriate education, advice and for the patient / carer competency for feeding via NGT.

I:\all_trust\Nutrition Team\Nutrition Nurses\NG competencies\Competency Feeding.pdf

Appendix 8: Patient/care competencies for inserting and feeding via NGT.

For patients discharged with nasogastric tube in situ: Health care professionals should be responsible to provide appropriate education, advice and for the patient / carer competency for the insertion of NGT in case of accidental pull off and also for feeding via NGT.

I:\all_trust\Nutrition Team\Nutrition Nurses\NG competencies\Competency Insertion.pdf

Appendix 9: Home NGT discharge checklist.

For patients discharged with nasogastric tube in situ: This is the checklist to guide health care professionals discharging such patients, to monitor safety and help the patient/carer to be confident.

I:\all_trust\Nutrition Team\Nutrition Nurses\NG competencies\Home discharge checklist.pdf

Appendix 10: Nasogastric tube Passport

I:\all_trust\Nutrition Team\Nutrition Nurses\NG\Nasogastric Tube Passport Barts May 2019.doc

Appendix 11: Administration of medication via naso-gastric tube

In 2007, a review of data from the National Patient Safety Agency's (NPSA) reporting and learning system showed 33 patient safety incidents involving intravenous administration of oral / enteral liquid medicines between 1 Jan 2005 and 31 May 2006. The incorrect intravenous administration of oral / enteral liquid medicines resulted in 3 reported deaths between 2001 and 2004.

ENFit® enteral syringes are purple in colour, are designed for the use of enteral administration of liquid medication. To encourage safe practice in the measurement and administration of enteral medication. The visually distinct (purple or clearly labeled 'enteral') syringes and giving sets aim to reduce the risk of inadvertent parenteral administration.

The syringes must be used for:

All patients receiving oral / enteral liquid medication where the dose volume required is NOT a multiple of 5ml and therefore cannot be accurately measured and administered using a 5ml medicine spoon or a medicine measuring cup.

All patients receiving dissolved or crushed tablets suspended in water and given orally / enterally.

All patients who have nasogastric in situ and who are unable to take medication by mouth.

All patients to measure and administer liquid medicines via the oral or enteral route.

Intravenous syringes must not be used to measure and administer enteral liquid medicines. Enteral feeding systems should not contain ports that allow connection to intravenous syringes.

Enteral Administration

For administration via **nasogastric** feeding tubes a 50ml ENTERAL syringe MUST be used. Each syringe must be for single use only in hospital. ONLY 50ml syringes should be used for medicine administration or flushing of enteral tubes as they produce lower pressure and are less likely to rupture and/or collapse the tubing.

Before administering medication administration please flush the NGT with 50 ml of H20. Please ensure that a flush of 10 mls H20 is given between each medicine that is given via the NGT. This is to prevent the medications mixing in the NGT and causing a blockage or reaction. Please flush with 50mls at the end of the medication administration. Should the patient have a fluid restriction in place, the volumes of H20 may need adjustment accordingly.

Three-way taps and syringe tip adaptors should not be used in enteral feeding systems as they allow connection design safeguards to be bypassed.

Enteral administration of injectable medication:

There are a very limited number of injectable medications that may (when appropriate) be administered via the enteral route. Where the relevant medication is presented in ampoule form, an ENFit® Filter Straw should be used in combination with the most appropriate sized ENFit® oral/enteral syringe. Generally, this will be the smallest available syringe which can measure the full dose.

Labeling

All enteral syringes must be clearly labelled 'Enteral'. Where syringes have not been so marked by the manufacturer it is the responsibility of the healthcare practitioner to label the device accordingly.

All enteral syringes containing oral liquid medicines must be labelled with the name and strength of the medicines, the patient's name, and the date and time it was prepared by the person who has prepared the syringe, unless preparation and administration is one uninterrupted process and the unlabelled syringe does not leave the hands of the person who has prepared it.

If there is likely to be a delay between preparation and administration of the medicines, the syringes must be labelled as detailed above.

Stocks of enteral syringes should be available in all clinical areas.

Many medications interact with enteral feeds. This can result in increased or decreased absorption, altered therapeutic effects and adverse effects, and sometimes blockage of the enteral feeding tube. Medications may have to be given during a feeding break, which may necessitate pausing the enteral feed (and therefore increasing the feed rate at other times to ensure that adequate nutrition is achieved)

In order to reduce the number of feed breaks required, drug frequency may have to be adjusted. See recommendations under individual drug monographs.

Standard tablets

Crushing should be avoided. If crushing is the only option, then the tablets should be crushed well enough to prevent clogging of the tube. Care should be taken when crushing drugs which have a high incidence of allergic reactions e.g. antibiotics, chlorpromazine. It is important to ensure that the whole dose is administered.

If tablets need to be halved in order to obtain the prescribed dose, it is best to cut them using a tablet splitting device. Such devices split tablets more accurately than splitting scored tablets by hand or cutting tablets with a knife.

Sugar-coated (s/c) and film-coated (f/c) tablets

These tablets are usually coated to improve appearance or to mask unpleasant taste, and they are usually suitable for crushing. However, the presence of a coating may make crushing difficult and increase the probability of the drug blocking the enteral feeding tube. If these tablets are crushed it is particularly important to ensure that the coating is well broken up, and that the feeding tube is flushed well after the dose.

Dispersible and effervescent formulations

These have a low osmolality and will not cause diarrhoea. Most dispersible and effervescent formulations contain sodium, which may be a problem in sodium restricted patients.

Enteric-coated (e/c) tablets - do not crush

The enteric coating is designed to prevent drug dissolution in the stomach and to promote absorption in the small intestine. If the tablet is crushed and passed down the enteral feeding tube, undesirable side effects may occur. These could include stomach irritation and a decrease in drug effectiveness. When crushed, the tablet will break into small chunks that bind together when moistened and subsequently clog the feeding tube.

Buccal and sublingual tablets - do not crush

Drugs formulated in these dosage forms such as prochlorperazine (Buccastem®) or glyceryl trinitrate are designed not to pass through the stomach in order to avoid the first pass metabolism effects in the liver. If these tablets are passed down the enteral feeding tube, drug effect will be decreased.

Buccal and sublingual tablets are suitable to be used as normal in most cases even if a patient becomes nil by mouth, provided that the patient is safe to have tablets held in their mouth, and is still producing normal quantities of saliva.

Modified-release (MR) and controlled-release (CR) preparations (also ER, SR, LA, XL, XR, Retard, Once Weekly) - do not crush

These drugs are intended to be released gradually over time, and often have a special coating to enable this. If the tablet is crushed and passed down the enteral feeding tube, an increase in the expected peak plasma level may occur ("dose-dumping"). The patient will be initially exposed to significantly higher-than-normal levels which will increase the chance of side effects. Later, the drug will not last the full dosage interval, resulting in a period with little or no drug present, possibly resulting in loss of control of the patient's condition. Modified-release preparations are also unlikely to disperse completely when crushed, leading to an increased risk of tube occlusion.

Dispersible and effervescent formulations

These have a low osmolality and will not cause diarrhoea. Most dispersible and effervescent formulations contain sodium, which may be a problem in sodium-restricted patients.

Cytotoxic tablets - do not crush

All staff should avoid contact with cytotoxic drugs. There is a risk of cytotoxic powder being aerosolized if cytotoxic tablets are crushed, exposing staff to hazardous materials.[225] Cytotoxics should be handled in accordance with local procedures. Contact Pharmacy for advice.

Chewable tablets - do not crush

Some of these tablets, e.g. Tegretol® Retard Chewtabs, are formulated so that they are partially absorbed in the mouth.[5] If the tablet is crushed decreased drug absorption will occur.
It may be necessary to open capsules and/or crush tablets for administration via NG tubes.

Advantages include:

- manufactured product with full quality-control testing
- readily available medication, reducing missed doses
- maintains the enteral route

Disadvantages:

- unlicensed method of administration (unlicensed route)
- larger particle size compared with manufactured liquids, increasing the possibility of tube blockage.

Appendix 12: NGT Position Record Chart

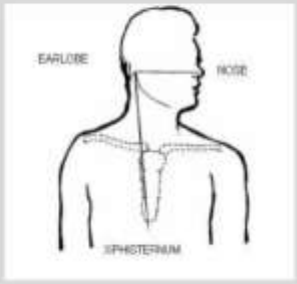
Barts Health NHS Trust

Barts Health NHS Trust Naso-gastric tube no: …….. Inserted by: …….. (Name/ Signature/ Designation) Date of removal: …….. Reason for removal: ……..	**NASOGASTRIC TUBE (NGT) POSITION RECORD CHART** Use a new position record chart each time an NGT is inserted	 Surname: …….. First name: …….. Hospital no:…….. DOB:…….. M / F Hospital: …….. Ward: ……..

INITIAL INSERTION: (Ensure that the sticker provided with the NG tube is completed and placed in medical notes)

Date and time of NGT insertion	Size and Make of NGT	Patients NEX Measurement (minimum measurement) (see point 1 below)	Nostril used	Position confirmed by	Document length of tube inserted (Mark tube at nostril with indelible marker)	If unable to obtain an aspirate, please refer to the NPSA decision tree overleaf.
Date: / / **Time:**	**LOT N: -**	**_____ cm**	**Left / right**	☐ **pH value:** **pH strip Lot No:** _____ ☐ **Chest X-ray**	**_____ cm**	

- Nose-Earlobe-Xiphisternum **measurement** (NEX) used to determine the minimum depth of NG tube insertion (see Adult Naso-/Oro-gastric Tube Policy on the intranet for further information about NG tube insertion). Please note that this may differ from the documented length of tube inserted at the time of initial placement.



Nothing should be administered via the NGT before gastric placement has been confirmed

- **Always check the pH of gastric aspirate:**

a) Following initial insertion
b) Before administering each feed
c) Before giving medications
d) Following an episode of vomiting/retching or coughing
e) If there is evidence of tube displacement
f) If the patient complains of discomfort or develops respiratory distress
g) Following any transfer between units, departments or another hospital.

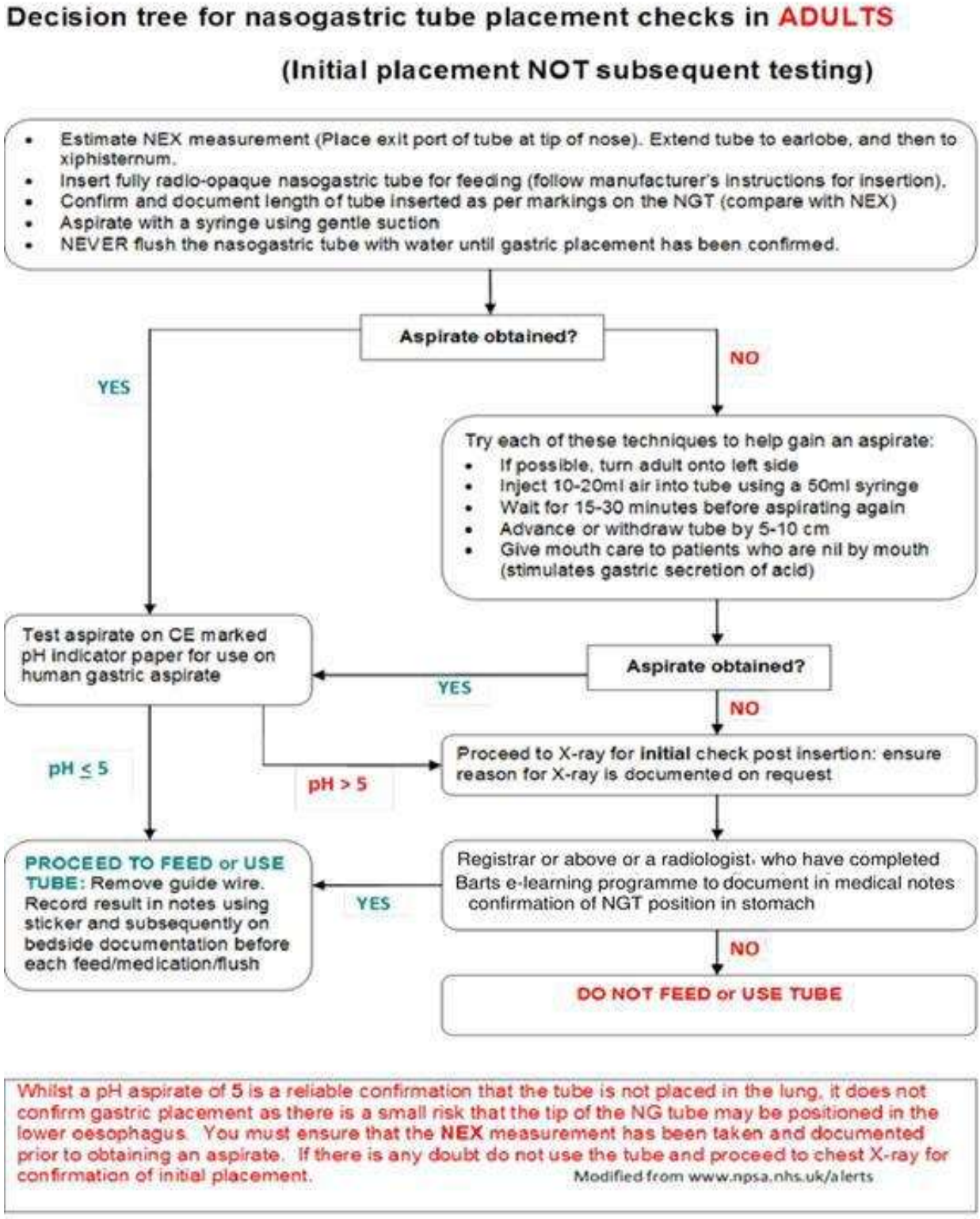
N.B: Caution must be exercised while feeding in the stomach if there are persistent high gastric residual volumes > 400ml vomiting - **seek senior advice)**

- **pH testing is used as the first line test method with a pH 0- 5 as the safe range** and this must be documented.
- **X-ray is used only as a second line test** when no aspirate could be obtained, or pH testing has failed to confirm the position of the nasogastric tube.

Decision tree for nasogastric tube placement checks in ADULTS (Initial placement NOT subsequent testing)

Testing to confirm placement of NGT **MUST ONLY** be undertaken by registered practitioners (nurse, doctor or GI physiologist) who have undergone the required training and have been assessed as competent to undertake the procedure.

National Patient Safety Agency



Whilst a pH aspirate of 5 is a reliable confirmation that the tube is not placed in the lung, it does not confirm gastric placement as there is a small risk that the tip of the NG tube may be positioned in the lower oesophagus. You must ensure that the **NEX** measurement has been taken and documented prior to obtaining an aspirate. If there is any doubt do not use the tube and proceed to chest X-ray for confirmation of initial placement.

Modified from www.npsa.nhs.uk/alerts

Barts Health NHS Trust

Nasogastric tube (NGT) position record chart: Subsequent Testing Risk Assessment

(Subsequent testing risk assessment MUST ONLY be undertaken by registered practitioners (qualified nurse or doctor) who have undergone the required training and have been assessed as competent to undertake the procedure).

Patient name:	**DOB:**	**Hospital no.**
Initial inserted length of NGT in cm:		

If you cannot obtain an aspirate or pH of 5 or less on subsequent testing, you must:

Ensure the NG tube has not moved from the time it was initially placed. Check whether any other device has been removed from the oesophagus/trachea that may have altered the position of the feeding tube. If so, please confirm the tube is safe to use by completing the risk assessment below.

Please note if all four answers to the risk assessment questions are "NO" you can still use the NG tube for feeding in the absence of a pH 5 or less.

Date and Time	**pH value of aspirate (if feed not in progress)**	**Length of tube at nostril (in cm)**	**If a pH 5 or less continues to be difficult to obtain (e.g. feed in progress, patient on PPI, past history of full/partial gastrectomy), ensure all answers below are 'No' before accessing / using the tube.**				**Sign & print names** (If the Practitioner is unable to confirm the correct placement of the NGT on subsequent testing risk assessment using pH indicator strips, then a second opinion from a senior competent person should be sought before the NGT is used).
			Has the inserted length of tube changed? (Y/N)	Has the tube dressing become loose? (Y/N)	Has the NGT curled in patient's mouth? (inc visual check) (Y/N)	Is the patient showing signs of altered respiratory distress? (Y/N)	

If there is any doubt in NG tube position. DO NOT use the tube and escalate concerns to the Nutrition team.

Appendix 13: Adult NGT Placement Reference Guide

Adult Naso Gastric feeding tube placement & ongoing care

Barts Health NHS
NHS Trust

Contraindications for nurse led insertion

Base of skull fracture/airway trauma	Hiatus hernia	Oesophageal surgery
Clotting abnormalities	Max fax surgery/ Septum defects	Oesophageal /gastric abnormality

Insertion

NG tubes for the sole purpose of feeding should be avoided between 5pm and 8am- except when specified by a senior clinician or in critical care areas

- Explain procedure & consent (if appropriate)
- Measure nose, ear to xiphisternum 'NEX' length
- 'NEX' length indicates minimum insertion length
- Insert NGT beyond 'NEX' as per Trust policy
- If resistance is felt during insertion, then stop and seek advice
- Secure NGT & leave guide wire insitu
- Aspirate NGT test for pH
- Once position confirmed remove guide wire
- Document date, position, insertion length & pH on NGT position record

After 3 failed attempts seek senior advice or contact the Nutrition Team

Confirmation of Tube position following initial placement

- Inject 10-20 mls of air prior to aspiration
- Aspirate NGT using clean enteral syringe (minimum syringe size: 20mls)
- **Minimum aspirate required 1.0 ml**
- Test gastric content using CE 0.5 incremental pH marked acid indicator strips
- Confirmation of pH ≤ 5.0
- If difficulty obtaining initial aspirate consider:
- Position patient onto left side wait 15-30 mins & recheck
- Consider mouth care to stimulate GI secretions

If unable to obtain an aspirate or pH > 5.0 a chest x-ray must be performed
This must be reported as correct by a Radiologist, Registrar or Consultant who have completed the Barts online Learning and Development (BOLD).

Subsequent testing

At handover, following a pause in feed, vomiting, prolonged coughing or disconnection and prior to administration of medication please assess and document the following:

- Has the inserted length of tube changed?
- Has the tube dressing become loose?
- Has the NGT curled in patients mouth?
- Are there new clinical signs of respiratory distress?

If yes to any of the above question, do not use NG tube & seek SENIOR review

Check nostril for pressure damage & check tape at least 12 hourly
Critical Care: Aspirate NG 4 hrly & document volume. Refer to local ACCU policy re returning aspirate

Accidental removal or partial dislodgment

If you suspect that the NGT is misplaced (eg : oesophagus/ lung) the NG tube should be aspirated to remove drug or feed prior to its removal.
In patients who have required 2 or more insertions in 24 hrs or patients requiring complex insertion consider the use of a nasal bridle with Consultant consent. Please see local policy and inform nutrition team.
For agitated patients consider use of hand restraints following assessment of mental capacity & acute delirium screen. Ensure all necessary safe guarding (DOLS) documentation is completed.

Removal and tube change

Daily assessment for ongoing need. Dietitian input for all patients receiving supplementary feeding
Fine bore tube must be changed after 90 days. Patients requiring long term feeding via NGT should be discussed with the Nutrition team

Appendix 14: NGT Audit (For NGT audit results, please contact the Barts Health NHS Trust Nutrition team)

	Care and management of Naso gastric tube audit	**Site:**		**Ward:**				**Date**
	QUESTIONS	**Yes**	**No**	**Unknown**	**N/A**	**% Yes**	**% No**	**Comment**
Q1	If patient has capacity to consent, was the consent obtained and documented before NG insertion?							
Q2	Is the treatment plan (goal of feeding) documented in the patient notes (electronic or paper)?							
Q3	Is the date and time of NGT insertion documented?							
Q4	Has the patient been reviewed by the Dietetic Team since the NGT was inserted?							
Q5	Are there any difficulties in obtaining any equipment relating to NGT management?							
Q6	Is the NGT secured adequately? (out of patient's visual field, secured at the nose and under the cheek bone)?							
Q7	Is the NEX measurement documented?							
Q8	Is the inserted length of NGT (at time of initial placement) been documented as a minimum of 55cms?							
Q9	Were there multiple attempts to place NG?							
Q10	Has the member of staff who inserted the NG tube had training and completed the competency?							
	Was the NGT position confirmed by:							
	pH gastric aspirate (≤5)?							
	X-ray?							
Q11	If X-ray confirmed initial position, who confirmed the position?							
Q12	Was the NG product sticker fully completed and inserted in the patient's clinical notes or documented on CRS?							
Q13	Is the NGT position record chart fully completed ?							
Q14	Is there documented evidence of subsequent testing of tube position as detailed on the NGT record chart?							
i	Before administering feed?							
ii	At least once daily during continuous feeds?							
iii	Before giving medications?							
iv	Following the evidence of tube displacement (pulling, suctions, vomiting, strong coughing etc)?							
v	Following any transfer between units, departments or hospitals?							
Q15	Is the patient in the recommended position when feeding (30 degree and above semi recumbent position)?							
Q16	Has displacement been an issue?							
i	What precautions were utilised to further prevent displacement (1:1 nursing/DOLs, best interest meeting, hand restraints, nasal bridle)?							
Q17	Has there been any interruptions or delays in feeding? If yes, please document reasons (comment box)							
Q18	Would the staff member caring for the patient know what action to take if they became aware the patient was being feed through a misplaced NG?							

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Appendix 16: SAFETY NOTICE

There have been two never events in the past two weeks relating to misplaced NG tubes, both patients were fed with extremely serious consequences. A common theme with both of them was the misinterpretation of an x-ray to confirm NG placement.

Additional safeguards are therefore to be put in place:

- Insertion of an NG tube and confirmation of position **MAY ONLY** take place between 09:00 and 17:00 unless assessed as clinically urgent by a consultant.

- Where an x-ray is used to confirm placement (only where an aspirate of pH 5 or below cannot be obtained) it must only be interpreted by an ST3 and above or equivalent senior doctor, a radiologist or consultant. All must have completed and passed the online NG tube training.

- When interpreting the x-ray the doctor must first consider **is this x-ray of sufficient quality to make the interpretation?** If there is any doubt as to the quality of the x-ray then it must not be used to confirm position.

  When making the interpretation the doctor must confirm that the tube:
  - Follows the path of the oesophagus
  - Bisects the bronchi
  - Remains midline to the level of the diaphragm
  - Deviates to the left thereafter and the tip is seen approximately 7cm below diaphragm.

- The x-ray report and/or the documentation in the patient record must state the above 4 criteria and confirm it is safe to feed. If the confirmation is not documented in this way the tube must not be used.

- If there is any doubt as to the placement a second opinion must be sought from a colleague who is at the same or a more senior grade who has also passed the online NG training.

Approved: Alistair Chesser, Chief Medical Officer
Date: 13/12/19
Distribution: Trust wide to all clinical staff