

ADULT NASOGASTRIC FEEDING TUBE INSERTION AND MANAGEMENT	Type: Clinical Guideline Register No: 05102 Status: Public
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Developed in response to:	Best practice: NHSI Patient Safety Alert (NHS/PSA/RE/2016/006)
CQC Fundamental Standard:	11, 12, 14, 17

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Version Number	4.0
Issuing Directorate	Medicine
Ratified by:	Document Ratification Group
Ratified on:	22 nd November 2017
Trust Executive Sign Off Date	December 2017/ January 2018
Implementation Date	6 th December 2017
Next Review Date	October 2020
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Policy to be followed by (target staff)	All clinical staff
Distribution Method	Intranet, Website
Related Trust Policies (to be read in conjunction with)	09100 Incident Policy 04080 Consent to examination or treatment 08086 Clinical record keeping 11001 Mental Capacity Act (2005) 04071 Policy for standard infection control procedures 05006 Guideline for Passing a Naso/oro-gastric tube and intermittent tube feeding for Children (10 days-16 years) 10081 Dementia Policy 16026 Nasal Retention Devices Adult Clinical Guidelines 15005 Restrictive Interventions

Document Review History:

Version No:	Reviewed by:	Active Date:
1.1	Angela Wade, Rachael Frost, Cathy Powis	26 September 2005
2.0	Dr L Westcott, Dr R Dobson	28th April 2011
3.0	Sibo Maponga (Nutrition CNS)	November 2014
3.1	Sibo Maponga (Nutrition CNS)	15 April 2015
4.0	Marie Hellon (nutrition CNS)	6 th December 2017

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1.0 Purpose

- 1.1 This guideline has been developed to support clinical staff in the correct insertion of nasogastric feeding tubes (NGT) and in the confirmation of tube placement to reduce risk to patients in line with current best practice, clinical governance standards, and National Patient Safety Agency (NPSA) Patient Safety Alerts (NHS/PSA/RE/2016/006). It aims to promote a clear, consistent and evidenced based approach to the safe insertion, care and management of an NGT in adult patients.

2.0 Scope

- 2.1 This guideline applies to the insertion and management of an NGT in adult patients admitted to the Trust.
- 2.2 Patients in a critical care setting, e.g. general Intensive care, Burns Centre, may have additional needs beyond the scope of this guideline.
- 2.3 **It is the responsibility of the Critical care unit to ensure that all care and equipment for the continuity of patient care is compliant to practice, Trust policies and equipment available on general adult care wards at time of patient transfer.**
- 2.4 This guideline does not apply to paediatric patients (under age of 16 years old).

3.0 Definitions

3.1 Nasogastric feeding tube (NGT)

- 3.1.1 An NGT is a flexible tube that can be inserted trans-nasally into the stomach. It is commonly used for delivery of feed, fluids, medication, or drainage of gastric contents.

- 3.1.2 For a NGT to be fit for the purpose of feeding, the NGT is required to be NPSA compliant, i.e.:

- ✓ Fully radio-opaque throughout its length;
- ✓ Externally visible length markings.

Other features will include:

- ✓ EnFit compliant;
- ✓ Can remain in situ for up to 30-90 days (dependant on manufactures instructions);
- ✓ Made of Polyurethane;
- ✓ Will often have a guidewire throughout its length to aid insertion;
- ✓ Size 6-12fg (recommended size for feeding 8fg).

3.2 Wide bore tubes or gastric drainage tubes (Ryles)

- 3.2.1 Wide bore gastric drainage tubes (Ryle's tubes) are usually made of polyvinylchloride (PVC) and may be used for a maximum of 7-10 days (as per

manufacturers' instructions) size of tubes start at 12 fg . These tubes are not NPSA compliant, therefore **must not** be used for the purpose of feeding (NPSA 002, 2011).

3.2.2 These tubes may also be associated with the following complications:

- Rhinitis;
- Pharyngitis;
- Oesophageal ulceration;
- Gastric erosion;
- Increased tendency for reflux;
- Patient discomfort;
- Difficulty swallowing.

3.2.3 PVC material has the risk of leaching plasticizers within the tube causing it to become brittle and increasing the risk of gastric erosions and ulceration.

3.3 **CE marked pH paper**

3.3.1 pH indicator paper must be CE marked and intended by the manufacturer to test human gastric aspirate.

4.0 **Roles and responsibilities**

4.1 **Chief Executive**

4.1.1 The Chief Executive is responsible for ensuring that systems are in place to ensure the safe and effective placement and management of an NGT. This responsibility is delegated to the Medical Director.

4.2 **Medical Director**

4.2.1 The Medical Director is responsible for ensuring compliance with systems in place to ensure the safe and effective placement and management of an NGT.

4.3 **Nutrition Lead**

4.3.1 The Nutrition Lead is responsible for approving the document and monitoring clinical effectiveness.

4.4 **Consultants**

4.4.1 Consultants are responsible for the everyday clinical care of their patients including decisions about NGT insertion and use.

4.4.2 They are also responsible for the dissemination of this policy within their area of responsibility.

4.5 Nutrition Clinical Nurse Specialist

- 4.5.1 The Nutrition CNS will provide training in the insertion of NGT, ensure that all policies and procedures for the placement and management of enteral feed equipment are up to date and evidence based, and facilitate decisions regarding artificial nutrition in complex individual cases.

4.6 Dietitians

- 4.6.1 Dietitians are responsible for the assessment, guidance and prescription of the most clinically appropriate feeding regimen for the patient and on-going dietetic assessment and review of the patient.

4.7 All other Clinical Staff

- 4.7.1 All healthcare professionals must adhere to the principles described in this policy.
- 4.7.2 A decision to insert an NGT for the purpose of feeding and/or administration of medications must be made and documented by a senior member of the medical team responsible for the patients' care.
- 4.7.3 Only staff with the relevant skills and expertise should insert and confirm the placement of an NGT.

4.8 Ward Sister / Charge Nurse

- 4.8.1 Senior ward nurses should identify which members of staff are trained and competent to undertake insertion and management of an NGT.
- 4.8.2 They should monitor standards of practice in their environment in relation to an NGT. An up to date record is to be kept in the clinical area to evidence that training and competencies have been completed.

4.9 Radiographer

- 4.9.1 When an NGT Chest X-ray is requested, radiographers should ensure they are able to justify the examination and provide an image to clearly demonstrate the presence and position of the NGT.

5.0 Pre-procedure

5.1 Decision making

- 5.1.1 A decision to insert an NGT for the purpose of feeding and/or administration of medications should be made by a senior doctor responsible for the patient's care and in the case of complex, vulnerable patients should involve the multidisciplinary team. This decision should only be made following careful assessment of the risks and benefits, with the patient's best interests at the centre of this process. Consideration should be given to the patient's previously expressed wishes, an Advanced Care Plan, family involvement or an independent advocate.

- 5.1.2 Once a decision has been made to insert an NGT an entry must be made in the medical notes, it must be signed, dated and timed, clearly documenting the purpose of the NGT, e.g. administration of medication only, for nutrition, hydration & medication. In complex cases where a timed trial is appropriate for nutrition, a review date must be set at the start of the trial.
- 5.1.3 Prior to insertion the rationale for insertion of an NGT must be considered and responses to the following documented on the NGT Insertion & Management form (Appendix 5):
- Is NGT feeding the right decision for this patient?
 - Is this the right time to place the NGT and is appropriate equipment available?
 - Is there sufficient expertise available at this time to test for safe placement?
- 5.1.4 An NGT should only be placed when there is experienced support available for insertion and confirmation of the NGT position. If there is not sufficient, experienced support available (for example at night) then, unless clinically urgent, placement should be delayed until that support is available. Rationale for any decisions made should be recorded in the patients' medical notes.
- 5.1.5 Where longer term enteral feeding is required (> 4 – 6 Weeks) consideration should be given to gastrostomy placement.
- 5.1.6 Ventilated patients may have the NGT inserted under direct laryngoscopy. All critical care/ventilated patients have X-ray to confirm initial NGT placement.

5.2 Indications for NGT feeding

- 5.2.1 NGT feeding is the most common method of providing short-term artificial nutrition support in the acute setting. A decision to feed via an NGT should be a multidisciplinary one.
- 5.1.2 NGT feeding should be considered for patients who have a functioning gastrointestinal (GI) tract and require short-term tube feeding (up to 4-6 weeks).
- 5.1.3 The insertion of an NGT facilitates access to the GI tract, enabling nutrition and medicines to be administered whilst other assessments or therapies are being considered or carried out.

5.3 Contraindications for NGT feeding

- 5.3.1 This list is not definitive. Some patients may require referral to specialist teams, e.g. ENT, Gastroenterology or Interventional Radiology for further assessment/advice/assistance with the procedure. An NGT may be contraindicated in the following conditions:
- Non-functioning GI tract e.g. ileus;
 - Maxillo-facial disorders/surgery/trauma;
 - Laryngectomy;
 - Trachoesophageal fistula;
 - Oesophageal/Pharyngeal pouch;

- Oesophageal Stricture or other Oesophageal abnormalities;
- Oesophageal tumours or Oesophageal surgery;
- Actively bleeding Oesophageal or gastric varices;
- Gastric outflow obstruction;
- Basal skull fracture;
- Nasal CPAP (Continuous Positive Airway Pressure) can be considered for enteral feeding with close observation due to the increased risk of reflux aspiration - NJ feeding should be considered as a safer option;
- Unstable Cervical Spinal Injuries;
- Choana atresia.

5.4 Consent

- 5.4.1 Informed verbal consent must be sought prior to the insertion of the NGT. A clear explanation of the procedure should be given and verbal consent gained. If the patient is unable to respond verbally, other means of communication should be sought.
- 5.4.2 If the patient lacks mental capacity, staff should refer to the Trust's Consent to examination or treatment Policy and Mental Capacity Act (2005) Policy. A Mental Capacity Assessment (MCA) should be completed in full and a copy submitted to the adult safeguarding team.

5.5 Equipment

- Plastic apron and gloves;
- Radio-opaque NGT with externally visible length markings;
- CE marked for human gastric aspirate pH indicator strips/paper with a range of 0 to 6 and 0.5 gradations;
- Water based lubricating jelly;
- Freshly drawn water to flush the tube once NGT position has been confirmed;
- Purple Enteral EnFit Syringe;
- Receiver/kidney bowl;
- Glass of water and a straw (only if the patient has a safe swallow reflex);
- 1st line securement - cheek dressing to secure tube (Grip Lok dressing);
- 2nd line securement - consider Nasal Retention Device (refer to Guideline No. 16026);
- NG Tube Insertion and Management form (Appendix 5)

6.0 Insertion procedure

Action	Rationale
Refer to medical notes to ensure a clear purpose for the NGT has been documented.	To ensure the appropriate tube is inserted to meet the patient's needs and clinical condition.
Prior to insertion of the NGT refer to notes to check for any potential complications e.g. previous nasal trauma, disease, surgery or congenital abnormalities and any required investigations e.g. blood clotting tests.	To insert the NGT safely and minimise complications.
Prior to insertion, check the NG tube is patent with a 50 ml sterile bladder syringe filled with air.	To ensure the NG tube is patent and fit for purpose.
Explain the procedure and associated risks to the patient. Where the patient demonstrates lack of capacity - a best interest decision must be documented in the medical notes and a mental capacity assessment completed.	To ensure that the patient understands and is able to give consent and co-operate with the procedure. To demonstrate compliance with current legislation, evidence of wider consultation for the best interest decision.
Arrange a signal so that the patient can communicate with the nurse during the procedure e.g. raise a hand.	Helps to alleviate fear as the patient has some control over the procedure. Where possible also have a second health care professional present for patient support.
Wash hands and put on non-sterile gloves and an apron.	Adherence to local Infection Prevention policy.
Assist the patient in a semi-upright position. Support the head in a slightly forward position.	Assists swallowing and helps prevent tracheal placement if the swallow is compromised. Patient comfort.
Check that the nostrils are patent by completing The Sniff Test, asking the patient to cover on nostril and sniff through the alternative nostril. Repeat with the other side. Ask the patient to clean nose by blowing prior to placement/if patient unable to do this - please assist as required. Alternate nostrils if replacing a tube.	Helps identify potential obstruction. Prevents nasal irritation and potential ulceration.
Check packing prior to opening. Noting the description of the device, size expiry date, Lot Number.	Ensuring the NGT is not damaged, that the appropriate NGT is to be inserted for purpose. Traceability of the device. The size of a NGT for enteral feeding should be between 6- 12fg.
Unpack the tube, observe full length of NGT observing for any damage and that the NGT is not kinked. Gently manipulate the guidewire to ensure it can move freely ensure the guidewire is secured back into place before insertion.	Facilitates smooth insertion of NGT.

<p>Estimate length of tube using NEX measurement - Nose, Earlobe & Xiphisternum:</p> <ul style="list-style-type: none"> Place tube tip to the tip of the nose, extend to ear lobe & down to the Xiphisternum; Note the measurement at the point of the Xiphisternum. 	<p>To gain an estimated measurement- to ensure that the NGT tip will reach the patient's stomach.</p> <p>Please note that the NEX measurement is only an estimation, to gain a gastric aspirate you may need to adjust the position by 10% by further advancing or pulling back of the NGT.</p>
<p>Lubricate the tube. Use a thin coating of water based jelly (please refer to manufactures guidelines).</p>	<p>Facilitates easy passage of the tube.</p>
<ul style="list-style-type: none"> Insert the tip of the tube into the chosen nostril, advancing it horizontally and gently along the floor of the nostril; parallel to the nasal septum, to the nasopharynx and then oropharynx. At this point ask the patient to swallow fluid if it is safe and they have capacity to follow instruction. In the absence of a safe swallow ask to them to try a dry swallow. A chin tuck may also assist. Continue advancement to NEX measurement. If resistance is felt, stop the procedure pull back slightly before attempting to re-insert (check the patients mouth in case the tube has coiled). If the patient sneezes or coughs pull back slightly on the NGT wait until the patient is settled. If the patient becomes distressed it is advised to stop NGT insertion and seek specialist advice. 	<p>To achieve insertion of tube into the stomach.</p> <p>To minimise any risk of trauma or distress to the patient.</p> <p>To assist intubation into the oesophagus and reduce the risk of tracheal intubation.</p>
<p>A maximum of 3 attempts should be made at one time to insert the NGT - PLEASE SEEK SENIOR/SPECIALIST ADVICE.</p>	<p>To minimise any risk of trauma or distress to the patient.</p>
<p>Once the NGT has been inserted:</p> <ul style="list-style-type: none"> Leave the guide wire in place (do not remove); Attach a 60ml Enteral EnFit syringe to the NGT end; Flush NGT with 10ml of air to clear the tip of any debris; Then pull back on the syringe to withdraw a gastric aspirate. 	<p>To confirm position of NGT in the stomach and that it is safe to feed/administer medication</p>

<p>Confirm the position of the NGT by testing the aspirate, using pH strips that are CE marked for human gastric aspirate. The pH reading must be 5.5 or below to confirm the position of NGT. When an aspirate of 5.5 or below is obtained tube position is confirmed and it is safe to remove the guidewire and administer medication/feed.</p>	<p>To confirm position of NGT in the stomach and that it is safe to feed/administer medication.</p>
<p>If difficulty is found in obtaining a gastric aspirate follow manufactures advice. To gain an aspirate (check for a aspirate after each technique is attempted):</p> <ul style="list-style-type: none"> • Check mouth for coiling of NGT; • Position patient on their side; • Re-flush the tube with air to dislodge debris from insertion; • If patient has a safe swallow offer a drink then wait 15-20 minutes and re-check aspirate; • Advance or withdraw NGT by 10-20 cm. <p>Refer to Appendix 1 (NPAS decision tree for NGT placement checks in adults). If an aspirate cannot be obtained then request an X-ray to confirm position of NGT. State clearly on the request that attempts have been made to gain an aspirate or that the pH is more than 5.5</p> <p>NB: do not remove the guidewire until the position of the NGT has been confirmed.</p>	<p>To confirm position of NGT in the stomach and that it is safe to administer medication/feed.</p> <p>An X-ray is the final option to confirm the position of the NGT.</p>
<p>Fix the NGT to the patient's cheek using 1st line securement - Grip Lok dressing.</p> <p>2nd line securement - Nasal retention devices may be suitable for certain patients. Refer to local guideline No.16026, full patient assessment is required with the lead clinician and MDT agreement for the use of this securement device.</p>	<p>To reduce the risk of tube misplacement. Securing the NGT to the cheek rather than the nose will reduce the risk of nasal erosion/ulceration.</p> <p>To reduce the risk of repeated NGT displacement. Repeated NGT displacement may prevent the patient receiving adequate nutrition, hydration and medications and cause increased risk of distress & discomfort from repeated attempts to insert another NGT.</p>
<p>Document in the NG Tube Insertion & Management form (Appendix 5):</p> <ul style="list-style-type: none"> • Type of tube, size and lot number; • Name of person inserting the tube; • Date and time of insertion; • The cm measurement on the tube at the exit point from the nostril; 	<ul style="list-style-type: none"> • Tracking and traceability; • For audit and training requirements; • Allows the user to assess whether the tube has changed position;

<ul style="list-style-type: none"> • The pH value (if gastric aspirate obtained); • Which nostril used; • Ease of insertion; • The Doctor reviewing the X-ray should record the result on the NG tube Insertion and Management form and in the patient's Medical notes (entry should be signed, dated and timed). 	<ul style="list-style-type: none"> • Allows staff to compare with previous readings; • Prevents trauma caused by using the same nostril repeatedly; • Useful information for other healthcare professionals inserting subsequent tubes; • To identify whether the tube is safe for use and for tracking and accountability.
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7.0 Post procedure

7.1 Initial confirmation of NGT position following insertion

7.1.1 The ideal position for the NGT is in the stomach below the diaphragm. The position of the NGT must be checked to confirm it is in the stomach. The procedure is summarised in the flow charts and guidance on pH testing in Appendices 1 and 2. Further information is available in the NPSA Supporting information document.

7.1.2 **An NGT must not be flushed or liquid/feed introduced through the tube following initial placement, until the tube tip is confirmed to be in the stomach by pH testing or X-ray.**

7.2 First line testing: pH testing of NGT aspirate

7.2.1 Aspirate 2ml of stomach content using a sterile syringe and test using CE marked for human gastric aspirate pH paper. A pH of 5.5 or below can be considered gastric in origin.

7.2.2 Only if a pH of 5.5 or below has been obtained and documented or the correct placement confirmed and documented by a competent person through X-ray can an NGT be used.

7.2.3 Initial and on-going pH checks must be documented on the NG Tube Insertion & Management form and the NG Tube Position Check Record (Appendices 5 & 6) which should be kept at the patient's bedside.

7.2.4 pH readings should be 5.5 or below for feeding to commence safely. However, the NPSA has identified the potential difficulty in differentiating pH readings using between pH 5 and 6. Therefore, any readings between pH 5 and 6 should have a second check undertaken by a registered nurse, who has completed their competency assessment.

7.2.5 Consideration should be given to the impact of medication such as antacids, H₂ antagonists like Ranitidine or Proton pump inhibitors like Lansopazole & Omeprazole and the frequency of feeds on stomach pH.

7.2.6 Refer to Appendices 1, 2 & 3 for further advice on attempting to gain aspirate

7.2.7 Any staff still having difficulty obtaining an aspirate must request help from a more experienced member of staff.

7.3 Second line testing: Chest Radiography

7.3.1 If staff are unable to obtain aspirate or pH indicator paper fails to confirm the location of the NGT in the stomach, then a request for an X-ray of the chest should be made. The request form must clearly state that the purpose of the X-ray is to establish the position of the NGT and which type of NGT tube was inserted. The request should also state the result of gastric aspiration – whether aspirate could be obtained and if so what pH it was. This helps radiology staff to determine if radiation exposure is justified. If a fine bore tube is used, the guide wire must be left in place until after imaging and interpretation of the resultant image.

7.3.2 X-rays must only be interpreted and NGT position confirmed by a doctor assessed as competent to do so. The doctor must document in the patient's medical notes that the NGT position has been confirmed as safe to use. This entry should be signed, dated and timed. In addition the NG Tube Insertion & Management form will require updating and signing.

7.3.3 If there is any difficulty in interpretation of the X-ray, the advice of a radiologist should be sought. The radiologist must document the position of the NGT and tip and whether it is safe to use the NGT.

7.3.4 If the NGT is not in the correct position, it must be repositioned and further checks carried out or removed and a new NGT inserted.

7.3.5 If there is any relevant past medical history such as Hiatus Hernia or previous gastric surgery, staff should consider using X-ray after discussion with the senior medical team.

7.4 Methods that must not be used:

- Auscultation of air insufflated through the tube ('whoosh test');
- Testing aspirate with Blue Litmus paper;
- Presence / absence of respiratory distress;
- Monitoring bubbling at the end of the tube;
- Observing the appearance of the aspirate.

8.0 On-going management of NGT in situ

8.1 Regular tube position checks

8.1.1 Prior to use of an NGT the healthcare professional must re-assess the risk to the patient and ensure the tube is still correctly positioned. NGT position should be checked:

- At least once daily during continuous (pump) feeds; at the end of the rest period before starting the next feed;

- Before all administration of medication or flushes when the patient is not currently receiving continuous feed;
- Before administering each bolus feed;
- Following episodes of vomiting/retching/coughing or suction (the absence of coughing does not rule out misplacement or migration);
- If the patient complains of a change in level of discomfort;
- If the patient develops difficulty in breathing during administration of feeds, medicines or flushes;
- In the presence of any new or unexplained respiratory symptoms or reduction in oxygen saturation;
- Following any evidence or suggestion of tube displacement (e.g. loose tape or portion of visible tube appears longer).

8.1.2 Where feed/medication has already passed through the tube wait a minimum of an hour (without any further feeding) prior to testing of gastric aspirate using pH paper.

8.1.3 In some situations, such as when patients are fed continuously, when they are treated with acid-reducing medication and when medications are given frequently via the NGT, it may not be possible to obtain aspirate with a pH of 5.5 or below, and daily X-rays are not practical or safe. In circumstances where the initial placement was appropriately confirmed, and there is no reason to suspect displacement (i.e. no vomiting, retching, suction or coughing spasms and no unexplained respiratory symptoms) the only practical method of determining if the NGT remains correctly placed is through external observation. This should include:

- confirmation that the length of the external tube remains identical to that recorded initially in the patient's notes;
- confirmation that fixation tapes or plasters have not moved or worked loose;
- This confirmation should be clearly documented on the NG Tube Position Check Record (Appendix 6).

8.1.4 Tube length should be recorded on a daily basis **and** prior to administration of any liquid via the NGT on the bedside chart (Appendix 6). If there is any indication that the length has changed, appropriate action should be taken to assess tube tip position prior to using the NGT.

8.1.5 If there is evidence that the tube has become displaced, for whatever reason, then only checking the position at the nose would be inappropriate as it could be coiled in the back of the mouth, so in this circumstance second line testing through X-ray, or removal of the tube if seen to be coiled in the mouth, is appropriate.

8.1.6 When requesting an X-ray to confirm the position of an existing NGT, the clinician must clearly document that the guidewire is not in situ. This will enable the Radiographer to determine whether or not a portrait image is required to enable the NGT tip to be demonstrated.

8.2 Positioning of the patient

8.2.1 The risk of oesophageal reflux and aspiration during enteral feeding can be minimised by:

- Elevating the head of the bed at a minimum of 30 degrees during feeding and for at least an hour after feeding;
- Sitting the patient in a chair whilst feed is running.

8.3 Flushing

- Tubes should be flushed with 50ml water before and after the administration of medication.
- If more than one medicine is to be administered, flush between each one with at least 10ml of water to ensure that the drug is cleared from the tube.
- Liaise with Pharmacy as to the most suitable form of medications to administer via an NGT.
- If the patient is on a fluid restriction, consult the dietitian and pharmacist about the quantity of water to be given before and after medication.
- Tubes should be flushed with at least 50ml water at the start and finish of the administration of each feed.
- All fluid given as a flush must be clearly documented on the patient's fluid balance chart.

8.4 Managing a blocked NGT

8.4.1 Possible causes of a blocked NGT are:

Possible causes	Intervention
Not flushing or inadequate flushing after feed and medication.	Flush with 50ml water before and after feed or medication.
Unsuitable medicine preparations for giving via an NGT, e.g. large particles, viscous liquids.	Review medication and consider alternative medication. All medication given via NG tube should be in either liquid or dissolvable form if possible. Liaise with pharmacist.
Multiple medications being given together without a flush in between each drug.	All medications should be given separately, flushing about 10ml of water in between each medication.
Kinked NGT	NGT may be kinked in the stomach, pull back slightly (1-2cm) and confirm NGT position. The new measurement confirming NGT Position including pH of gastric aspirate should be recorded and actions documented

8.4.2 Flushing with water can shift most blockages. **Check length marking to confirm NGT position has not changed before flushing with any fluid to unblock the tube.**

- Use a 60ml enteral EnFit syringe;

- Prime with 20-30mls warm water, carbonated (sparkling) water or soda water (**do not use Coca-Cola/Lucozade/Pineapple juice or anything other than warm water, carbonated water or soda water**);
- Flush using a pumping action;
- Squeeze along the tube, and then retry flushing;
- Once cleared, flush thoroughly;
- If the NGT remains blocked remove it and insert a new one.

8.5 Inadvertent NGT removal

- 8.5.1 In the case of repeated NGT displacement consider use of mittens or a nasal retention device. Please refer to the following guidelines:
- Mittens/DOLS – Restrictive Interventions policy No.15005,
 - Nasal Retention Device Adult Guidelines No. 16026.

8.6 Transfer of care to the community setting

- 8.6.1 Mid Essex CCG do not currently support the care of patients with an NGT in the Community, alternative means of nutrition should be sought prior to discharge.

9.0 Education and Training

- 9.1 Only registered Nurses, doctors or allied health care professionals e.g. Dietitians trained and assessed as competent (Appendix 4) to insert or check the position of an NGT should attempt these procedures.
- 9.2 Health Care Assistants (HCAs) or Health Care Practitioners cannot attempt to insert or check the position of an NGT.
- 9.3 Bank and Agency staff must have completed the appropriate MEHT training and competencies prior to attempting to insert or check the position of an NGT.
- 9.4 Doctors may only insert an NGT if they have been trained to do so or are supervised by a competent member of staff. Doctors who have completed the mandatory training for checking Chest X-rays for NGT placement can confirm correct tube position and document in the patients' notes and supporting documents that the tube can be used. All entries should be signed, dated and timed.

10.0 Audit and Monitoring

- 10.1 A clinical incident (Datix) risk event form should be completed to report any incident related to NGT care and management, inclusive of near misses or never events.
- 10.2 An annual audit of compliance with this policy will be undertaken with the support of Clinical Audit Findings, the audit will be reviewed by the Nutrition Steering Group and where deficiencies are identified; actions will be developed, implemented and monitored by this group.

11.0 Communication & Implementation

- 11.1 The policy will be available to staff and the public on the Trust's intranet site and website.
- 11.2 The policy will be sent to all Clinical Directors and Corporate Nursing for information and dissemination amongst their teams by the author.

12.0 References

British Association of Parental and Enteral Nutrition (BAPEN) /NNNG NasoGastric (NG) Tube Insertion- Decision Tree
<http://www.bapen.org.uk/pdfs/decision-trees/naso-gastric-tube-insertion.pdf>

NHS/PSA/RE/2016/006, Patient Safety Alert: Nasogastric tube misplacement: continuing risk of death and severe harm. July 2016

Good practice guideline- safe insertion of Nasogastric (NG) Feeding Tubes in Adults
NNNG National Nurses Nutrition Group April 2016 www.nnng.org.uk

NPSA/2012/RRR001, Rapid Response Report: Harm from flushing of nasogastric tubes before confirmation of placement. March 2012

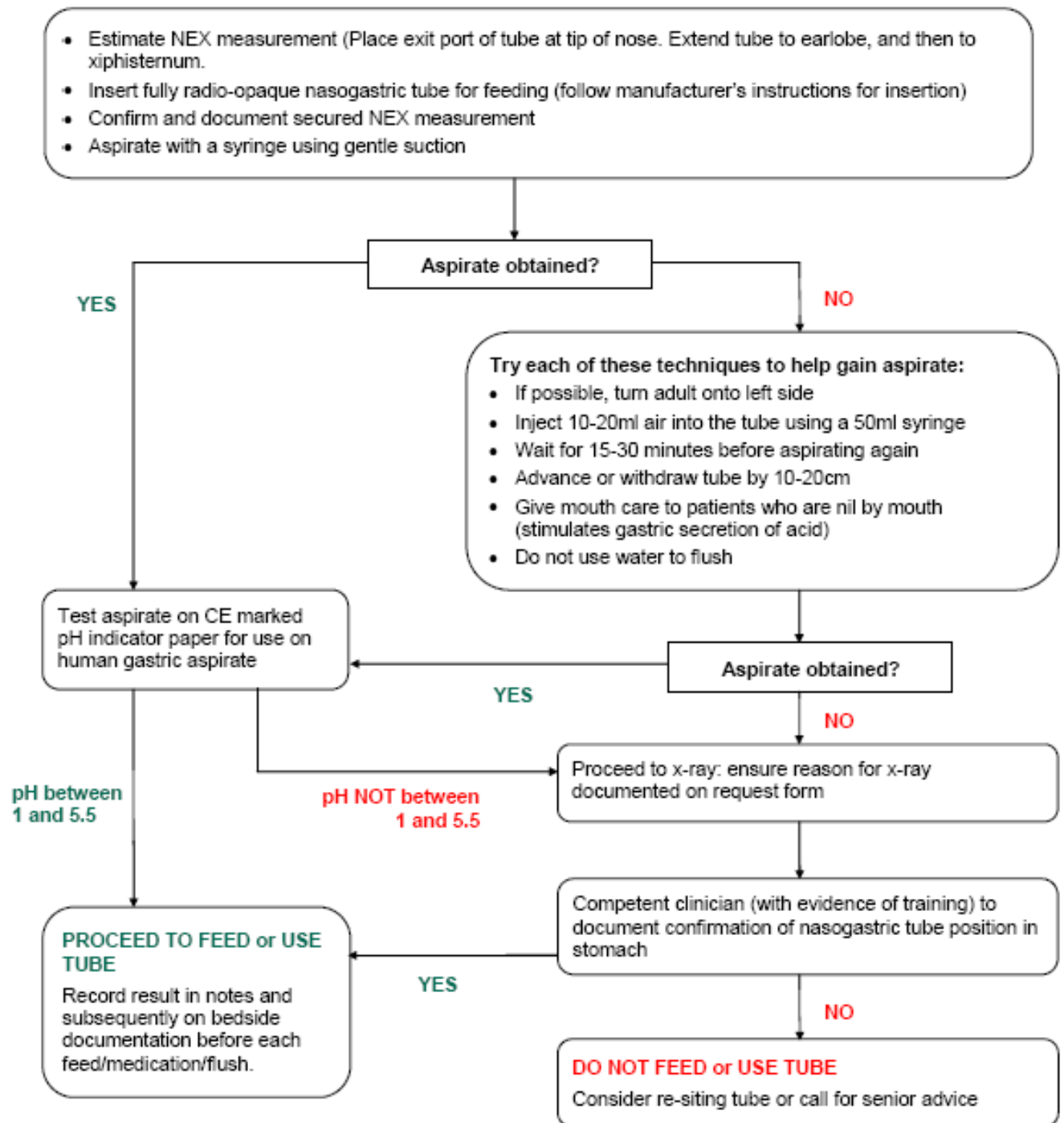
NPSA / 2011 / PSA 002. Patient safety alert: Reducing the harm caused by misplaced Nasogastric feeding tubes in adults, children and infants. March 2011

Royal Marsden Online procedures

NPSA 2005. How to confirm the correct position of nasogastric feeding tubes in infants, children and adults, February 2005

Rajaraman D 2009 Nasogastric tubes 1: Insertion technique and confirming the correct position. Nursing Times Vol. 105, Iss. 16, 2009

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



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.

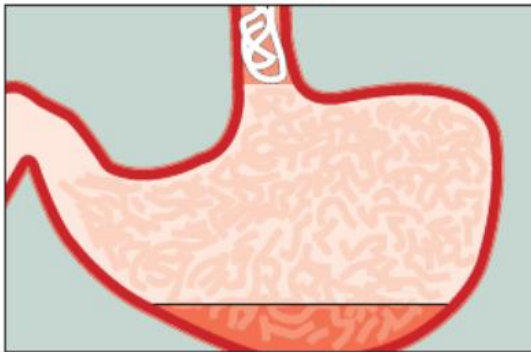
Where pH readings fall between 5 and 6 it is recommended that a second competent person checks the reading or retests.

Appendix 2 Recommended Procedure for Checking NGT Position

Action	Rationale
Check whether the patient is on medication that may increase the pH level of gastric contents.	Medications that could elevate the pH level of gastric contents are; antacids, H2 antagonists and proton pump inhibitors. For those patients who are regularly on antacids, the initial risk assessment needs to identify actions that staff should take in this scenario, and document them in the care plan. The initial pH of the aspirate should also be documented in the case notes.
Check for signs of tube displacement.	Documenting the external length of the tube initially and checking external markings prior to feeding will help to determine if the tube has moved. The documentation will also assist radiographers if an X-ray is needed.
Sufficient aspirate (0.5 to 1ml) obtained.	0.5 to 1ml of aspirate will cover an adequate area on the single, double or triple reagent panels of pH testing strips/paper. Allow ten seconds for any colour change to occur.
Aspirate is pH 5.5 or below.	Commence feed. There are no known reports of pulmonary aspirates at or below this figure. The range of pH 0 to 5.5 balances the risk between increasing the potential problems for clinical staff e.g. removing tubes that are actually in the stomach, increased use of X-ray, with the as yet, unreported possibility of feeding at pH 5.5 when the tube is in the respiratory tract.
Aspirate is pH 6 or above.	DO NOT FEED. Possible bronchial secretion; leave up to one hour and try again. The initial risk assessment should identify actions for staff to take in this scenario for each patient. The actions should be documented in the care plan and/or in local policies. If there is ANY doubt about the position and/or the clarity of the colour change on the pH indicator strip/paper, particularly between the ranges pH 5 and 6, then feeding should NOT commence – seek advice.
Wait up to one hour before re-aspirating to check pH level.	The most likely reason for failure to obtain gastric aspirate below pH of 5.5 is the dilution of gastric acid by enteral feed. Waiting for up to an hour will allow time for the stomach to empty and the pH to fall. The time interval will depend on the clinical need of the patient and whether or not they are on continuous or bolus feeds.
Problems obtaining aspirate?	
Turn patient onto their side.	This will allow the tip of the NG tube to enter the gastric fluid pool.
Inject air 10-20ml using a 20ml or 50ml syringe. Wait for 15-30 minutes and try again This is NOT a testing procedure: DO NOT carry out auscultation of air ('whoosh' test) to test tube position.	Injecting air through the tube will dispel any residual fluid (feed, water or medicine) and may also dislodge the exit-port of the NG feeding tube from the gastric mucosa. Using a large EnFit enteral syringe allows gentle pressure and suction; smaller syringes may produce too much pressure and split the tube (check manufacturers guidelines). Polyurethane syringes are preferable to other syringes. It is safe practice to use NG tubes and enteral syringes that have non-leak connectors (Building a Safer NHS for Patients: Improving Medication Safety published 22/01/2004 available at www.dh.gov.uk)
Advance the tube by 10-20cm	Advancing the tube may allow it to pass into the stomach if it is in the oesophagus.
Consider X-ray All radiographs should be read by appropriately trained staff.	X-ray should not be used routinely. The radiographer will need to know that this advice has been followed, what the problem has been and the reason for the request. The radiographer should document this. Fully radio-opaque tubes with markings to enable measurement, identification and documentation of their external length should be used.

Appendix 3 Additional Guidelines for Nasogastric Tube Placement

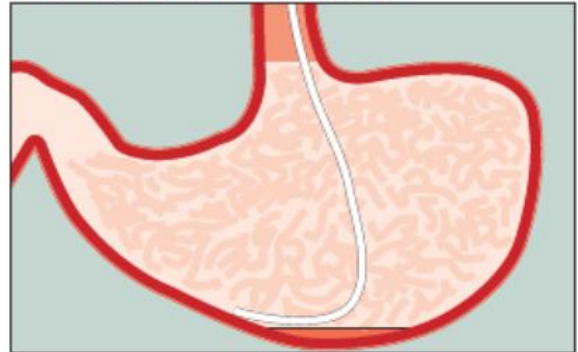
Tube in oesophagus



Inject 20mls of air with a 20ml syringe. If the patient belches immediately tube is in the oesophagus

ASPIRATE

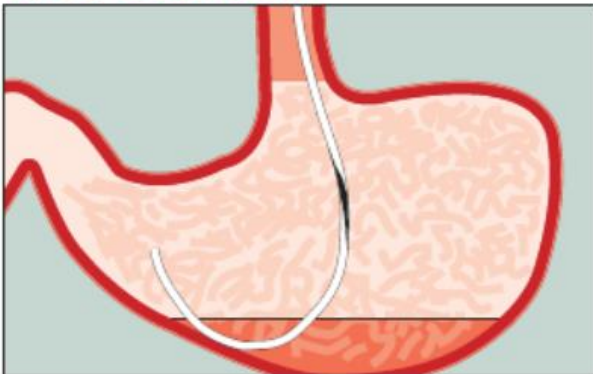
No fluid in stomach



Having injected air and tried smaller syringe Wait 15-30 minutes then try again with the patient on their right side

ASPIRATE

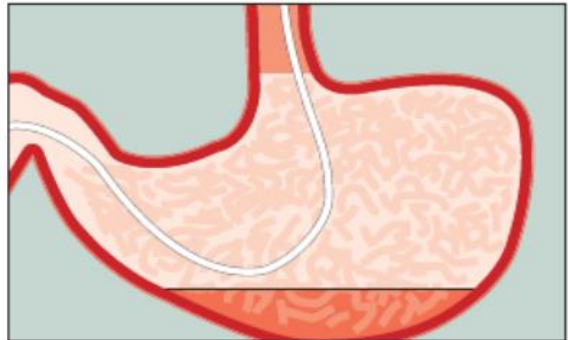
Tube occluded



Tube may be kinked or occluded with debris. Inject 20mls of air (10mls in children) and retry

ASPIRATE

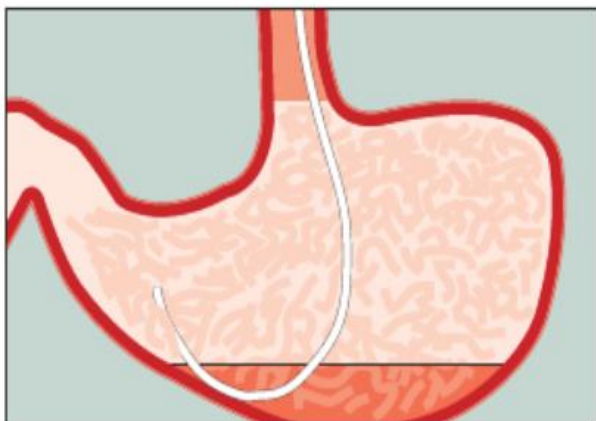
Tube in small bowel



pH will normally be 6-8 and bile will usually be present. Withdraw tube 10-20cm in adults and 5-10cm in children and retry.

ASPIRATE

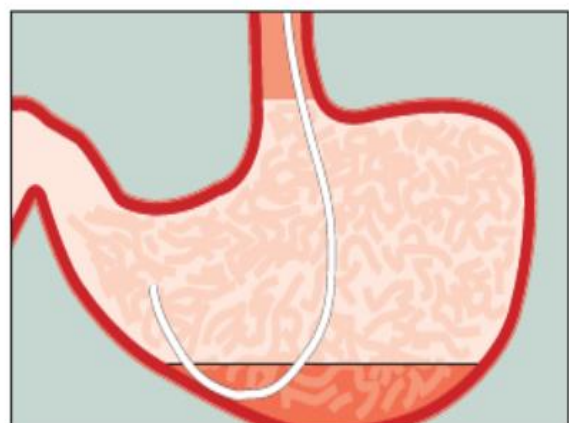
Tube occluded in Mucosa



Inject 20mls of air, try smaller syringe, put patient on right side, try to aspirate again

ASPIRATE

Tube above fluid level



Advance or withdraw tube 5cm or aspirate with smaller syringe. Put patient on right side

ASPIRATE

aspirate is obtained or if aspirate is above 5.5								
Understands when and how often NG tube should be checked for correct position post insertion								
Understands what action to take if: <ul style="list-style-type: none"> • Unable to obtain aspirate • pH is 5.5 or above affected by patient receiving PPI 								
Can provide care for a patient with a NG tube including changing NG tapes, checking skin, providing mouth care								
Documents insertion, care of, tube details (For traceability), difficulties during insertion, tube measurements and position checks of NG tubes, nostril of Placement								
Able to administer enteral feeding and medication according to prescription and feeding regime agreed by MDT prior to insertion of NG tube								
Has an understanding of re-feeding syndrome. Is aware of re-feeding syndrome guidelines and out of hours NG feeding regime and how to access on the trust intranet								

Nutrition CNS

#6555 1710 or Ext: 6146

NG Tube Insertion & Management

To be filed in patient's medical record

Please affix patient demographics label or complete the following details

Surname:	First Name
DOB:	Ward:
NHS Number:	Hospital Number:

Reason for NG Tube insertion:

Identify the senior doctor responsible for the patient's care who has agreed to the NG tube insertion:

Is Nasogastric tube feeding the right decision for this patient?	Yes / No
Is this the right time to place the NG tube and is appropriate equipment available?	Yes / No
Is there sufficient expertise available at this time to confirm correct placement of NGT?	Yes / No
Has verbal consent been given by the patient?	Yes / No / NA
If NO/ NA, please complete MCA2 as per trust policy for consent & Mental capacity Act	

NG Tube Type: _____	Size: _____ Length: -----	Date: __ / __ / __ Time: __: __
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Inserted by: _____	Signature: _____	Designation: _____
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Please note nostril of placement:**Placement check:****First line test method**

Aspirate checked using pH indicator paper that is CE marked Yes / No	Was aspirate obtained: Yes / No	Date: __ / __ / __ Time: __ : __
-----------------------------------------------------------------------------	---------------------------------	----------------------------------

Initial pH test result: _____ Safe range for feeding pH of 5.5 or below	Is it confirmed as safe to administer feed / medication Yes / No
----------------------------------------------------------------------------	---------------------------------------------------------------------

Checked by: _____	Signature: _____	Designation: _____
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If pH between 5 and 6, signature & designation of second competent person checking result:Please confirm that the tube was not flushed prior to the placement check by ticking this box **Second line check**

X-ray authorised by:	Interpretation of x-ray:
	Position of tube confirmed on: __ / __ / __ Time: __ : __
	Name: _____ Signature: _____ Designation: _____
	Plan: _____

Was the x-ray reviewed the most current available? Yes / No

If tube placed in lung was the NG tube removed immediately? Yes / No

NG Tube Position MUST be confirmed

Prior to every episode of use including medication, water flushes or feeding

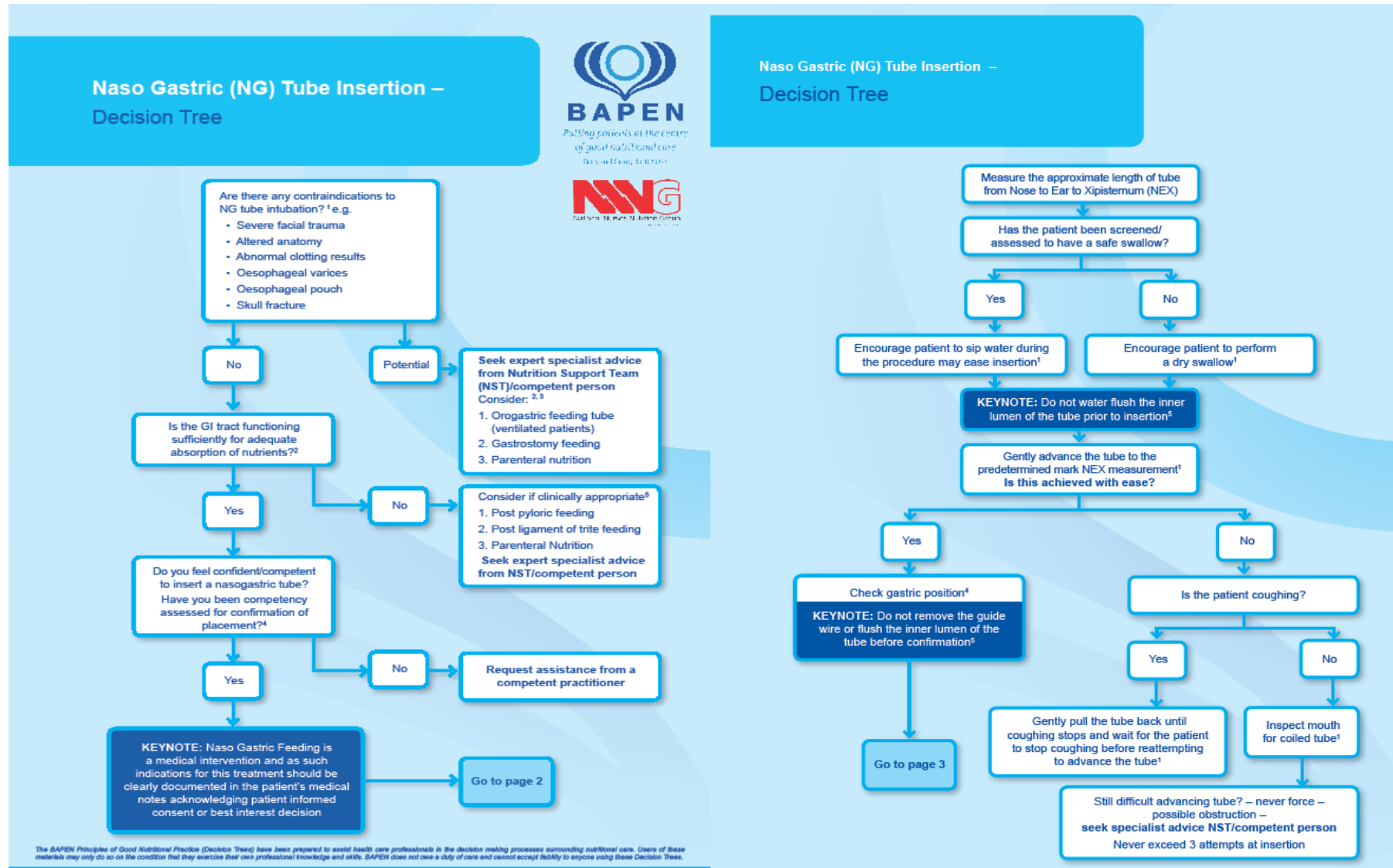
Patient Surname: _____ First Name _____

NHS / Hospital Number _____ Initial tube length on insertion _____

pH of NG Aspirate
 pH 5.5 or below proceed to feed or administer medication
 pH greater than 5.5 additional checks or action required as per policy

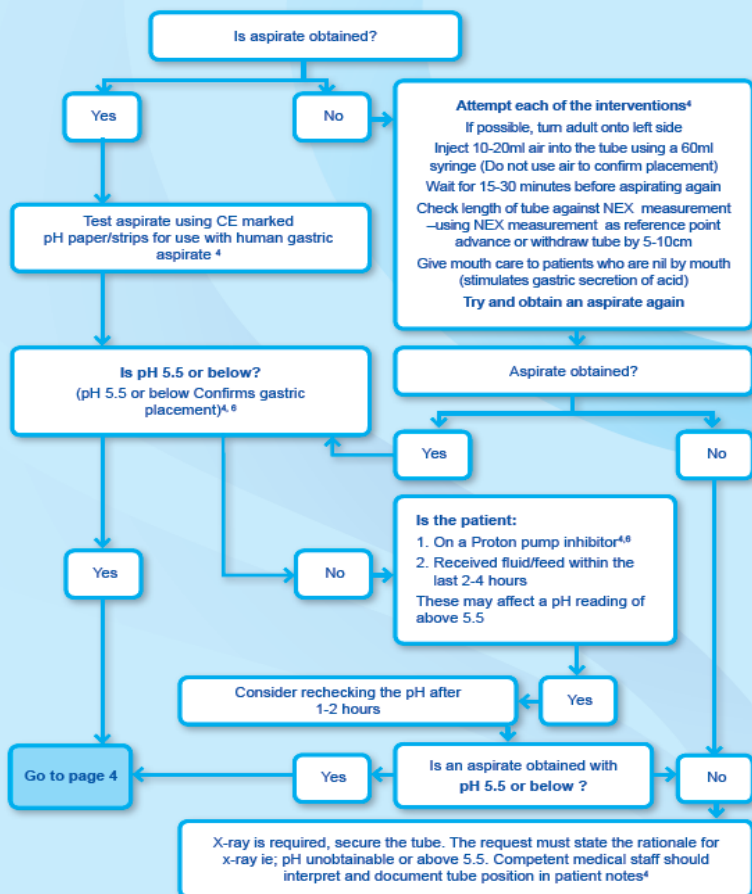
Date / time	Name of person checking NGT (print)	Signature	Tapes intact Y/N	Tube length (daily / prior to feed)	Aspirate obtained Y/N	pH before feed / drugs	Name of 2 nd checker (competent RN) if pH between 5.5 - 6 (Print name)	Signature	Agreed pH	Outcome e.g. proceed to feed; record additional checks carried out; escalate to medical team (record name and grade of Dr)

Appendix 7 BAPEN Naso Gastric Tube insertion Decision Tree

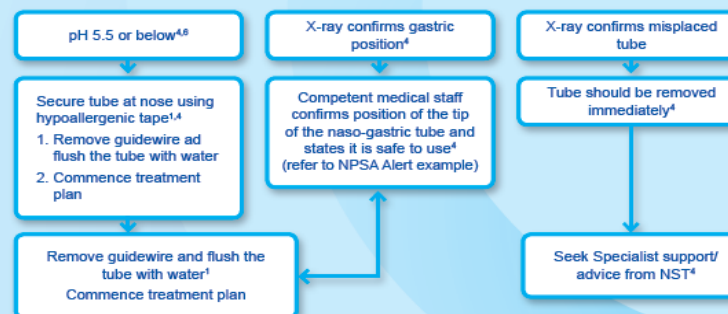


Appendix 7 BAPEN Naso Gastric Tube insertion Decision Tree (contd)

Naso Gastric (NG) Tube Insertion –
Decision Tree



Naso Gastric (NG) Tube Insertion –
Decision Tree



Naso Gastric (NG) Tube Insertion –
References

1. National Nurses Nutrition Group (2012) Good Practice Guideline – Safe Insertion of Nasogastric (NG) Feeding Tubes in Adults (not ongoing care) National Nurses Nutrition Group February NNGG www.nnng.org.uk
2. National Institute of Clinical Excellence (2006) Nutrition Support for Adults. Oral nutrition support, enteral tube feeding and parenteral nutrition Clinical Guideline 32, NICE, London <http://www.nice.org.uk/CG32>
3. Dougherty L, Lister S (2011) The Royal Marsden Hospital Manual of Clinical Nursing Procedures (8th edition) Wiley Blackwell
4. National Patient Safety Agency (2011) Patient Safety Alert 2011/PSA002 Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants. NPSA London <http://www.nrls.npsa.nhs.uk/resources/?Entryid45=120640>
5. National Patient Safety Agency (2012) Rapid Response Report 2012/RRR001 Harm from flushing of nasogastric tubes before confirmation of placement. NPSA London <http://www.nrls.npsa.nhs.uk/alerts/?entryid45=133441>
6. National Patient Safety Agency (2005) Patient safety alert 05: Reducing the harm caused by misplaced nasogastric tubes. National Patient Safety Agency February 21 NPSA, London <http://www.nrls.npsa.nhs.uk/resources/?Entryid45=56704>