University Hospitals of Leicester NHS
NHS Trust

Nasogastric and Orogastric Tubes in Adults UHL Policy

Policy and Procedures

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Trust Leads:	Charlotte Rubio, Clinical & Specialty Lead, Nutrition Support Team
Board Director Lead:	Chief Nurse & Medical Director
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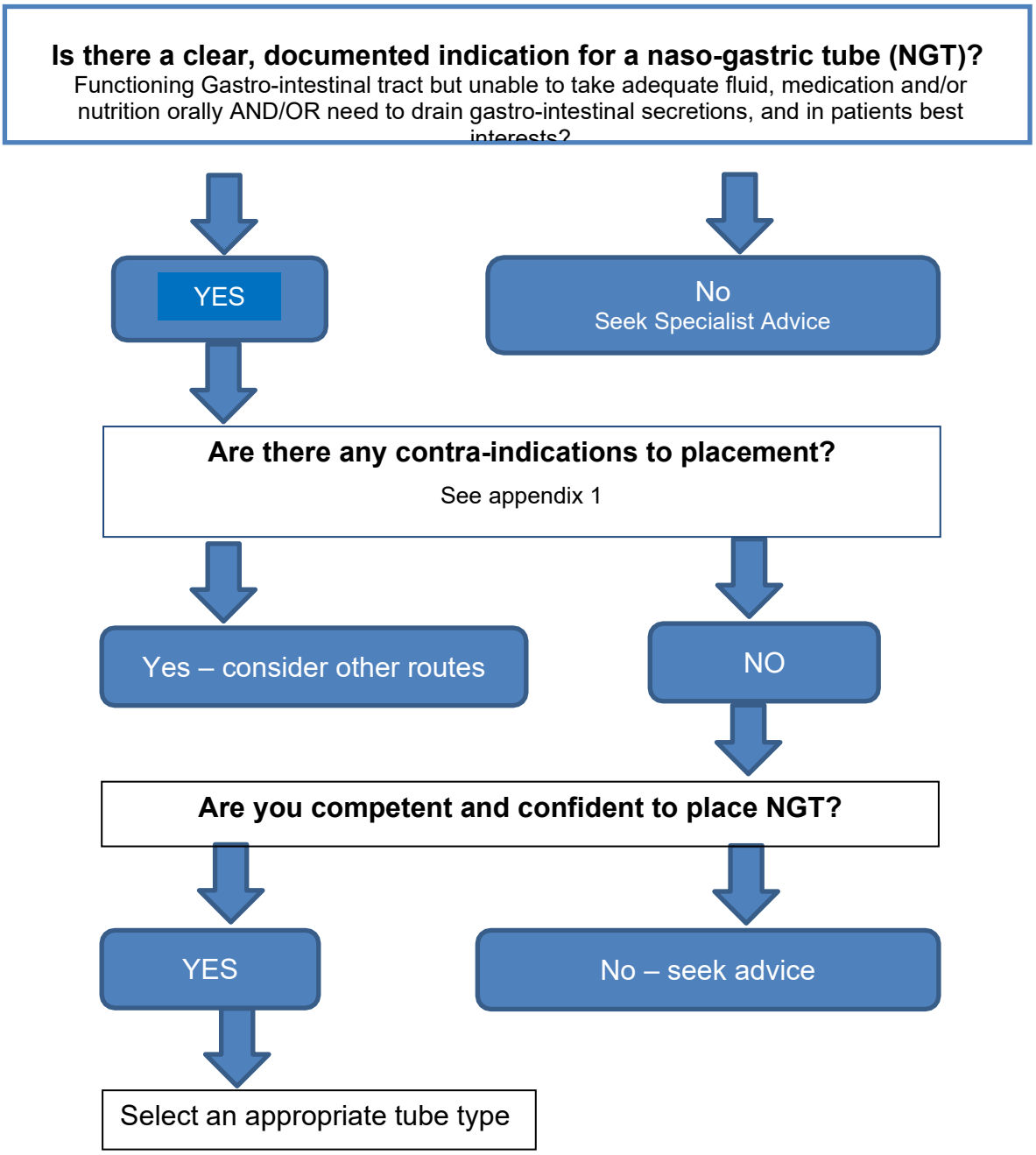
REVIEW DATES AND DETAILS OF CHANGES MADE DURING THE REVIEW

Version 9 i) updated to change name of trust lead, ii) removal of advice to refer to pharmacy policy, iii) change to wording in policy scope to reflect Paediatric policy. Iv) removal of recommendation to place sticker in patient notes, as now Nervecentre documentation is sufficient. v) Inclusion of Nursing associates who are now able to insert and care for patients with NG tubes.

KEY WORDS

NG, NGT, nasogastric, naso-gastric, enteral, feeding tube, Ryles tube, orogastric, fine- bore, drainage feeding tube, NEX

Policy Summary: Placement of a Nasogastric Tube in an Adult Patient



	Fine Bore	Combined Feeding and drainage tube	Ryles
Size	8FG / 92 cm	12 Fg, 14 FG 16 FG	10-18 FG
Use	First line tube for administration of enteral feeding, fluid and/or medication (except AICU)	Administration of enteral feeding, fluid/or medication where drainage may also be required. First line choice on AICU	Stomach aspiration and drainage of gastro-intestinal secretions Not to be used for enteral administration
Lifespan	28 days - 6 months	Up to 28 days	Up to 10 days
	Refer to manufacturers' guidance for product lifespan.		

DO NOT USE NGT TO ADMINISTER FLUID, NUTRITION OR MEDICATION UNTIL GASTRIC PLACEMENT HAS BEEN CONFIRMED AND DOCUMENTED ON NERVECENTRE

1. INTRODUCTION AND OVERVIEW

1.1 This document sets out the University Hospitals of Leicester (UHL) NHS Trust policy and procedures for the insertion of a nasogastric tube (NGT) and Orogastric Tubes, and confirmation of gastric placement prior to use for NGT used for the administration of enteral nutrition, fluid and/or medication.

1.2 A NGT passes through the nasal cavity, through the oesophagus, into the stomach.

1.3 A Orogastric tube passes via the mouth, through the oesophagus, into the stomach. Use of this type is uncommon. Tubes may also be placed via tracheoesophageal puncture (T.E.P.) (appendix 2).

1.4 Indications for Naso-Gastric Tube insertion:

a) When the gastro-intestinal tract is functional, accessible and safe to use for administration of enteral nutrition, fluid and/or medication.

b) For clinical conditions where drainage of gastro-intestinal secretions maybe required in addition to administration of enteral nutrition, fluid and/or medication, such as post gastrointestinal surgery and in critical care areas.

c) When drainage of gastro-intestinal secretions is required in a non- functioning gastro-intestinal tract, such as bowel obstruction, post-operative ileus.

d) To allow removal of air from the stomach when indicated.

1.5 Different types of NGT are used in clinical practice:

a) **Fine Bore NGT** used to provide enteral nutrition, fluid and/or medication. In line with national guidance NGTs used for administration must be radio-opaque along their entire length, be CE marked and have external visual length markings.

b) **Combined drainage feeding tubes** allowing drainage of gastro-intestinal secretions but also used to administer medication, fluid and/or enteral nutrition.

c) **Wide Bore NGT** Ryles tubes or equivalent used to drain gastro-intestinal secretions or aspirate air. These must not be used to administer medication, fluid or enteral nutrition.

1.6 Fine bore, combined feeding and drainage tubes and all equipment used to administer fluid, medication and enteral feed must be EnFit compliant (ISO 80369-3).

1.7 The majority of NGT are placed in ward clinical areas at the bedside. NGT are also inserted in theatre, radiology, endoscopy or with the use of a laryngoscope for direct vision. The insertion section of this policy relates to bedside placement of a NGT to be used for administration (appendix 1).

1.8 Prior to placement of a NGT an assessment must identify that use is appropriate for the patient, considering any **contra-indications** to placement (appendix 1). The rationale for any decision must be recorded in the patient's medical notes.

1.9 Elective NGT placement for administration of enteral nutrition, fluid and/or medication must be delayed if there is not sufficient experienced support available to accurately confirm gastric placement. Unless clinically urgent no elective NGT should be placed in night-time hours as this placement time

correlates with a greater risk of complications to patients due to reduced staffing numbers on duty overnight.

1.10 Nasogastric feeding is frequently used within UHL trust and many NGT are passed daily without incident. There is however a small risk of tubes being misplaced either during initial insertion or subsequently whilst in-situ. If misplacement does occur and is not recognised, potentially serious patient harm could occur.

1.11 Administration of enteral nutrition, fluid and/or medication via a misplaced NGT is a “never event”. There has been guidance available since 2005 from the National Patient Safety Agency (NPSA, 2005)(now NHS Improvement) to reduce this risk. UHL policy since this time has been based on these recommendations.

1.12 NGT **must not** be flushed with water, nor have any medication or enteral nutrition introduced to the NGT until gastric placement has been **confirmed**.

1.13 Initial gastric placement **must be** as follows:

a) First Line: **pH testing, with a pH of between 0 – 5.5 as the safe range.** Each test and test result must be recorded in the patient’s notes (If the pH is 5.0 or 5.5 this must be independently verified)(appendix 3).

b) Second Line: **Chest X-ray (CXR) should only be undertaken when no aspirate can be obtained or pH is not within the safe range,** and attempts have been made to resolve any difficulties (appendix 6). CXR should be used to confirm placement in Critical care areas (appendix 5).

1.14 Occasionally NGT are placed under direct placement e.g., in endoscopy, radiology, theatre or under direct vision with a laryngoscope so that the tube can be confirmed as in the stomach at the time of insertion. If the plan is to use the NGT for administration, the NGT type used must be EnFIT compliant. There is a risk of subsequent tube misplacement, especially when the guidewire is removed so gastric placement must be confirmed after guidewire removal.

1.15 If an electromagnetic tracking device is used to monitor the progress of a nasogastric tube during placement, pH of aspirate or x-ray must always be used as a final means of confirming tube position.

1.16 “Whoosh” tests, use of litmus paper, or the interpretation of the appearance of the aspirate or absence of respiratory distress **must never** be used to confirm NGT position as they are not reliable.

1.17 Placement and confirmation of initial placement must be documented. This should be completed on NerveCentre, which replaces paper medical notes and nursing documentation. In the event of NerveCentre being unavailable, documentation must be in medical notes.

1.18 There is a risk that a NGT can become misplaced whilst in use. Gastric placement must be r**econfirmed** by pH testing or CXR in the following circumstances:

a) Following episodes of vomiting, retching or coughing spasms or in the presence of any new, unexplained respiratory symptoms or reduction in oxygen saturations. NB the absence of respiratory distress does not rule out misplacement or migration.

b) If there is evidence of tube displacement externally. The length of NGT at the nose should be documented (using the externally visible length markings on the tube). The measurement should be checked prior to each use. If the measurement has increased by more than 2cm gastric placement must be re-confirmed.

c) Ideally whenever the NGT is to be used e.g., recommencing feed after a rest period, or administration of fluid/medication when enteral feed is not running. Therefore, if is recommended that gastric placement is confirmed by pH testing at least once in any 24hr period whilst a NGT remains in-situ, unless the patient is on continuous enteral feeds.

1.19 A minimum of 1 hour break from feeding/administration of medication is recommended before pH is rechecked as the presence of feed/medication in the stomach can alter the pH reading.

1.20 For repeated placement checks there must be a balance in situations where it is not possible to gain an aspirate in the safe range (pH 0 -5.5) and all attempts have been made to gain an aspirate (see appendix 3), to avoid frequent exposure to radiation. Senior advice should be sought (primary consultant or Leicester Intestinal Failure Team Nutrition Nurses/Consultant (LIFT).

1.21 In critical care areas patients are frequently given naso-gastric feeds continuously. Gastric pH may be altered due to the use of protein pump inhibitors/H2 antagonists or the presence of NG feeds in the stomach. Daily pH testing whilst NG feed is running is not recommended. Guidance of reconfirming gastric position using the external markings of the tube at the nostril and situations where a further CXR is required is given (see appendix 5 & 7).

1.22 Nasal retention devices used to secure the NGT must only be inserted and managed as per trust policy (Ref B21/2018).

1.23 This policy does not provide guidance on enteral feeding regimens or administration of feed or medication. Patients who require enteral nutrition support must be referred to the ward/area Dietitian on ICE for assessment and a feeding regimen.

2 POLICY SCOPE

2.1 This Policy applies to all registered healthcare staff, including registered nursing associates, who insert a NGT or confirm gastric placement and all registered, non-registered and pre-registration professional who care for patients with a NGT insitu.

2.2 This policy applies to pre-registration student nurses, trainee nursing associates and midwives caring for these patients whilst under the supervision of their mentor / assessor.

2.3 This Policy applies to patients and informal carers i.e. those individuals who have received appropriate training by a competent qualified practitioner, to care for a NGT. The training and associated records are kept by the Home Enteral Nutrition Service (HENS).

2.4 Patients may be transferred out of UHL NHS Trust with a NGT insitu. Post discharge the responsibility of ongoing care-planning moving forward lies with the provider Trust.

2.5 This Policy sets out the procedure for the safe insertion, assessment and ongoing care of nasogastric tubes in adults. This relates to all patients over the age of 16 cared for in an adult setting. For patients aged over 16 but cared for in a paediatric setting, please refer to policy B54/2017 Insertion and management of Nasogastric tubes in Neonates, Infants, Children and Young People.

3 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

Enteral Nutrition (EN): The delivery of nutrition via the gastrointestinal tract involving an enteral feeding tube.

Home Enteral Nutrition Service (**HENS)**: Community Dietitians (Leicestershire Partnership Trust) who support patients at home receiving enteral tube feeding.

Leicestershire Intestinal Failure Team (LIFT): Nutrition Support team (Nutrition Specialist Nurses, Specialist Dietitians) supported by Gastroenterology Consultants, Consultant Chemical Pathologist, Microbiology and Pharmacists.

Nasogastric tube (NGT): A tube passed through the nose into the stomach.

Nasojejunal Tube (NJT): A tube passed through the nose into the stomach and then advanced into the small bowel, to allow post-pyloric feeding.

Orogastric: the passage of an orogastric tube via the mouth into the stomach

3.2 Abbreviations

CMG: Clinical Management Group

CXR: Chest x-ray

ENT: Ear, nose, throat

LCAT: Leicester Competency Assessment Template

LocSSIP: Local Safety Standard for Invasive Procedure

NPSA: National patient safety agency

NSN: Nutrition Specialist Nurse

TEP: Tracheoesophageal Puncture

4 ROLES AND RESPONSIBILITIES

4.1 The **Executive Leads** are the Chief Nurse and Medical Director.

4.2 **CMG Heads of Nursing, Deputy Heads of Nursing and Matrons alongside Head of Service** are responsible for ensuring CMG clinical teams are trained and competent and are aware and familiar with this policy.

4.3 **Medical Staff / Competent Clinician is responsible for**;

a) Identifying suitable patients for NGT insertion and referring on those that are not suitable to appropriate teams, such as Nutrition Nurse Specialists.

b) Where enteral nutrition is being considered, ensuring the decision to commence NGT feeding is based on the patient's nutritional status and goals of overall therapy. The rationale must be documented in the medical notes as is Trust practice as advised by the NHS Improvement (formally the NPSA).

c) Ensuring they can demonstrate competency in the insertion of a NGT, confirmation of gastric placement by pH testing and interpretation of x-ray. If applicable they should complete specific MaxFax training and assessment

as identified by their education lead to ensure competency in passing NGT on adult patients with certain Maxillo-facial disorders.

d) Ensuring that the NGT for administration is not used unless gastric placement is confirmed by completion of the NerveCentre module.

e) Ensuring that when requesting a X-ray for NGT gastric placement this policy is adhered to.

f) Delaying the placement of an elective NGT for administration of enteral nutrition if requested out of hours and there is not sufficient experienced support available to accurately confirm gastric position at ward level.

g) Ensuring that they have completed the essential to role training "Chest X-Ray Interpretation of Nasogastric Tube Position" on HELM.

4.4 Radiologists/ Radiology Advanced Practitioners;

When the Radiologist/ Radiology Advanced Practitioner reports the placement film, he or she must document the position of the NGT following this policy.

4.5 Heads and Deputy Heads of Nursing and Matrons are responsible for ensuring adequate staffing levels of competent nurses within their clinical areas to insert and care of a patient receiving enteral nutrition.

4.6 Ward Sisters / Charge Nurses are responsible for ensuring development on the ward or unit of appropriate numbers of competent staff and responsible for on-going monitoring that staff are maintaining competency.

4.7 Leicester Intestinal Failure Team (LIFT) is a multidisciplinary team consisting of Consultants, Dietitians, Nutrition Nurse Specialists and Pharmacists responsible for offering expert advice on the care and management of patients requiring all forms of artificial nutrition, including via a NGT.

It is the responsibility of the UHL Chief Executive that the LIFT team exists within UHL. This responsibility is delegated to the, Head of Nursing CSI and Head of Service for CSI and CHUGGS.

4.8 Nutrition Specialist Nurses (NSN) are responsible for providing

a) expert advice, support and clinical input on an individual patient basis to patients requiring enteral nutrition, medication or fluids via a NGT, in line with this policy.

b) Education and training to ensure nursing staff caring for patients with NGT can demonstrate and maintain competency.

4.9 Registered Nurses / Registered Nursing Associates / Midwives

a) Are responsible for the individual care of patients with a NGT, ensuring that the care they provide to these patient groups is in line with UHL policies and procedures.

b) Ensuring they can demonstrate competency in the insertion of a NGT, and confirmation of gastric placement by pH testing.

c) To liaise with the NSN if there are problems or questions relating to NGT.

d) In the event that a patient requires EN and the ward is not familiar / competent with the care of the EN patient the nurse is responsible for escalating this as an incident to the senior nurses in the Clinical management Group.

e) Passing an NGT on adult patients with certain Maxillo-facial disorders only after specific MaxFax training and assessment to ensure competency as provided by their educational lead.

f) Ensuring that all steps in placement of a tube; and checking of tube placement are documented using the NerveCentre module.

g) Ensuring that a tube is not used for feeding or administration of drugs until placement is confirmed and documented on the NerveCentre module.

4.10 Radiographers are responsible for;

a) Taking a x-ray to ensure the length of the tube can be viewed as per this policy (appendix 4)

b) Ensuring they can demonstrate competency around confirmation of gastric placement by x-ray.

c) Ensuring that all external lines are placed outside of the expected course of the tube so as to avoid confusion by artefacts mimicking a nasogastric tube.

4.11 Ward / area Nutrition Link Nurse / LCAT Assessor are responsible for

a) the competency assessment of nursing staff in their area for NGT insertion and confirmation of gastric placement by pH testing.

4.12 Student Nurses / Trainee Nursing Associates / Student Midwives are responsible for reporting any patient changes or problems with the NGT to the Registered Nurse. Trainee Nursing Associates and pre-registration student nurses / midwives are only performing this task under the direct supervision of a Registered Practitioner as part of their training programme

4.13 Health Care Assistants are responsible for reporting any patient changes or problems with a NGT to the Registered Nurse. HCAs must not aspirate NG Tubes.

4.14 Informal Carers are responsible for reporting appropriate training overseen by a competent Registered Practitioner. For patients being discharged from UHL this is normally undertaken by the Home Enteral Nutrition Service (HENS).

5. POLICY IMPLEMENTATION AND ASSOCIATED DOCUMENTS

5.1 This Policy is supported by the following procedures and information attached as appendices

No.	**Appendices**	
1	**Procedure for the Insertion and Removal of a Naso-Gastric Tube in an Adult Patient**	14
2	**Insertion of a Nasogastric Tube via a Tracheoesophageal Puncture (T.E.P.) site**	18
3	**Confirmation of Gastric Placement by pH testing of aspirate obtained**	19
4	**Confirmation of Gastric Placement by interpretation of a X-ray**	21
5	**Confirmation of gastric placement. For use in critical care units only**	24
6	**Confirmation of Nasogastric Tube position: Trouble shooting guide**	25
7	**Ongoing confirmation of gastric placement of a NGT**	26
8	**Documentation of NGT placement and initial confirmation of gastric placement**	27
9	**Naso-gastric Tube Care Plan**	30

5.2 This policy is supported by the following associated procedures for Adult patients which must be used in conjunction with this policy:

Policy	Trust Reference
Gastrostomy Jejunostomy Tube Policy	B2/2012
Nasal Retention Devices Policy	B21/2018
Guideline for Commencing out of hours enteral tube feeding (Nasogastric) in Adult Inpatients (including Management of Refeeding Syndrome	B55/2006
Mental Capacity Act UHL Policy	B23/2007
The Deprivation of Liberty Safeguards (DOLS) Policy & Procedures	B15/2009
Nasogastric Tube Insertion & Placement Confirmation Standard Operating Procedure UHL Adult Intensive Care LocSSIP	TBC

6 EDUCATION AND TRAINING REQUIREMENTS

6.1 It is the responsibility for all UHL staff involved in the insertion and post-insertion care of NGT to maintain competence and skills. Any education or training issues should be highlighted at appraisal and addressed through the personal development plan.

6.2 It is the responsibility for all community carer/s involved in the post-insertion care of enteral feeding tubes to ensure they are competent.

6.3 All registered nursing staff must demonstrate competency by completing training on HELM (search “Insertion and Care of Naso-Gastric Tubes in Adults). Those who insert NGT must demonstrate competency be being LCAT assessed (on a manikin or in clinical practice). Local LCAT assessor or the Nutrition Specialist Nurse team can support this.

6.4 It is the responsibility for all medical staff working in clinical areas, to ensure that they can demonstrate competency. HELM training is essential to role and should be completed to support this (search “Chest X-Ray Interpretation of Nasogastric Tube Position”). Trainee Practitioners identifying training needs regarding tip placement confirmation of NGT in Radiology should flag up needs with their Educational Supervisor, Consultant staff, or their appraiser.

7 PROCESS FOR MONITORING COMPLIANCE

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements
This policy is followed in relation to NG tube insertion	Clinical Lead Nutrition Support Team	Annual Prevalence Survey	Annually	UHL Nutrition & Hydration Committee
Gastric placement is confirmed prior to initial use	Clinical Lead NST/Imaging	Annual Prevalence Survey	Annually	UHL Nutrition & Hydration Committee
All healthcare professionals are competency assessed	Clinical Lead NST (nursing) Imaging (Medical)	HELM reports	Annually	UHL Nutrition &Hydration Committee
Review Datix incidents for cases of harm or near misses	Clinical Lead Nutrition Support Team	DATIX	6 Monthly	UHL Nutrition &Hydration Committee

8 EQUALITY IMPACT ASSESSMENT

8.1 The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs.

8.2 As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.

9 SUPPORTING REFERENCES, EVIDENCE BASE AND RELATED POLICIES

British Association for Parenteral and Enteral Nutrition. (BAPEN) Aide-memoire: Nasogastric tube (NGT) placement checks before first use in critical care settings during the COVID-19 response. 2020. **https://www.bapen.org.uk/pdfs/covid-19/aide-memoire-ngt-placement-13-05-20.pdf**

National Institute for Health and Clinical Excellence (NICE) guidance: Nutrition Support for Adults, Feb 2006

National Nurses Nutrition Group 2016. Good Practice guideline - Safe Insertion and Ongoing Care of Nasogastric (NG) Feeding Tubes in Adults. http://www.nnng.org.uk

NHS Improvement. 2016 Initial placement checks for nasogastric and orogastric tubes: resource check **https://improvement.nhs.uk/resources/resource-set-initial-placement-checks-nasogastric-and-orogastric-tubes/**

10 PROCESS FOR VERSION CONTROL, DOCUMENT ARCHIVING AND REVIEW

10.1 The updated version of the Policy will be uploaded and available through INsite Documents and the Trust's externally accessible Freedom of Information publication scheme. It will be archived through the Trusts SharePoint system

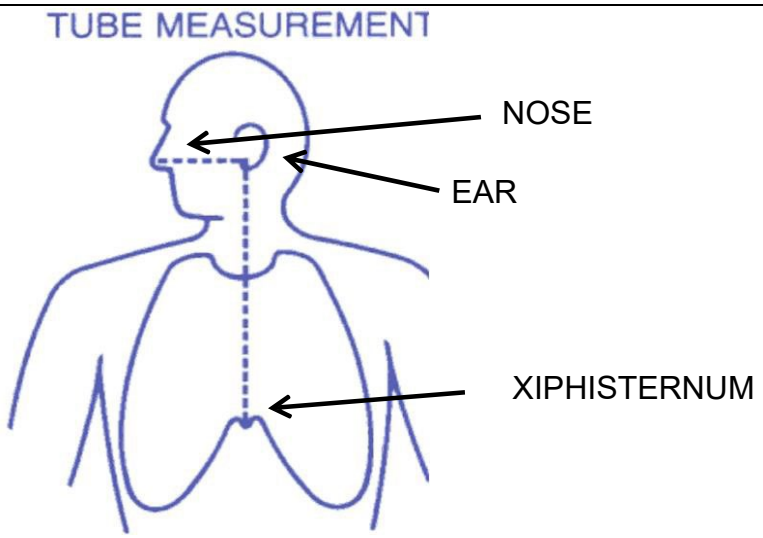
10.3 This Policy will be reviewed every three years or sooner in response to clinical risks /incidents identified.

Introduction and Scope

This procedure is used to insert a NGT into an adult patient in a ward or department area and can be undertaken by staff, patient or carers competent and confident to do so.

1	**Patient selection** The patients' primary consultant is responsible for identifying suitable patients for NGT insertion**.** The rationale for the decision to place a NGT must be clearly documented in the patients' medical notes acknowledging patient informed consent or best interests' decision (see 4)
2	**Confirm if there are any contra-indications / cautions to routine placement.** If the NGT is to be used for administration of enteral nutrition, fluids and medication the medical team must confirm that the patient's gastrointestinal tract is functioning. A large bore drainage NG tube should not be placed if the patient has ingested corrosive material. In the following circumstances, **medical staff should** confirm NGT placement is appropriate **i.** Base of skull fracture **ii.** Maxillo-facial/ENT disorder including, mechanical obstruction of the nasal airway, nasal trauma or ulceration, facial fractures, anterior cranial fractures, recent severe bleeding from the nose, pharyngeal pouch. Seek advice from specialist maxilla-facial or ENT teams as required. An Orogastric tube may be required **iii.** Oesophageal disorders including, tumours, strictures and bleeding varices. **iv.** Oesophageal gastric surgery including Oesophagectomy **v.** Unstable Cervical Spinal Injuries (Involving verterbrae 4 or above). **vi.** Abnormal Coagulation. If platelets <50, INR and/or aptt >1.5 discuss with medical or haematology teams. Apply caution in patients on therapeutic anticoagulation. For patients with inherited or acquired coagulation abnormalities, suggest discussion with haematology team or haemostasis team. Medical placement may be required rather than nurse placement. Further specialist advice may also be required. For example, imaging if the NGT requires placement under radiological guidance. In critical care areas NGT placement should be limited to medical staff or Advance Critical Care Practitioners only (see appendix 5)
3	**Gather equipment required** a) Apron b) Clinical waste bag (household waste bag in the community setting) c) Cleaned receiver / tissues d) Nasogastric tube of appropriate size e) Clear type dressing (to secure to cheek) f) Glass of water and straw (if patient has intact swallow) g) Sterile single EnFit enteral syringe h) pH paper 0-6 range i) Disposable gloves (NB check allergy status of patient, inserter and assistant) j) Alcohol hand rub k) Sharps bin for fine bore nasogastric tube guidewire (if appropriate) l) Sterile water – labelled with time and date of opening - to flush the tube after aspiration and

	confirmation of gastric placement.
4	**Check patients' ability to consent to the procedure** The practitioner inserting the NGT should discuss the rationale for its use with the patient and give a full explanation of the procedure. Verbal consent must be obtained and documented in the medical notes. If there is a question about the patient's ability to give informed consent the managing clinical team are required to complete a mental capacity assessment. If the patient lacks capacity, the team are required to to make a formal best interest decision and document this appropriately in the patients' medical notes. This must be discussed with the patient's family or representative. If the person is unfriended and has no-one appropriate to consult with (other than paid carers) then an IMCA must be instructed and consulted. Refer to UHL Mental Capacity Act Policy (Trust Ref B23/2007).
5	**Explain the procedure to the patient (and/or carer)** This should include clear information about the procedure and potential risks and complications associated with it. The following risks should be included in the discussion, balanced with the risks of not placing a NGT • Nasal discomfort and possible retching during NGT insertion. • Accidental placement of the NGT in the lung which could result in pneumothorax, pleural effusion or chest infection (even if nothing is administered down the tube) • Oesophageal perforation
6	**Arrange a signal** by which the patient can communicate if he/she wants to stop e.g., raising a hand.
7	The patient should be monitored closely throughout the procedure by nursing staff. Ideally 2 members of staff should be present. One to insert the NGT and one to assist.
8	The procedure should be carried out in a clinical area which has access to emergency equipment in full working order (in the acute setting).
9	**Clean hands**. Wash hands with soap and water, rinse and dry well and apply alcohol hand rub. Put on gloves and apron.
10	**Selection type of NGT** depending on the indication for NGT placement Fine bore NGT – dip the tip of the tube into sterile water to activate lubricant **NB ***DO NOT flush tube with water before insertion or checking gastric positioning.** Ryles drainage tubes - use aqueous jelly as a lubricant on the outside of the tube only. Aqueous jelly is alkaline and will alter the pH test of the gastric aspirate if inside the tube.
11	**Guidewire:** where a guidewire is present ensure that it moves freely within the tube, that it is not kinked or protruding from the end.
12	**Assist** adult patient to sit as upright as possible. Note: the head should not be tilted backwards. Their chin should be tilted on to the chest. If patient is unconscious and if sensible lay the patient on their left side.
13	**Measure the NEX (Nose, Ear, Xiphisternum)** This will give an indication to the require NGT length, which is normally between 50 – 60cm long for nasal passed tubes (NB TEP will be approximately 25-40cm) It has been suggested NEX measure leaves the tube 10cm long (Taylor 2014) and UHL NSN have found the average length of an NG tube to reach gastric aspirate is 54 cm long. UHL supports passing the NGT to NEX measurement

	
14	Check that the nostrils are clean and if needed ask the patient to blow their nose first. If the patient has an unsafe swallow, carry out mouth care prior to inserting the tube to stop the tube sticking to the dry mucosa at the back of the throat.
15	Ask the patient which nostril they prefer and insert the tube into this. Slide it along the floor of the nasal cavity towards the back of the head to the nasopharynx. Aim to reach 12 cm and get over the bumps at the back of the nasopharynx then stop to let the patient get their breath and be calm. If any obstruction is felt, withdraw the tube a cm or two. Try again in a slightly different direction or use the other nostril.
16	**Patient with a safe swallow** - Explain to the patient that they should take a drink and hold this in their mouth and on the count of 3 as they swallow you will progress the tube down their throat. Ask them to tilt their chin forward and swallow water via a straw. As the epiglottis moves up advance the NG tube. **Patient requiring modified consistency oral fluids** - Explain to the patient that they should take a spoon of thickened fluid and as they swallow you will progress the tube down their throat as the epiglottis moves up advance the NG tube. **Nil by mouth patients** - Ask them to tilt their chin forward and try to swallow on the count of 3. As the epiglottis moves up advance the NG tube.
17	Advance the tube as the patient swallows until the desired length. Use NEX measurement
18	If an electromagnetic tracking device is used to monitor the progress of a nasogastric tube during placement, pH of aspirate or x-ray should always be used as a final means of confirming tube position.
19	If the patient shows signs of deep distress e.g. respiratory, pain in their ear(s) or cyanosis, remove the tube immediately.
20	**Nasogastric tubes must not be flushed, nor any enteral nutrition or medication introduced through the tube following initial placement, until gastric placement is confirmed** (appendix 3 & 4)
21	**Remove the guidewire** If the guidewire is stuck and cannot be removed the tip of the tube is curled and misplaced. Pull back the tube to 25-30 cm long and reinsert. You do not need to remove the entire tube as the nasal cannulation is the most distressing part for the patient. Repeat process from No 17
22	**Securing the Tube** **Do not secure the NGT whilst pH testing is being performed.** This allows the tube to be moved

	between 50 – 60 cm to track aspirate. Before securing the tube to the nostril and cheek, consider cleaning the skin with alcohol wipe to remove grease from the skin and increase adherence of the dressing / tape**.** The tube can be secured to the nostril and side of the face by a clear hypoallergenic adherent dressing and looped over the ear. Care should be taken when securing the tube, making sure that it is well adhered but not causing pressure on the nostril. Localised cyanosis and necrosis can occur if blood flow is impaired.
23	**Document insertion and confirmation of gastric placement**, using the NerveCentre Module
24	Clinical waste must be disposed of in orange waste bags or sharp bins in accordance with trust policy.
25	Length of time NGT can remain insitu Ensure manufacture recommendations are followed
26	**Potential complications** should be monitored for daily. These may include: • Bleeding • Soreness • Ulceration visible in the nasal cavity • Coughing / vomiting blood-stained fluid • Awareness of increase in swallowing action, predominantly in a recumbent position, which may indicate postnasal bleed due to tube trauma. • Skin integrity compromised by adhesive or tube pressure. • Vomiting of blood – may indicate gastric ulceration caused by pressure from the tip of the tube in the stomach. ***The Nasal Mucosa Close to the NGT must be checked for sore areas and erosions at least twice daily*** Medical staff should be informed by the qualified nurse looking after the patient if any of these symptoms are present
27	**NGT Removal** Explain the procedure to the patient and obtain their informed verbal consent Provide tissues for the patient to clean or blow their nose after removal of the tube Clean hands and put gloves and apron on Take off the fixation tape and gently withdraw the tube through the nostril. Ensure the NGT is intact and document removal, using the NerveCentre module. If a patient frequently misplaces/removes the NGT but lacks the capacity to understand the consequences (and this is documented using a UHL Mental Capacity Assessment), methods to reduce the risk removal should be considered. See Trust Nasal Retention Policy (REF B21/2018)

Introduction and Scope

This procedure is used to insert a feeding tube via a TEP, usually in patients who have undergone ENT surgery. This can be undertaken by staff competent and confident to do so. If any fistulas are suspected in or around the laryngectomy stoma, passing the tube should be undertaken by medical staff.

The role of the tube is to administer nutrition, fluid and/or medication and the maintain patency of the tract. Therefore, a tube must always be insitu. If the tube is misplaced/falls our immediate/prompt re- insertion is imperative to maintain the tract

Normally 12FG or 14FG tubes are used for T.E.P without voice prosthesis / valve. If for administration of feed, fluids and/or medications a combined feeding drainage tube should be inserted. The tube can be moved from side to side daily to encourage a uniform shaped T.E.P

If a tube is required via a T.E.P with voice prosthesis/value, the value maintain patency so a fine bore feeding tube is preferred.

1	**Insertion of the tube** A good light source is required in order to see T.E.P clearly Use a small amount of lubricant on the outside of the tube Measure the length of the tube from the T.E.P site to the xiphisternum
2	**Confirm gastric placement by pH testing (appendix 3).** Whilst the tube cannot be in the lungs this will confirm the tube is in the stomach rather than the oesophagus. Once gastric placement is initially confirmed, confirm the external tube marking. In terms of repeat confirmation of gastric position, the external markings must be the confirmed as the same before subsequent tube use. If the tube marking changes by more than 2cm gastric placement should be reconfirmed prior to administration of nutrition, fluid or medication using pH or x-ray.

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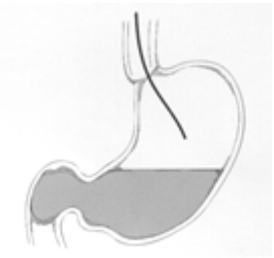
Introduction and Scope

This procedure is used to confirm gastric placement of a NGT and can be undertaken by staff, patient or carers competent and confident to do so. Use of pH testing to confirm gastric placement of a NGT should be first line (outside of critical care areas). A NGT should never be used for administration until gastric placement has been confirmed and documented.

1	**Equipment Required** • pH testing strips 0 – 6 CE marked • 50ml EnFIT Enteral Syringe • Clean tray
2	**Obtain an aspirate and confirm pH** Attach syringe to NGT Aspirate a sample of fluid with gentle suction Place the aspirate onto pH strip in the clean tray and check the pH
3	**If unable to obtain an aspirate do the following:** **No air / Aspirate** **1, Check the length of the NG tube (at the nose using the external markers)**  Too Short. 35 – 45cm. Advance the NGT to 60cm and then withdraw tube at 1cm intervals, checking aspirate until fluid obtained.  Too Long. 65cm or more – Withdraw tube at 1cm intervals and aspirate until fluid obtained  Place the patient in the left lateral position so tip can drop into fluid pool, then try to aspirate.If the patient is not NBM or with dysphagia, ask them to drink and retest aspirate

	 NGT occluded on gastric mucosa – inject 30ml air down NGT to push it away, then aspirate **If pH 6.0** Check tube length (may be too long and through pylorus into small bowel). Patient may be on a PPI. Wait and check aspirate just before next dose is due. If patient not NBM or with dysphagia give an acidic drink and recheck If the patient has repatriated to UHL with a NGT insitu that does not have visible tube markings or are radio-opaque it should be removed, replaced and an attempt to aspirate the new NGT prior to sending the patient for an x-ray.
4	**If the aspirate pH is 0 – 5.5 the NGT can be used (however if the reading is 5.0 or 5.5 this must be independently checked by two qualified clinicians (nurse plus nurse or doctor) before the NGT is used**
5	**If the pH is >5.5 (reading of 6 on 0 – 6.0 pH indicator strips) then the NGT cannot be used at that point** NB Bronchial secretions give a pH of >6 **Check for pH altering medication and when last dose was given.** If may be necessary to alter this so that NGT position is being checked outside of the therapeutic window i.e., for a patient on a 12hr overnight feed. Confirm gastric placement before enteral feed start time, giving proton pump inhibitor before feed once daily. If patients swallow is intact and patient has a safe swallow or is not NBM give acidic drink i.e., Pineapple/orange juice. Retry after 10 minutes. Some medication affects the pH level of gastric aspirate; acidic drinks provide a short-term re-acidification of gastric aspirate allowing gastric confirmation. **If unable to obtain an aspirate or pH is >5.5 DO NOT USED THE TUBE. Proceed to second line check (appendix 4)**
6	**Document using the NerveCentre module.**

Introduction and Scope

This procedure is used to confirm gastric placement of a NGT by chest X-ray (CXR) and can be undertaken by staff assessed as competent to do so.

<table>
<tr><td></td><td>Requesting a X-ray to confirm gastric placement of a NGT</td></tr>
<tr><td>1</td><td>Indication:

Critical Care/Theatres:
<table>
<tr><td>INITIAL PLACEMENT
X-ray should be performed for all placements</td><td>REPEATED PLACEMENT CHECKS
Only if
• Evidence of NGT displacement externally
• New respiratory symptoms unexplained by other factors
• Episodes of vomiting / retching
• Procedures involving instrumentation of the oesophagus i.e., TOE</td></tr>
</table>

All other clinical areas:
<table>
<tr><td>INITIAL PLACEMENT

An X-ray must only be taken to confirm gastric placement if a gastric aspirate is unobtainable or if a gastric aspirate has a pH above 5.5 and subsequent measures have been taken to gain an aspirate in the safe range (appendix 3).</td><td>REPEATED PLACEMENT CHECKS
If unable to gain an aspirate in the safe range and
• Evidence of NGT displacement externally
• Following episodes of vomiting, retching or coughing spasms or in the presence of any new, <u>unexplained</u> respiratory symptoms or reduction in oxygen saturations. NB the absence of respiratory distress does not rule out misplacement or migration.

It is recommended that there is a daily reconfirmation of gastric placement but where it is not possible to gain an aspirate, there must be a balance to avoid frequent exposure to radiation. Senior advice should be sought (primary consultant or Leicester Intestinal Failure Team Nutrition Nurses/Consultant).</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>The guidewire must be removed from the NG tube to demonstrate the tip is not curled. Any patient presenting for CXR with a wire in situ will be sent back to the ward without a CXR being undertaken. If the guidewire cannot be removed then there is no need for a x-ray as the NGT cannot be used.

The exception to this is Covid-19 positive patients who have fine bore feeding tubes placed. If it is anticipated that dense infiltrates on the CXR will make interpretation difficult then the guidewire should remain insitu until after the x-ray to aid interpretation of the x-ray. Care must</td></tr>
</table>

	be taken when removing the guidewire (see https://www.bapen.org.uk/pdfs/covid-19/aide-memoire-ngt-placement-13-05-20.pdf) If the patient has repatriated to UHL with a NGT insitu that does not have visible tube markings or is not radio-opaque it should be removed, replaced and an attempt to aspirate the new NGT made prior to requesting a x-ray.
3	The X-ray request must clearly state that the purpose of the X-ray is to establish the position of the NGT for the purpose of feeding, administration of medication and fluids. The Nervecentre NGT assessment tool must be complete prior to placing x-ray requests. It is mandatory that the medical staff responsible for the patient be able to provide the radiographer with external NGT length at the nostril. This will be between 50 – 60cm in most cases. If the NGT length is <50cm or >60cm a rationale should be given for why this length is felt to be appropriate (for example: previous radiology indicating this is the optimal position, very altered anatomy). Failure to do this may result in the CXR request being rejected.
4	If a x-ray is requested to confirm NGT position but the NGT is subsequently removed or changed the relevant imaging department should be informed so the procedure is not performed unnecessarily.

	X-Ray Procedure
1	Night-time x-ray requests outside of critical care are to be discouraged as placement of a NGT for administration of feed, fluid and medication is rarely urgent.
2	Exposure of the x-ray should be adequate to ensure the tube can be seen clearly, allowing the NGT to be visible to the bottom of the film. The film is centred lower than would normally be appropriate for a chest x-ray so that it shows the abdomen as far as possible below the diaphragm. The x-ray film must show the bottom of both hemi-diaphragms in the midline. X-rays that are not taken as described above will not allow accurate interpretation of nasogastric tube placement and should not be made available for viewing on the PACS System.

	Interpretation of X-ray

1	The CXR will not be reviewed by a radiologist immediately and may not be for periods up to a week. Therefore, a competent clinician should review the radiograph at ward level. This should be a Consultant or ST3 or above only
	
	Documentation of X-ray result must be made using the NerveCentre module and include.
	• Confirmation that any x-ray viewed was the most current x-ray for the correct patient
	• The person who authorised the x-ray
	• The four criteria for confirming gastric placement were used:
	  ○ Does the tube path follow the oesophagus/avoid the contours of the bronchi
	  ○ Does the tube clearly bisect the carina or the bronchi
	  ○ Does the tube cross the diaphragm in the midline?

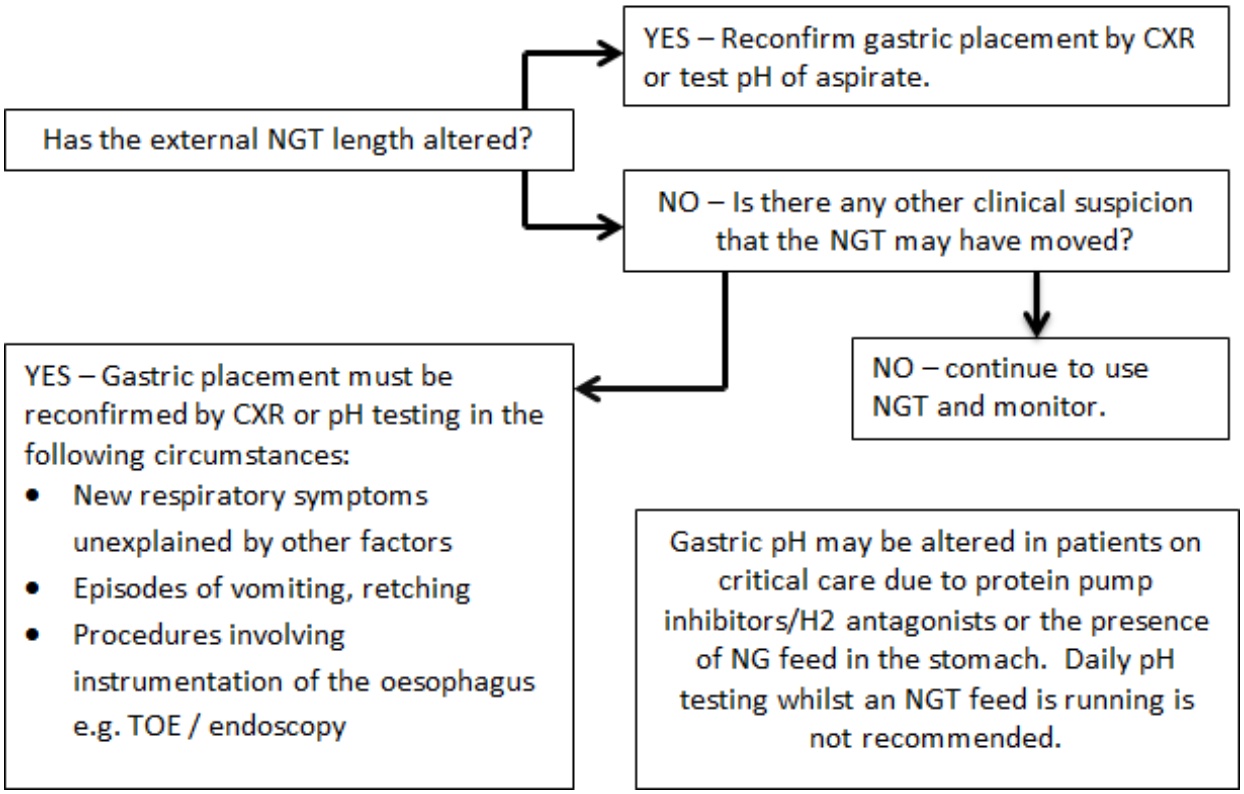
	○ Is the tip clearly visible below the left hemi-diaphragm? • Give clear instructions as to whether it is safe to feed or other actions required. If ward/unit medical staff, they are unable to confirm gastric placement using the criteria above they should contact the plain film hot reporting hub. Outside of this time they should contact the 24hour on-call radiologist, for an immediate report or expert advice.
2	Any tubes identified to be in the lung should be removed immediately, whether in the Radiology department or clinical area. If the NGT cannot be removed and the patient returns to the ward it is vital that the NGT is clearly marked, detailing not to use the tube e.g., the end of the tube is wrapped in tape which has written on it “Do not use: Not in correct position”. The patients nursing and medical team must be informed that the NGT cannot be used, and it requires immediate removal.

Placement of Nasogastric tube (combined feeding & drainage tube first line option)	All patients: Medic or Advanced Critical Care Practitioner only
Initial confirmation of gastric placement in a newly placed NGT	Confirm gastric placement by X-ray Do not administer anything down the NGT until gastric placement has been confirmed and documented on NerveCentre or NG tube Insertion LocSSIP. Document the external length of the tube at time of X-Ray
Repeated checks to reconfirm gastric placement	There is a risk a NGT can become displaced whilst in use. Guidance below must be followed.

REPEATED CHECKS TO RECONFIRM GASTIC PLACEMENT OF A NGT

EXTERNAL LENGTH OF THE NGT AT NOSTRIL

- Confirm the external length twice daily. This should be documented on the ITU chart.
- Before using the NGT to administer feed, fluid or medication check external tube length is the same.



Hospital No.: Surname: Forename:

NASOGASTRIC FEEDING - ADULT

Check guidewire is mobile within the finebore NG tube. Insert NG tube as per UHL policy (Ref B39/2005). Guidewire should be removed after insertion if free running.
DO NOT instil water until gastric placement is confirmed

Using a 50ml enteral ENFit syringe aspirate gastric contents slowly

No aspirate
Check all ports are sealed

Check tube length: 50 – 60cm. Advance to 60cm at nostril.
Withdraw every 2cm until aspirate is gained.

No aspirate

If swallow intact and patient not NBM, ask the patient to drink.

No aspirate

Flush the tube with AIR as this may move the tube away from the stomach wall.
Re-aspirate (initial placement only)

No aspirate

Reposition patient onto their left side

Still unable to get aspirate?

Gastric aspirate gained

Test with CE marked pH paper

Confirmed pH 0 - 4.5, tube can be used

pH above 5.5

If swallow intact and patient not NBM, ask the patient to have an acidic drink

Consider retrying after 30 minutes **(once only)**

pH above 5.5

Chest X-ray to confirm gastric placement
Documentation to include position of tube and if safe to use for feeding. Using 4 criteria

Either remove and re-pass tube or X-ray

If pH 5.0 - 5.5 confirm reading is 5.0 - 5.5 with an independant check

pH above 5.5
Request X-ray confirming gastric placement
Place NG insertion sticker in medical notes for each insertion.

Flush tube with sterile water

Document in NG care plan and commence feed

AIR BUT NO ASPIRATE: check the tube length and adjust

NO AIR OR ASPIRATE: check the tube length

NOT MUCH FLUID IN THE STOMACH: Place the patient in the left lateral position then aspirate. Ask patient to take a drink if not NBM or with dysphagia

TUBE OCCLUDED ON MUCOSA: Install 20ml air (first placement only)

There is a risk that a NGT can become misplaced whilst in use. Gastric placement must be **confirmed**:

d) Before administration of feed, fluid or medication if feeding is not in progress (for example after a 4-hour rest period when feeding is to recommence).

e) Following episodes of vomiting, retching or coughing spasms or in the presence of any new, unexplained respiratory symptoms or reduction in oxygen saturations NB the absence of respiratory distress does not rule out misplacement or migration.

f) If there is evidence of tube displacement externally. The length of NGT at the nose should be documented (using the externally visible length markings on the tube). The measurement should be checked before, every time, the NGT is used. If the measurement has changed by more than 2cm gastric placement must be re-confirmed by pH testing or CXR.

Therefore, it is recommended that gastric placement is confirmed at least once in any 24hr period whilst a NGT remains in-situ.

If the patient is on continuous enteral feed, such as those often fed in critical care areas, the external markers must be checked every time the NGT is accessed. Gastric placement must be reconfirmed by X-Ray or pH testing in the following circumstances:

- New respiratory symptoms unexplained by other factors
- Episodes of vomiting, retching
- Procedures involving instrumentation of the oesophagus e.g., TOE / endoscopy
- Movement of NGT as evidenced by change in external tube measurement at nostril

Gastric pH may be altered if the patient is on protein pump inhibitors/H2 antagonists or due to the presence of NG feed in the stomach. A minimum of 1 hour break from feeding/administration of medication is recommended before pH is rechecked. The timing of medication may need to be reviewed.

In situations where it is not possible to gain an aspirate to confirm a pH in the safe range (0 – 5.5) and all attempts have been made to gain an aspirate (see appendix 7) then the second line assessment is radiological confirmation of gastric placement. There must be a balance in situations where patients are at risk of frequent exposure to radiation and senior advice must be sought (primary consultant or Leicester Intestinal Failure Team Nutrition Nurses/Consultant).

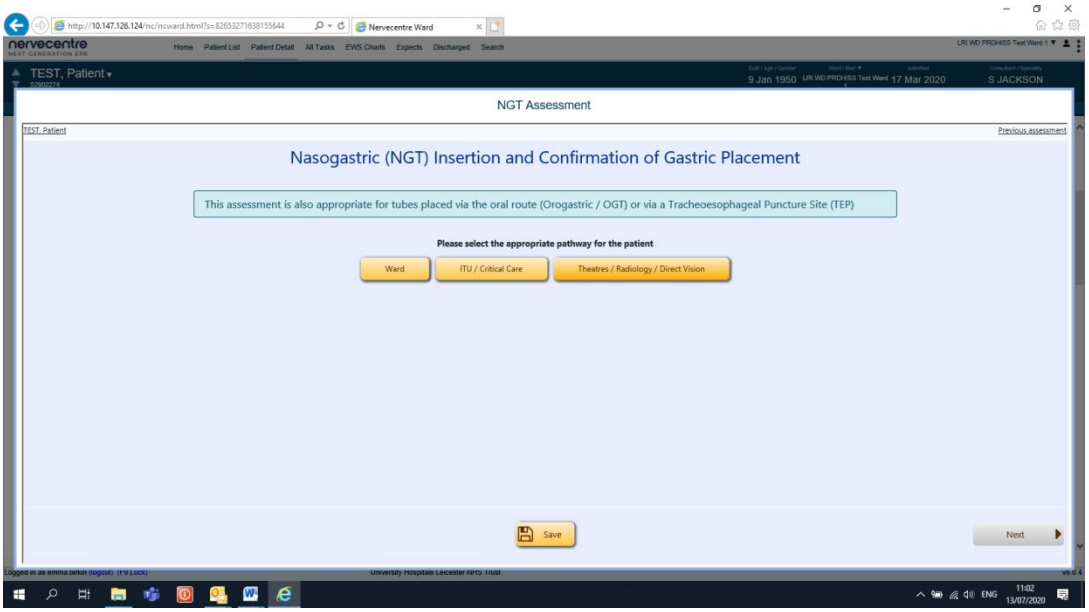
Documentation of Nasogastric tube insertion and confirmation of gastric placement by either pH testing or Chest X-ray must be clearly made. As of July 2020, the nasogastric pathway module on NerveCentre has become the mandatory method of doing this. This pathway module should be filled in for:

- Every nasogastric placement (including Ryles drainage NG tubes not used for administration),
- Confirmation of initial placement prior to first use to administer feed or medication (by pH or X-ray)
- Ongoing confirmation of gastric placement, at least once daily confirmation of tube length plus pH and x-ray confirmation as per this policy
- And for removal of the NGT

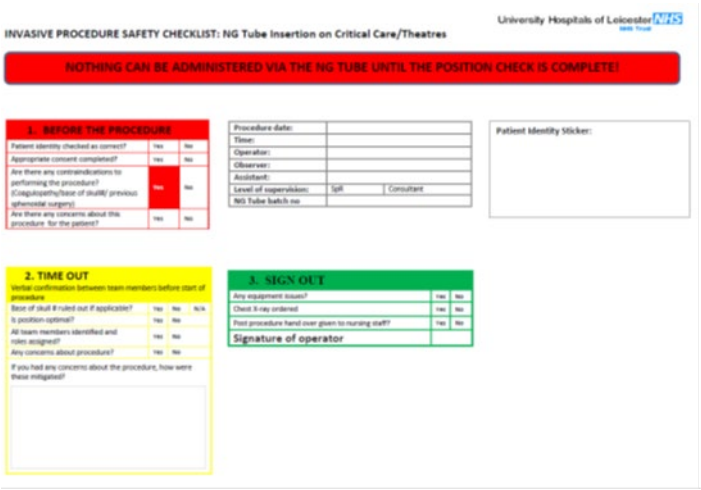
The module takes the user through the various algorithms described in this policy. It can be found by:

1. Logging in to NerveCentre
2. Entering the patient details to enter the record for your patient
3. From the Patient Details tab select Assessments
4. Pick the nasogastric tube module from the list of assessment forms
5. Follow the screens to complete the assessment

A NGT cannot be used for feeding or administration of drugs until confirmation of placement has been performed on NerveCentre



Critical care areas document NG tube placement and confirmation of initial gastric placement on a LocSSIP based on national Intensive Care Society Guidance (see SOP for more information).



University Hospitals of Leicester NHS

INVASIVE PROCEDURE SAFETY CHECKLIST: NG Tube Insertion on Critical Care/Theatres

NOTHING CAN BE ADMINISTERED VIA THE NG TUBE UNTIL THE POSITION CHECK IS COMPLETE!

1. BEFORE THE PROCEDURE

Patient identity checked as correct?	Yes	No
Appropriate consent completed?	Yes	No
Are there any contraindications to performing the procedure? (Coagulopathy/base of skull#/ previous sphenoidal surgery)	Yes	No
Are there any concerns about this procedure for the patient?	Yes	No

Procedure date:			
Time:			
Operator:			
Observer:			
Assistant:			
Level of supervision:	Spl	Consultant	
NG Tube batch no			

Patient Identity Sticker:

2. TIME OUT

Verbal confirmation between team members before start of procedure

Base of skull # ruled out if applicable?	Yes	No	N/A
Is position optimal?	Yes	No	
All team members identified and roles assigned?	Yes	No	
Any concerns about procedure?	Yes	No	

If you had any concerns about the procedure, how were these mitigated?

3. SIGN OUT

Any equipment issues?	Yes	No
Chest X-ray ordered	Yes	No
Post procedure hand over given to nursing staff?	Yes	No
Signature of operator		

NG TUBE POSITION CHECK

THIS MUST BE COMPLETED PRIOR TO NGT BEING USED

CXR check:		
Most current X-ray for correct patient?	Yes	No
Does the tube path follow the oesophagus and avoid the contours of the bronchi?	Yes	No
Does the tube clearly bisect the carina or the bronchi?	Yes	No
Does the tube cross the diaphragm in the midline?	Yes	No
Is the tip clearly visible below the left hemi-diaphragm?	Yes	No
NG TUBE SAFE TO USE?	YES	NO
Length of NGT at nose (cm)		
Name		
Signature		
Date		
Time		

LCAT Assessors Recording Form: Nasogastric tube insertion and confirmation of gastric placement by pH testing on an adult patient.

University Hospitals of Leicester NHS
NHS Trust

Appendix 9

This can be undertaken in a simulation or clinical (adult patient) environment.

Your Name :	Date:	Signature:
Assessment completed in a	Simulation ❑ OR	Clinical Environment ❑

COMPETENCE CATEGORY	POSITIVE FEATURES	WEAKNESSES / OMISSIONS
Safety	Confirms decision and rationale for NG tube insertion is documented in medical notes by lead clinician. Understands contraindications and what action to take should an NG tube be contraindicated. Can discuss potential complications Gains verbal consent and documents this in the patients notes. Knows appropriate actions if patient lacks capacity to consent	
Communication and working with the patient	Gives full explanation to patient Ensures patient privacy and dignity Positions patient correctly Arranges stop signal with patient Ensures patient comfort post procedure	
Infection control	**Pre-procedure** 1. Cleans hands prior to the start of the procedure (Including prior to donning gloves)? 2. Cleans aseptic field (Chlor-Clean allow to air dry) 3. Protects key parts from contamination throughout the procedure? **Procedure** 1. Hands cleaned on entering the patient zone and/or immediately prior to the procedure and before reapplying gloves 2. Key parts protected from contamination throughout the procedure 3. Hands cleaned following the procedure and/or prior to leaving the patient zone 4. Aseptic field cleaned before storing	

NG tube insertion Procedural competence	Knows usual tube measurement at nose or NEX measurement Is able to safely insert NG tube as per UHL policy	
Confirmation of gastric placement Procedural competence	Can obtain a gastric aspirate using appropriate technique (guidewire removed and no fluid introduced to the tube) Uses correct pH testing strips, checks expiry. Reads result correctly, within appropriate time frame Lists all occasions when gastric aspirate pH should be checked Describes/demonstrates what steps to take when unable to gain gastric aspirate Knows what to do if PH is between 5 – 5.5 Knows what to do if PH is above 5.5	
Team working	Correctly records all relevant information for NG tube insertion using all correct documents. Documents on Nervecentre Informs Dietitian of the need for feeding regime if the NG tube is for enteral nutrition.	
STRENGTHS / WEAKNESSES		

Assessors Name	Signature	Date

Once completed please email a copy of the LCAT form to HPN.LIFT@uhl-tr.nhs.uk (keep the original for your records). Your competency will be recorded on HELM.