GUIDELINES FOR THE INSERTION AND MANAGEMENT OF ENTERAL FEEDING TUBES

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NASOGASTRIC TUBES

A Nasogastric tube (NG) is a flexible tube that can be inserted transnasally into the stomach. It is commonly used for delivery of feed, medications, fluids, or for drainage of gastric contents.

Assessment

The initial assessment should include the risks versus the benefits of NG feeding and must be clearly documented in the medical notes prior to insertion of the NGT for feeding (NPSA 2011). The decision to initiate NG feeding must be made by two competent healthcare professionals, one of whom should include a senior doctor responsible for the patient, with due consideration to the following:

Indications	Contraindications
• For short term feeding (normally under 6-10 weeks) • May be considered for longer term feeding in some circumstance e.g. if alternative routes are not accessible	• Nasal fractures • Tracheo-oesophageal fistula • Head injury with base of skull fracture • Altered facial anatomy • Some facial tumours • NG feeding may be poorly tolerated in patients with vomiting, gastro-oesophageal reflux, delayed gastric emptying, ileus or intestinal obstruction, but this should be discussed with the Lead team

NG tube choice

The types of NGT that can be used for feeding include fine bore NG tubes (8 – 12 FR) which may be made from polyurethane or silicon, or a wider bore NG tubes such as those made from polyvinyl chloride (PVC) e.g. some types of Ryles tubes.

NG tubes used for feeding must be NPSA compliant i.e. be fully radio-opaque along the entire length and have externally visible markings to enable accurate measurement, identification and documentation of their position (NPSA 2011).

Fine bore NG tubes

A fine bore (less than 9FR) NG tube should be the first line choice for NG feeding as these are more durable and comfortable than most other NGT, are less likely to interfere with eating and drinking, and carry less risk of causing rhinitis, pharyngitis or oesophageal erosion. The tube usually needs to be changed every 4-6 weeks, but please refer to the manufacturers guidelines. Where possible when changing an NGT use the alternative nostril to reduce the risk of nasal erosion.

Ryles tube

A Ryles tube is a wider bore tube commonly placed for gastric decompression or aspiration e.g. for gastric outlet obstruction. They are usually only used in ICU, HDU or on the Digestive Diseases ward. A Ryles tube should be changed every 2 weeks as they are made from high

grade PVC which can get brittle over time resulting in the risk of complications. The alternative nostril should be used when replacing the Ryles tube due to the risk of nasal trauma.

Large bore PVC tubes should be avoided because they can cause ulceration to the nose and increase the risks of gastric reflux and aspiration (Stroud et al. 2003)

NG feeding should only ever be commenced via a Ryles tube if it is NPSA compliant. A trial of ETF via an NPSA compliant Ryles tube may be considered for a short duration whilst assessing tolerance to the feed. Once the Ryles tube is not required for gastric decompression or aspiration of stomach contents the tube should be changed immediately for a fine bore NGT. Owing to the unstable nature of patients in critical care, 12FR NG tubes are most commonly used as the best compromise between achieving adequate feeding and gastric aspiration.

Placement of NG tubes

The procedure should be carried out by an appropriate healthcare professional who has received training in NG placement and has been assessed as being competent e.g. using the 'Competence in Insertion and Checking of Placement of Nasogastric Feeding Tubes' document (see C035 Policy to Reduce Harm Caused by Misplaced Nasogastric Feeding Tubes).

NG placement can normally be done by the bedside, although in patients with an abnormal anatomy, e.g. pharyngeal pouch, this may be done under x-ray guidance or in endoscopy.

Placement of an NGT should be delayed if there is inadequate support available to accurately confirm tube placement e.g. at night (NPSA 2011).

A summary of the correct procedure for NG insertion, confirming position, troubleshooting issues with obtaining aspirates, and daily NG aftercare can be found in the Trust NG Tube Care Bundle (see policy C035 appendix).

Insertion of an NG

Equipment required:

- Nasogastric tube
- pH indicator strips (CE marked)
- Nasal/cheek dressing to secure tube
- 60ml oral/enteral syringe (with purple barrel)
- Sterile water
- Tissues
- Bowl
- Cup of water with straw (if patient able to swallow safely)

Procedure:

Action	Rationale
Explain the procedure to the patient, carer(s) or family and agree a signal (e.g. raised hand) so that the patient can communicate during the procedure.	To ensure that the patient understands and can give consent and also to co-operate with the procedure.
Position the patient in a semi-upright position with neck in neutral alignment. Check that	Assists swallow and reduces the risk of tracheal placement

the nostrils are patent (ask patient to sniff with one nostril closed) and perform nasal hygiene if required	Helps identify potential obstruction
Hand hygiene and PPE worn with ANTT used throughout the procedure	Minimises cross infection
Unpack the tube, checking for kinks and if the tube has a guide wire gently push it into the tube to ensure it is firmly attached to the connector.	Prevents the tube coiling back on itself during insertion.
Estimate the NEX measurement: place the tip of the tube at xiphisternum and measure up to the tip of the nose and then to the ear lobe. Mark the tube at this point with pen or tape.	Ensures correct length of tube is placed in to the stomach.
Submerge the distal tip of the tube in water to activate the lubricant.	Lubricates the tube to facilitate easier passage
Insert the tip of the tube into the chosen nostril advancing it gently until ~10cm reached. The patient may sneeze so reassure. If resistance is felt withdraw slightly and alter the angle of insertion, otherwise try the other nostril.	Follow the natural anatomy of the nostril
Encourage natural swallow by offering small sips unless NBM or swallow deemed unsafe	Swallowing protects the trachea with the epiglottis thereby allowing safe passage of the tube into the oesophagus.
Advance the tube down the oesophagus with successive swallows until the NEX measurement is seen at the nostril. Check that the tube is not coiled in the throat or mouth	If the tube tip is in the oesophagus there is a high risk of aspiration. If excessive tube inserted it may kink in the stomach or pass through the pylorus into the jejunum
Fix the tube position to the nose using the product dressing and secure to the cheek with tegaderm tape	Helps prevent tube dislodgement

CAUTION

If the patient shows sign of respiratory distress e.g. coughing, gasping, cyanosis, the tube may have entered the trachea so withdraw immediately to allow patient time to recover. If after 3 attempts NG insertion has failed or the tube has been pulled out by the patient on 3 occasions, contact the lead team as soon as possible.

Confirmation of NG Position

Who should check the position of the tube?

Any healthcare professional / carer / patient prior to using the tube
In the acute setting, nursing staff will primarily be passing the NG tube and managing the subsequent feeding. If discharge home on ETF is anticipated the patient or carer may undergo training to use the tube in preparation for discharge.

When to check the position of the tube?

- After initial insertion
- A minimum of once per shift if on continuous NG feeding (BAPEN)
- Before administering feed, fluid or medication
- If the patient complains of discomfort or feed reflux

- Following vomiting, retching or coughing
- If the external tube length (measurement marking the tube exit from the nose) has changed
- If the fixation tape has come loose
- If there are new or unexplained respiratory symptoms (breathlessness, wheezing, stridor) or a reduction in oxygen saturation (NPSA 2011)

The feed must be stopped prior to any patient transfer due to the risk of tube displacement. The pH should be checked before resuming the feed to confirm tube position.

How to check the tube positioning

pH Testing
The first line for confirming NG position is by testing the pH of the aspirate using CE marked pH indicator paper which has been manufactured to test human gastric aspirate (NPSA 2011). Tips on how to successfully obtain a gastric aspirate can be found in the Trust NG Tube Care Bundle decision tree (see policy C035 appendix).

If the pH is 5 or less this reasonably indicates the NG is in the stomach and safe to be used. Whilst the NPSA advocates a cut-off of 5.5 or less BSUH took the decision to lower the threshold to 5 owing to difficulties interpreting pH readings between 5 and 6.
All pH results should be clearly documented with details of whether an aspirate was obtained, the pH value, who checked the pH, and when it was determined to be safe to use (NPSA 2011).

Gastric pH levels may be elevated above 5 as a result of medication (e.g. H2 antagonists, PPIs, antacids), reflux of intestinal contents into the stomach or owing to continuous feeding. Consider stopping the feed for 30 minutes and aspirating again. Any action to be taken should be discussed with the Lead Team and agreed and documented in the patient's medical notes e.g. try altering the timing of the PPI to after the feed has commenced.

CAUTION

Serious consideration should be given to stopping feed in patients being continuously fed who are also on an insulin infusion (see **'Initial diabetes management for adult in-patients with diabetes requiring enteral or parenteral feeding'** guideline on trust intranet**)**

X-ray testing
In the event an NG aspirate cannot be obtained or the pH result is above 5 then the NG position must be confirmed via an X-ray. Despite X-ray being the most reliable to confirm positioning it is a 2nd line testing method as it is costly, often delays feed commencement and exposes the patient to potentially harmful X-rays. There is also no guarantee that the tube is still in position once the patient has returned to the ward or for the duration of the subsequent NG feeding. X-ray should not be used routinely to confirm subsequent use.

A chest X-ray can be requested by a doctor or an approved non-medical referrer using the online Imaging Referral Form The chest X-ray will be formally reported by the Imaging department (radiologist or reporting radiographer.) However as this may not be immediate the image will be reviewed by a member of the medical staff prior to commencement of enteral feed and this must be documented in the patient notes.

Unsafe methods of checking tube positioning
The position of the NG must not be confirmed via whoosh test (auscultation i.e. introduction of air via the NGT whilst listening with a stethoscope), acid/alkaline tests using litmus paper or via visual interpretation of the aspirate as these are unreliable tests (NPSA 2005). Further

detail can be found in the C035 Policy to Reduce Harm Caused by Misplaced Nasogastric Feeding Tubes.

Tube securing

Once the position of the tube has been confirmed, the NG tube must be secured either to the side of the face using a suitable dressing such as a nasal fixation tape or Grip-Lok dressing or to the nose using Elastoplast (see attached poster). The remaining length of NG tube should be looped over the ear.
Care should be taken in securing the tube to the nostril to ensure it is well adhered but not causing undue pressure on the nostril which impairs blood flow leading to localized necrosis.

Removal and Replacement of NG tubes

The patient must be referred to the dietitian prior to discontinuation of enteral feeding for review of nutritional status and to assess if oral diet needs to be supplemented. NG tubes can be removed at ward level by nursing or medical staff. An NG tube can also be replaced at ward level by trained nursing or medical staff unless X-ray guidance is required.

When to replace a NG tube

Tube	Time
Ryles tube	2 weeks or sooner if causing discomfort (Dougherty and Lister 2004) or signs of tube degradation
Fine bore Nasogastric tubes	Recommendations for replacing the NG tube differs depending on the manufacturer, but is normally between 6-12 weeks, or sooner if issues with viability of the tube. Decision to replace will take into consideration ease of tube insertion and patient tolerance of procedure.
Other tubes	Check with manufacturer

Discharge of patients on NG feeding

A full multidisciplinary supported risk assessment should be made (e.g. during a case conference) and the outcome documented prior to discharging a patient with a nasogastric (NG) tube from hospital into the community

All patients going home on NG feeding need to be referred to a hospital dietitian to assist ward staff in the assessment of competency and training for them and their carers for tube care and feeding. Prior to discharge an anticipated timeframe of NGF and a clear action plan in the event of the tube becoming blocked or accidentally removed must be documented in the patients' notes.

Patients will be discharged home with information regarding the care of the tube and equipment, the feeding regimen, CE accredited pH strips, a spare NG tube, contact numbers and 7 days' supply of feed and ancillaries/equipment. The checklist in Appendix 1 is used by the dietitian to assist safe discharge of enterally fed patients.

Action plan if a tube is removed

The plan will depend on the individual patient circumstances and the support available in the community. If the tube comes out overnight wait until daytime for replacement. In the first instance the Homecare company nurse should be contacted to arrange a home visit to replace the tube. If the nurse cannot be contacted or it is out-of-hours and the patient is

reliant on the tube for all of their nutrition and hydration needs they should present to A+E with the spare tube.

GASTROSTOMY

A gastrostomy tube is the generic term used for a feeding tube which passes directly through the abdominal wall into the stomach and may be placed endoscopically (PEG), radiologically (RIG) or surgically. Gastrostomy feeding is usually reserved for patients who require longer term feeding.

A multidisciplinary discussion regarding the timing and appropriateness of gastrostomy insertion should be clearly documented in the notes. A decision making flow chart to assist this process can be found in the PEG referral form (see Endoscopy info-net page).

Patients and carers should be made aware of the physical, psychological and lifestyle implications of having a long term feeding tube prior to giving informed consent. Further information regarding ethics and consent can be found in C082 Adult Enteral Tube Feeding Policy.

There are a number of different types of gastrostomy tubes used in BSUH. All have different requirements for tube aftercare dependent on the type of tube, where the tube is sited, and the internal retention device; this is summarized in Appendix 2. Therefore it is essential to know what type of tube is in situ and to follow the correct aftercare guidelines (refer to Enteral feeding tube aftercare forms on the Dietetics info-net page)

Monitoring following gastrostomy insertion

The following complications are associated with PEG/RIG insertion:

- Perforation
- Haemorrhage
- Sepsis
- Peritonitis
- Pulmonary aspiration
- Peristomal site infection
- Tube blockage
- Accidental tube displacement

It is therefore essential that patients are closely monitored to observe for signs of complication to enable prompt reporting of issues. Detailed information regarding the type and frequency of nursing observations in the immediate period following insertion can be found in the tube aftercare sheets on the Dietetics info-net page.

PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG)

Indications	Contraindications
• Long term (>6 weeks) feeding • Functional, accessible GI tract	• Gross ascites • Peritonitis • Oesophageal obstruction/varices • Malignancy at proposed puncture site • Inability to pass an endoscope • Active gastric ulceration • Deranged clotting • Gross obesity

	• Gastric outlet obstruction • Previous gastric surgery • Patients whose anatomy or condition make it hard to lie flat for the procedure e.g. Motor Neurone Disease or Cerebral Palsy

A PEG is the insertion of a small plastic tube through the abdomen and into the stomach with the aid of an endoscope and avoids the use of a general anaesthetic.

A PEG referral form must be completed, signed and submitted to endoscopy for all patients who require a PEG (Prophylactic antibiotics are recommended at placement to minimize the risk of subsequent stoma tract infections. Patients require Gentamycin one hour prior to the procedure, an INR result of 1.3 or below, and Platelets above 50 x 10^9/L. Patient should not have enteral feed or oral food for six hours prior to the procedure (two hours for fluids). Bed rest may be required post-insertion.

Aftercare of a PEG

The internal retention device may be a button or bumper, and therefore the aftercare differs from a balloon gastrostomy. The stoma site should not need a dressing post insertion unless it is still healing. If there is a dressing remove within 24 hours. The stoma site should be cleaned daily with saline/sterile water and patted dry. For the first 2 weeks avoid moving the fixation plate and the PEG tube should not be rotated.

From day 15 post-insertion the tube must be rotated daily and advanced 2-3 cm and rotated once weekly to prevent buried bumper syndrome and over granulation of tissue. See the Freka PEG tube after care form for specific details on how to care for this tube. For all other PEG tubes refer to the manufacturer's guidelines.

Removal and Replacement of a PEG

PEGs should be changed based on clinical need and the condition of the tube e.g. due to fungal colonisation or irreparable tube damage. Removal of a PEG should be organised via endoscopy. If a replacement PEG is needed this should be placed following the removal of the original PEG in endoscopy via the same stoma tract, unless contraindicated. Under certain circumstances, when endoscopic removal carries significant risks, the 'cut and push' technique of tube removal may be considered on a case-by-case basis by their managing consultant. Caution is advised against using this technique in patients who are non-ambulatory, have had previous abdominal surgery, known strictures, chronic constipation or are at increased risk of bowel obstruction.

A PEG can be replaced with a balloon gastrostomy tube (BGT) but this should be pre-planned and for a clinical reason. Balloon gastrostomies generally need changing 3-6 monthly and require a degree of manual dexterity for balloon water changes which may make them an inappropriate choice for certain patients.

RADIOLOGICALLY INSERTED GASTROSTOMY (RIG)

Indications	Contraindications
• Medium/long term feeding • Patients who require enteral feeding but cannot have a PEG e.g. – Where the anatomy or condition make it hard to lie flat e.g. Motor Neurone Disease (MND) or Cerebral Palsy. – Patients with partial obstruction of the oesophagus when an endoscope cannot be placed – Patients who have a compromised respiratory function e.g. MND – Some head and neck cancers	• Patients who can have a PEG placed • Patients with a severe nickel allergy (due to the stitches)

A RIG is placed under x-ray guidance and requires the placement of an NG tube to allow the radiologist to locate and inflate the stomach for its placement. The internal retention device may be a balloon or pig tail and as a result the management of this tube differs from a PEG.

The patient will require Gentamycin 160mg IV prior to the procedure, an INR result of 1.3 or below, Haemoglobin above 90g/L and Platelets above 50 x 10^9/L. MRSA swabs negative within the last 3 months. Patient should be nil by mouth and/or tube for four hours prior to the procedure.

The type of tube, size (French), level at skin (external tube length) and balloon water volume should be clearly documented by the healthcare professionals who inserted the tube following insertion.

Aftercare of a RIG

The stoma site should not need a dressing from Day 2 post insertion unless it is still healing. The stoma site should then be cleaned daily with saline/sterile water and patted dry. For the first 2 weeks do not rotate the tube or move the fixation plate if there is one present.

The gastropexies (sutures) should fall out within 2-3 weeks following insertion, but if not they should then be cut at Day 22. For the first 3 weeks following insertion it is essential that the tube position is confirmed once daily until the stoma tract has formed.

- Test the pH of the gastric aspirate once daily, using CE marked pH indicator paper which has been manufactured to test gastric aspirate (NPSA 2011).
- If the pH is 5 or less this indicates the RIG is in the stomach and safe to be used.
- If an aspirate cannot be obtained or the pH result is above 5 then the RIG position must be confirmed via an x-ray to ensure the tube is not displaced.
- Test the pH of the gastric aspirate at any time if there are any concerns regarding the tube position.
- If a patient is on a proton pump inhibitor (PPI) the gastric pH may be higher than 5. Any action to be taken should be discussed with the Lead Team and agreed and documented in the patient's medical notes e.g. try altering the timing of the PPI to after the feed has commenced.

Most RIGs placed in BSUH are balloon gastrostomies i.e. the internal retention device is a balloon. If the retention device is a balloon it will be inflated with a set volume of sterile water, usually 2-5mls, but occasionally up to a volume of 20mls, depending on the tube make and the balloon size.

The water volume needs to be checked and replaced weekly from Day 15 onwards, as this will give an early indication of balloon failure and risk that the tube may fall out. Never use the balloon inflation port for anything other than checking the balloon water volume and inflating the balloon.

See the RIG tube aftercare form for specific details on how to care for this tube. For all other RIGs refer to the manufacturer's guidelines.

Removal and Replacement of a RIG

The average lifespan of a RIG is 3-6 months depending on the manufacturer. If there are no plans for a replacement, a RIG can be removed at the bedside by medical staff who have received the necessary training.

If a RIG needs replacing within the first 12 weeks following placement into a newly formed stoma tract this must be done under radiological guidance.

If a RIG needs replacing more than 12 weeks following placement this can be done at the bedside by a suitably trained healthcare professional e.g. nurse from interventional radiology, as long as the anatomy is not complicated. If the anatomy is complicated radiological guidance may be required, please contact the Interventional Radiology Suite nurses for further advice.

Plans for the first tube change should be considered at the time the first tube is inserted. This may require GP referral together with an x-ray request form to the Interventional Radiology Suite if the anatomy is complicated. Otherwise it can be done by specially trained nutrition nurses in the community which the dietitians will arrange

Replacement gastrostomy tube types

A balloon gastrostomy (BGT) is normally used as the subsequent feeding tube when replacing a RIG. They can be inserted without endoscopy or x-ray guidance in patients with a mature stoma tract. A low profile / button gastrostomy can also be used when replacing a RIG or PEG. In BSUH these tubes are normally reserved for patients who are fed long term and either do not want the tube to be visible e.g. younger patients with cystic fibrosis, or in patients who have a tendency to pull at a PEG/RIG/BGT e.g. cerebral palsy.

The type of tube, size (French), level at skin (external tube length) and balloon water volume should be clearly documented by the healthcare professionals who inserted the tube following insertion.

Button gastrostomies should be changed based on clinical need and the condition of the tube and balloon. The average lifespan of a replacement gastrostomy tube is 3-6 months depending on the manufacturer. If there are no plans for a replacement, it can be removed at ward level by a suitably trained health professional e.g. nurse from Interventional Radiology or by a specialist trained nutrition nurse in the community.

See the Balloon Gastrostomy Tube (BGT) and Low Profile Gastrostomy (Button) Tube aftercare forms for specific details on how to care for these tubes.

SURGICAL GASTROSTOMY

Indications	Contraindications
• If the procedure cannot be done endoscopically or radiologically e.g. due to previous upper GI surgery or if the colon is interposed between stomach and abdominal wall	• Patients who can have a PEG or RIG placed

Patients should be referred to an upper GI surgeon and preparation for surgery follows standard pre-op assessment protocol i.e. routine bloods, thromboprophylaxis assessment, MRSA swabs.

The tube used will depend upon the surgeon's preference and because the aftercare of each tube differs dependent on the retention device it is important that there is clear documentation of the tube in situ, including details of the make, size, batch number and if the tube has a balloon the volume of water used to inflate the balloon (if applicable).

Aftercare of a Surgical Gastrostomy

The stoma site should not need a dressing from Day 2 post insertion unless it is still healing. The stoma site should be cleaned daily with saline/sterile water and patted dry. For the first 2 weeks do not rotate the tube or move the fixation plate if there is one present.

The tube may be sutured. These sutures will normally fall out within 2 weeks, but in the event they have not then they must be cut at Day 15 to enable the tube to be advanced and rotated.

The tube must be rotated daily and advanced/rotated once weekly from Day 15 following insertion, as per local procedure. This helps to prevent over-granulation of tissue e.g. buried bumper syndrome.

If a BGT has been sited surgically the tube position must be confirmed via pH testing for the first 3 weeks as per the protocol for a RIG.

Refer to either the Freka PEG tube aftercare form or the RIG tube aftercare form for specific details on how to care for the relevant tube. For all other surgical gastrostomies refer to the manufacturer's guidelines.

Removal and Replacement of a Surgical Gastrostomy

A surgical gastrostomy should be changed based on clinical need, the tube type and the condition of the tube. If a BGT has been placed surgically the average lifespan is 3-6 months depending on the manufacturer. A BGT can normally be removed and replaced at ward level by medical staff who have received the necessary training.

Freka PEG tubes should be changed based on clinical need and the condition of the tube. In the event it requires removal e.g. buried bumper and if the patient cannot tolerate endoscopic removal then surgical removal may be required. Under certain circumstances, when endoscopic removal carries significant risks, the 'cut and push' technique of tube removal may be considered on a case-by-case by their managing consultant. Caution is advised against using this technique in patients who are non-ambulatory, have had previous abdominal surgery, known strictures or are at increased risk of bowel obstruction.

If a surgical gastrostomy needs to be replaced, and if a BGT cannot be sited on the ward, the

patient should be reassessed for the appropriateness of endoscopic or radiological placement prior to considering another surgical gastrostomy.

JEJUNAL FEEDING TUBES

Jejunal feeding is the delivery of nutrition, fluid and medicine post pylorically (into the jejunum distal to the ligament of trietz). Feeding may be via Naso-jejunal tubes (NJ), jejunostomy, or via transgastric jejunal feeding tubes (PEG-J, RIG-J).

Jejunal feeding should be considered in patients unable to tolerate gastric feeding such as gastroparesis, delayed gastric emptying or gastric stasis refractory to prokinetic treatment. It may also be considered in acute severe pancreatitis, duodenal injury, upper GI fistulae, and recent upper GI or hepatobiliary surgery.

CAUTION

Jejunal feeding tubes are at greater risk of blockage compared with gastrostomy tubes. Adequate flushing, before and after feed and medications, can help to reduce this risk.

It is essential to ensure medications are in a suitable form for jejunal delivery e.g. liquid or dispersible so this should be discussed with pharmacy.

Sterile water must be used for jejunal feeding tubes in hospital as the post-pyloric positioning by-passes the anti-microbial protection of the gastric acid. In the community cooled, boiled tap water is recommended so long as the patient is not immunocompromised.

NASOJEJUNAL TUBES

A Nasojejunal (NJ) tube is a flexible tube that can be inserted transnasally through the pyloric sphincter into the jejunum via the nasal passage. This is usually placed under direct vision endoscopy or in interventional radiology.

Assessment

Indications	Contraindications
• If the stomach needs to be bypassed e.g. due to severe gastro-oesophageal reflux disease, very high risk of aspiration, gastric outflow obstruction or following gastric surgery • When feeding past the pancreas is indicated e.g. pancreatitis	• Basal skull fracture • Oesophageal stricture / tumour • NJ feeding may be poorly tolerated in patients with vomiting, ileus or intestinal obstruction, but this should be discussed with the Lead team

Patients requiring NJ should be referred to endoscopy or Interventional Radiology for placement and to the ward dietitian for nutritional assessment at the earliest opportunity.

Confirmation of NJ position

The NJ tube position must be confirmed prior to use by abdominal X-ray following insertion since pH aspiration techniques are inconclusive for this type of tube. Endoscopically placed NJ tubes may not need to be X-rayed prior to use – the endoscopist should state whether this is required on the endoscopy report.

The external length of the NJ tube should be measured, marked and documented on insertion and checked prior to commencing each feed. NJ position may need to be confirmed by x-ray following risk of tube displacement e.g. following vomiting, retching or coughing, or if the external tube length has changed, or if the fixation tape has come loose.

Aspiration

Aspirate is not usually obtainable from the jejunum therefore the absence of aspirate is not a contraindication to feeding and routine aspiration is not necessary. If however the patient feels nauseated or is vomiting the tube can be aspirated and a pH of 5 or less may indicate that the tube has migrated into the stomach. Any feed or fluid being administered through the NJ tube at this time should be stopped and advice sought from medical staff.

Tube securing

Once the position of the tube has been confirmed, the NJ tube must be secured either to the side of the face using a suitable dressing such as a nasal fixation tape or Grip-Lok dressing or to the nose using Elastoplast (see attached poster). The remaining length of NG tube should be looped over the ear.

Care should be taken in securing the tube to the nostril to ensure it is well adhered but not causing undue pressure on the nostril which impairs blood flow leading to localized necrosis.

Removal of an NJ

NJ tubes can be removed by pulling as per nasogastric tubes at ward level by nursing or medical staff.

GASTROSTOMY WITH JEJUNAL EXTENSION

A jejunal extension can be passed via some types of PEG tube, including the Freka PEG. This is done in Endoscopy or Interventional Radiology to enable feeding into the jejunum and simultaneous gastric decompression. There are also all-in-one gastrojejunostomy tubes which are placed in IR which can be single or dual lumen to enable feed to be delivered into the jejunum +/- gastric decompression e.g. MIC (Avanos) gastrojejunostomy tubes.

Indications	Contraindications
• Long term/medium term feeding • When the stomach needs to be bypassed e.g. gastroparesis, pancreatitis	• The same contraindications for a PEG and RIG are applicable to a jejunal tube extensions if being placed into a new stoma tract • A jejunal extension may be contraindicated in intractable vomiting because the tube tip can easily migrate into the stomach, discuss with the Lead team.

The type of tube, size (French), level at skin, and balloon water volume (if applicable) should be clearly documented by the healthcare professionals who inserted the tube.

Aftercare of a gastrojejunostomy

The stoma site should be inspected, cleaned and patted dry daily. The tube should never be

advanced or rotated. In the case of a RIG-J the internal retention device may be a balloon or a malecot device, thus the aftercare will differ depending on the tube sited.

See the PEG-J Tube and Gastrojejunostomy Tube aftercare forms for specific details on how to care for these tubes. For all other gastrojejunostomy tubes refer to the manufacturer's guidelines.

Removal and Replacement of gastrostomy with jejunal extensions

Tubes should be changed based on clinical need and the condition of the tube. They generally last 6-24months but can last longer. Removal of the PEG-J should be done in endoscopy. Under certain circumstances, when endoscopic removal carries significant risks, the 'cut and push' technique of tube removal may be considered on a case-by-case basis by their managing consultant. Caution is advised against using this technique in patients who are non-ambulatory, have had previous abdominal surgery, known strictures or are at increased risk of bowel obstruction.

A Gastrojejunostomy Tube needs to be removed every 6 months, and with no signs of replacement this can be done at ward level by medical staff who has received the necessary training.

Replacement of a Gastrojejunostomy Tube can only be done under radiological guidance. In situations where the jejunal extension part of a PEG-J requires replacement this can be done in Endoscopy or Interventional Radiology.

Checking tube positioning

The level at skin (external tube length) should be checked daily prior to commencing feed for signs of tube displacement. If position of the tube is in any doubt consider abdominal x-ray.

SURGICAL JEJUNOSTOMY (JEJ)

A JEJ is a polyurethane tube placed during surgery directly through the abdominal wall and into the jejunum.

Indications	Contraindications
• If the procedure cannot be done endoscopically or radiologically e.g. due to previous upper GI surgery or abnormal anatomy such as a pharyngeal pouch.	• Patients who can have a PEG-J or RIG-J placed

The type of tube, size (French) and level at skin should be clearly documented by the healthcare professionals who inserted the tube.

Aftercare of a JEJ

The stoma site should not need a dressing from Day 2 post insertion unless it is still healing. The JEJ site should be inspected and cleaned daily with saline/sterile water and patted dry. Never advance or rotate the tube.

There is no internal fixation device and therefore this tube has an external fixation plate which is sutured in. Never remove the stitches and ensure there are always 2-3 stitches in

situ. If the stitches fall out contact the on-call Surgical Registrar to replace them. Grip-Lok securement dressing can be considered as an alternative to re-suturing.

Checking tube positioning

The level at skin (external tube length) should be checked daily prior to commencing feed for signs of tube displacement. If there are concerns of tube displacement or migration the position must be confirmed via abdominal x-ray.

See the JEJ Tube aftercare form for specific details on how to care for this tube. For all other JEJs please refer to the manufacturer's guidelines.

Removal and Replacement of a Surgical Jejunostomy

If a tube change is required contact the surgical registrar to plan the replacement prior to removing the JEJ. If a surgical JEJ is no longer required it can be removed at ward level by a suitably trained health care professional e.g. a nurse or doctor.

TRACHEO-OESOPHAGOGASTRIC FEEDING (TOFT)

TOFT tubes are occasionally placed during ENT surgery either directly into a puncture site via the oesophagus or via a speaking valve. They may or may not be held in place by a suture. The practice of placing NGT through the voice prosthesis / valve should however be discouraged as it can damage the valve. To this end most of laryngectomy patients have NGT placed transnasally.
The tube position must be confirmed prior to use with pH testing as per the protocol for the NG tubes (see section above).

ORAL CARE OF ENTERAL TUBE FED PATIENTS

It is essential that oral health and comfort are maintained and promoted for this group of patients (Griffiths, 1995). They will have specific problems as the oral tissues are more prone to disease and discomfort than those who receive their nutrition orally (British Society for Disability and Oral Health, 2000).

Restriction of oral food and fluids may lead to xerostomia (dry mouth). There may be other factors contributing to this, such as certain medications, the effects of
nasal oxygen therapy, radiotherapy, mouth breathing and the need for frequent suctioning.

Please refer to the Oral Care (General Areas) Plan for full information on assessment and delivery of oral care

REFERENCES

Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants NPSA Patient Safety Alert 21 March 2011

Guidelines for enteral feeding in adult hospital patients
Stroud M, Duncan H, Nightingale J GUT 2003; 52 (Suppl VII)

Griffiths J Llandough Hospital and Community NHS Trust 1995

Guidelines for Oral Health Care for Long-stay Patients and Residents
British Society for Disability and Oral Health, January 2000

APPENDIX 1

Checklist for discharging enterally fed patients into the community

Prior to discharge

Please tick and initial when complete

Contact Homeward Nurse to arrange training for patient and/or carers ☐

Liaise with other HCP's involved in care e.g. SALT, social worker ☐

Ensure patient on an appropriate feed for the community and consider the following: ☐

- Does the current feeding regime meet fluid requirements of patient including flushes for medication? ☐
- Is the feed nutritionally complete? ☐
- Is the feed regime/rate/timing practical and suit the patients needs at home? ☐
- Is the feed cost effective for community (eg larger bags, concentrated feeds) ☐
- Are the medications prescribed in a suitable format for the tube-liaise with ward pharmacist prior to discharge ☐
- Register patient prior to discharge so Homeward nurse can provide training, feed and ancillaries can be added on discharge ☐

On day of discharge

To do list-office:

- Register with Homeward (see reverse for ancillaries and codes) ☐
- Inform Homeward nurse of discharge for additional support and training ☐
- Letter to GP for prescription ☐
- Handover to community Dietitian ☐

For patient to take:

- 7 day supply of feed, giving sets and syringes ☐
- Pump and Stand (if for continuous feeding) ☐
- Copy of feeding regime ☐
- Contact details for Dietitan and Homeward nurse (add to the feeding regime) ☐
- Aftercare booklet-type of tube placed and date placed should be added ☐

- PH paper-RIG only ☐

Information for handover to Community dietitian

Patient record card ☐

Copy of feeding regime ☐

Copy of homeward form ☐

APPENDIX 2

Pre-Insertion Procedures

Procedure	**Endoscopically placed tubes**	**Radiologially placed tubes**	**Surgically placed tubes**
Long term feeding proforma completed by Consultant	✓	✓	
SALT			
Referral to Dietitian	✓	✓	✓
Consent form completed (Standards or Incapacity as appropriate)	✓	✓	✓
MRSA screen Follow antimicrobial prophylaxis if positive	✓	✓	
INR	✓	✓	
FBC		✓	
Nil by mouth/NG			As per surgeons request
IV access	✓	✓	
Propholactic antibiotics	Gentamycin IV 1hr prior to procedure	Only on request	
Additional instructions		If coming from PRH: NGT in place Abdo x-ray showing air insufflation	

Post insertion procedure

Procedure	Endoscopically placed tubes	Radiologically placed tubes	Surgically placed tubes
Temp BP Respiration Rate Pulse Pain Score Visual examination of stoma tract site	Every 15mins for 1 hour and then every 30mins for the next 3 hours	Every 15mins for 1 hour and then every 30mins for the next 3 hours	Every 15mins for 1 hour and then every 30mins for the next 3 hours
NBM	0-2hrs	0-6hrs	As per surgeons advice
Nil by tube	0-4hrs	0-6hrs	0-2 hrs
Sterile water flushes	At 4hrs flush with 50ml of sterile water. If pain free flushes can continue and can proceed to feeding.	At 6hrs flush with 50ml of sterile water. If pain free flushes can continue hourly for the next 4 hours.	At 2hrs flush tube with 25ml sterile water. If pain free flushes can continue 2 hourly with 25ml.
Can start administering feed	From 4hrs administer feed as per Enteral Feeding Regimen	From 10hrs+ administer feed as per Enteral Feeding Regimen	From 24-28 hours depending on surgeons preference.
Stop the feed and **alert** the On Call Registrar (bleep 8613) and the Lead team immediately if any of the following: Pain on feeding Prolonged or severe pain post procedure Fresh bleeding External leakage of gastric content	✓	✓	✓
Showering	Within 2 days	Within 2 days	As per surgeons advice
Bathing	Within 14 days	Within 14 days	As per surgeons advice