

<i>Adult Enteral Feeding Policy</i>
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Amendments			
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Target Audience: **All staff involved with adult enteral feeding
 at Ashford and St Peters Hospitals**

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See also: **Parenteral Nutrition Policy**
 Consent Policy
 Protocol for establishing enteral feeding in Intensive Care
 MRSA policy
 Mental Capacity Policy
 Use of Mittens policy
 Nutritional Risk core care plan
 Patient has problems eating and drinking core care plan
 PEG core care plan
 RIG core care plan
 Balloon gastrostomy core care plan
 Nasogastric feeding core care plan
 Dysphagia and swallowing problems core care plan
 Care of PEG competency
 Insertion of fine bore feeding tube competency

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1. INTRODUCTION

These guidelines are intended for use by all health care professionals involved in the treatment of, and responsible for providing advice to adult patients receiving enteral tube feeding at Ashford and

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St. Peters Hospitals. For the purpose of this document 'enteral feeding' refers to the delivery of nutrition via a tube into the gastrointestinal tract and it does not address oral nutrition support.

It is widely documented that nutrition is a major factor in maintaining good health, preventing illness and improving recovery. Malnutrition has been described as 'a state of nutrition in which a deficiency of energy, protein and/or other nutrients can cause adverse measurable effects on tissue/body form, composition, function or clinical outcome' (National Collaborating Centre for Acute Care 2006). Reducing or preventing malnutrition using nutritional support is proven to be effective both clinically and financially. Accurate nutritional screening using the Malnutrition Universal Screening Tool (MUST) identifies those patients at risk of malnutrition and enables them to be referred for further assessment and treatment as deemed appropriate. Methods to improve or maintain nutritional status are known as nutritional support and may be given orally or via a tube. The delivery of nutrition into the gastrointestinal tract via a tube is known as artificial nutritional support.

PURPOSE

This policy is designed for all healthcare professionals working with adult patients being considered for, or receiving, enteral nutrition support. It will ensure a consistent, evidence based approach to the management of patients receiving enteral nutrition support, ensuring optimal patient care.

DISSEMINATION AND IMPLEMENTATION

These guidelines will be available on the intranet. They will be globally advertised via Trust email network and Aspire and disseminated via senior nurses, Nutrition Link Nurses and clinicians. Additional ward based training will be offered.

MONITORING OF COMPLIANCE

Compliance may be monitored by regular audit. Audits will include number of PEG/ RIG referrals and resultant placements and outcome, compliance with NG and PEG care plans, positioning whilst enterally feeding and fluid administered via enteral feeding tube compared to prescribed quantities. These findings will be used to identify any further training needs and may be used in updating future guidelines.

ARCHIVING ARRANGEMENTS

This is a Trust-wide document and archiving arrangements are managed by the Quality Department, who can be contacted to request master/archived copies.

2. RATIONALE FOR ARTIFICIAL NUTRITIONAL SUPPORT VIA AN ENTERAL TUBE

2.1 RATIONALE

When a patient is unable to take a nutritionally adequate diet orally, artificial nutritional support may be administered via an enteral feeding tube. If nutritional support is required for only a short period of time (less than 4 weeks) then a nasogastric or nasojejunal tube is appropriate. If feeding is expected to be required for a period of more than 4-6 weeks a gastrostomy or jejunostomy should be considered as a long-term method of enteral feeding.

Consideration needs to be made regarding patient prognosis and long-term nutritional care and a plan should be discussed and decided by the multidisciplinary team. Enteral tube feeding is not an emergency procedure and should be planned carefully. Once it is deemed appropriate to feed, the patient should be monitored in order to prevent, detect and manage any complications. Patients should be assessed carefully by their medical team and the assessment should consider:

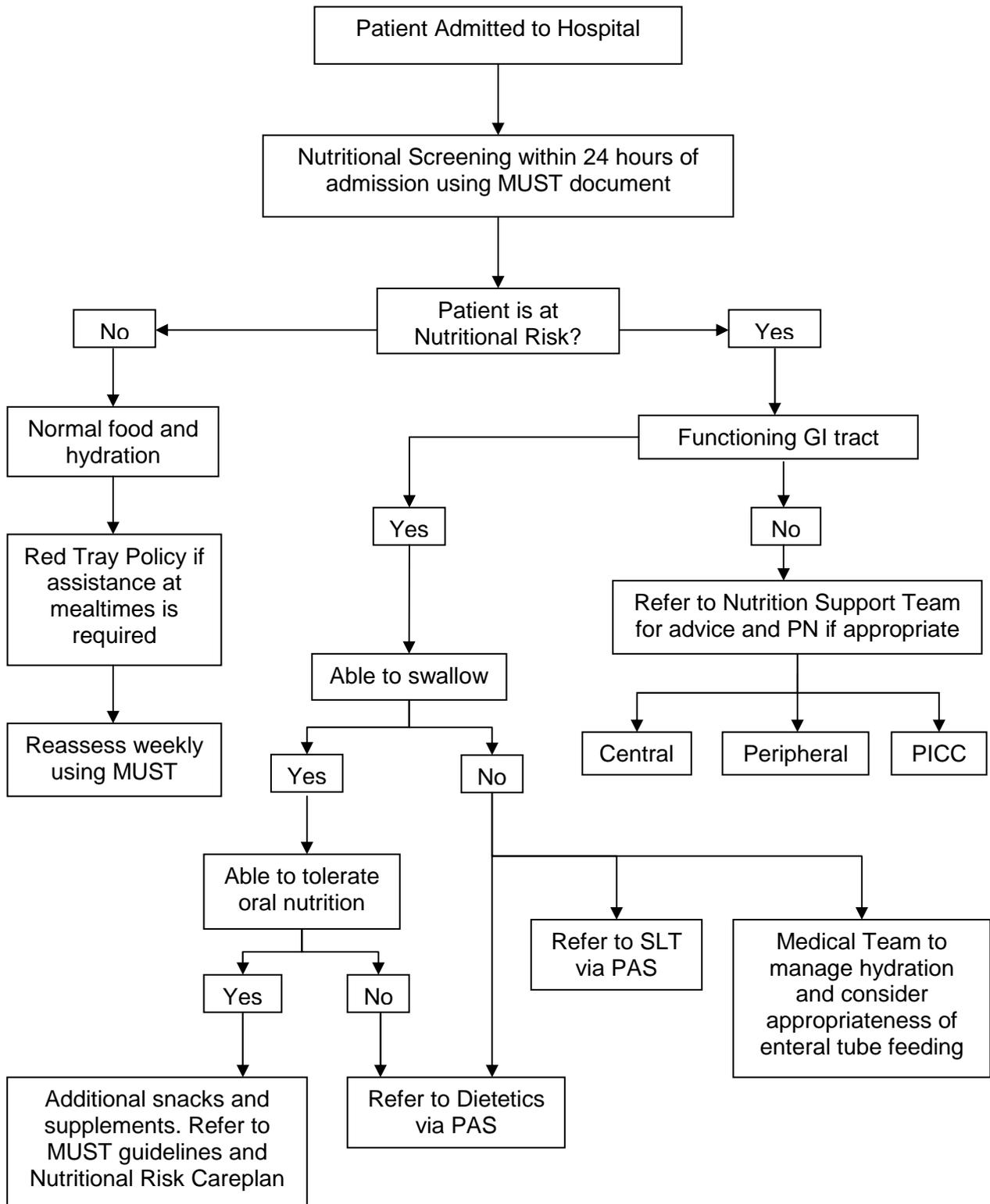
- The overall treatment plan

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- The likely outcome of the underlying disease
- The risks and benefits of tube feeding
- Current nutritional status
- Baseline bloods including Urea & Electrolytes, Liver Function Tests, Calcium, Phosphate and Magnesium

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2.2 FLOWCHART FOR NUTRITION DECISION MAKING



2.3 INDICATIONS FOR ARTIFICIAL NUTRITION SUPPORT VIA AN ENTERAL FEEDING TUBE

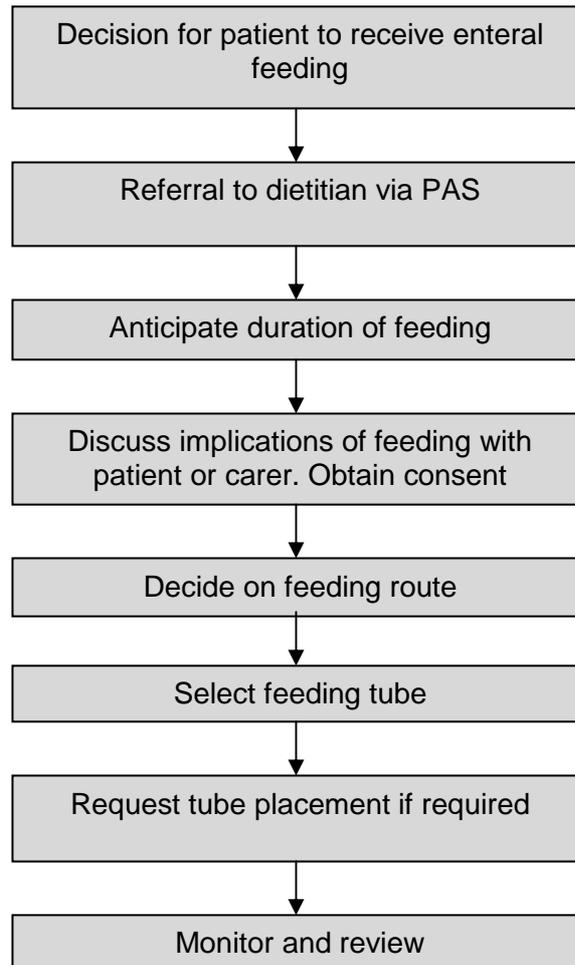
- Decreased oral intake due to, for example:-
 - Cancer
 - Anorexia
- Inability to feed orally due to, for example:--
 - Dysphagia as a consequence of neurological and neuromuscular disorders
 - Unconsciousness
 - Weakness due to chronic illness
 - Upper GI or head and neck cancers
- Impaired ability to absorb or utilise nutrients due to, for example:--
 - Malabsorption syndrome
 - Inflammatory Bowel Disease e.g. Crohns disease, Ulcerative Colitis
 - Fistula
- Increased nutritional requirements due to hypercatabolism as consequence of:
 - Major trauma including surgery
 - Excessive losses from fistulae, drains or wounds
 - Cystic fibrosis
 - HIV/AIDS
 - COPD
 - Sepsis
 - Wound healing
- Pre operatively (before elective surgery to enhance patient outcome in patients nutritionally at risk)

2.4 CONTRAINDICATIONS

- Non-functioning small or large bowel

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2.5 PATHWAY ONCE DECISION MADE FOR ENTERAL FEEDING



3. LEGAL AND ETHICAL ASPECTS OF ARTIFICIAL ENTERAL NUTRITIONAL SUPPORT

This section of the Enteral Feeding Policy should be read in conjunction with the Trust's guidelines on Best Interests and Consent.

Enteral Feeding, by whichever route, is considered to be artificial feeding and as such is regarded as a medical treatment. This view is supported by the courts, by professional bodies and by medical and ethical opinion.

The decision to initiate a trial of enteral feeding ideally requires a multi-disciplinary approach. Before commencing enteral feeding, the aims and goals of such feeding should be clarified and documented. Initially, feeding should be commenced as a time limited trial period and the outcome reviewed at the end of this period, or earlier if clinically indicated, and a decision made as to whether to stop, continue or change the feeding method.

Specific medical and nursing skills are required to commence, support and maintain enteral feeding via whichever route is chosen.

As with any medical treatment, when a patient has capacity, the patient's consent to that medical treatment must be sought and provided. A patient may refuse and/or withdraw their consent at any point, even after artificial nutrition has been commenced. Competent patients - those with capacity

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- have the legal right to refuse treatment, even if considered to be life-saving, and their decisions should be respected and not be over ridden by healthcare professionals.

Following the introduction of the Mental Capacity Act (2005) there is a statutory presumption of capacity. However, many patients being considered for artificial feeding have medical conditions which may affect their capacity, e.g. dementia, cerebral vascular events. When in doubt, a patient's capacity should be assessed formally and an evaluation of their best interests carried out and documented. This should involve discussion with family members and the patient's General Practitioner. All steps must be taken to support an individual to make a competent decision and regard should be had to those patients with communication difficulties.

The Mental Capacity Act (2005) enables patients to make Advanced Directives. A valid and applicable Advance Directive to refuse treatment will be legally binding for a patient who has lost capacity. The MCA (2005) states any advance refusal for life sustaining treatment must be in writing, witnessed and with the explicit statement that the refusal holds even "if life is at risk".

The MCA (2005) also allows a person to appoint a Lasting Power of Attorney (LPA) for Health, to act on their behalf if they should lose capacity at any point. This LPA can, therefore, make health care decisions on behalf of the patient, at a time when they are no longer competent, if they are in the patient's best interests. An LPA cannot override an Advanced Directive decision unless such provision is provided for in the Advanced Directive.

If a patient lacks capacity and there is no immediate, identifiable advocate to act in their best interests, an Independent Mental Capacity Advocate (IMCA) should be sought especially in those situations where there is a likelihood of withdrawing or withholding enteral nutrition.

For a patient lacking capacity, the final decision maker as to whether a trial of artificial nutrition is appropriate is their responsible consultant. In those occasional difficult clinical scenarios, a second opinion should be sought as to the best course of action.

As with any medical treatment, there is no legal requirement to provide such a treatment when the patient's responsible consultant does not feel it is in the best interests of the patient or when it is felt that such treatment would be futile.

Legally, there is no distinction between stopping or withdrawing a treatment and withholding it in the first place. As the Royal College of Physicians write, 'a treatment that proves useless may be initiated to assess its effects before it is withdrawn'. This is supported by guidance from the General Medical Council who write that 'where it has been decided that treatment is not in the best interests of the patient there is no ethical or legal obligation to provide it and therefore no need to make a distinction between not starting the treatment and withdrawing it'.

When tube feeding is continued after leaving hospital there is a duty to ensure that the patient, daily carers and the community health team are adequately instructed in the technique and possible complications. There should be routine reviews by the Lead Clinician to ensure that ongoing tube feeding remains in the patients best interest. The Lead Clinician would usually be the patient's GP.

Before starting any enteral nutrition the medical team should document the need for tube feeding in the patients notes with aims of treatment and a referral made to the dietitians (via PAS).

The Nutrition Support Team are available to offer guidance and advice on feeding decisions and all aspects of enteral nutrition if required and can be contacted on pagers 8479, 8929 and 8880. The Nutrition Support Team ward rounds are currently on Tuesday and Friday mornings.

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4. ROUTES OF FEEDING

4.1 ROUTE SELECTION

The route selected predominately depends upon:-

- The anticipated duration of feeding
- The functional status of the GI tract
- Underlying medical condition

4.2 ENTERAL CHOICES

When the gut is functional and accessible, the enteral route should be the preferred choice of artificial nutrition support. The main routes of access are:

- Naso-gastric (NG)
- Naso-jejunal (NJ)
- Gastrostomy (PEG/ RIG/ balloon gastrostomy)
- Jejunostomy (surgical/ PEG-J/ PEJ)

4.3 OTHER CONSIDERATIONS

Other factors which should also be considered in making the decision to feed and when choosing the route of access are, for example:-

- Availability of local technical expertise
- Potential complications of tube insertion
- The patient's prognosis
- The patient's general medical condition

4.4 DEFINITIONS OF TUBE

4.4.1 Nasogastric Tubes (NG)

NG tubes are polyurethane tubes passed via the nose to the stomach. They are usually used for short term feeding although may be used in the longer term. Fine bore nasogastric tubes are the preferred tube although some patients may be fed via a suitable, NPSA compliant, wide bore (Ryles) tube (e.g. post operatively and in ITU) to monitor gastric aspirates until enteral feeding is established. Wide bore tubes should be changed to fine bore tubes as soon as possible to prevent complications.

4.4.2 Nasoduodenal/ nasojejunal tubes (ND/ NJ)

These are also known as post-pyloric tubes and are placed via the nose to the duodenum or jejunum. Post pyloric feeding is considered in patients with gastroparesis, with significant gastro-oesophageal reflux or where feeding past the pancreas is indicated. Nasojejunal tubes may be placed at bedside, during surgery, endoscopically or radiologically.

Double or triple lumen tubes which allow post-pyloric feeding and concurrent gastric aspiration are also available, although not commonly used at Ashford and St Peters Hospitals. These are usually placed endoscopically.

4.4.3 Gastrostomy Tubes

A gastrostomy tube is a tube that enters the stomach via a surgical incision in the abdominal wall. They are usually placed for longer term feeding. There are various types as listed below:

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4.4.4 Percutaneous Endoscopic Gastrostomy (PEG)

This is a gastrostomy tube placed endoscopically under sedation.

4.4.5 Radiologically Inserted Gastrostomies (RIG)

These are gastrostomy tubes placed radiologically. A fine bore nasogastric tube is required to be placed prior to RIG placement.

4.4.6 Surgical Gastrostomy

Placed in the operating theatre, usually as part of another procedure.

4.4.7 Balloon Gastrostomy/ Low Profile Gastrostomy (Button)

These are placed via a fully formed PEG or RIG stoma tract or as a first line radiological placement. They use a balloon filled with water to hold them in position inside the stomach. They can be replaced at home by the community dietitian, feed company nurse or carers who have been trained. These tubes last 3-9 months although the balloon volume must be checked weekly.

4.4.8 Jejunostomy tube

A surgical jejunostomy tube is a specifically designed feeding tube inserted into the jejunum during the abdominal phase of laparotomy for post pyloric feeding.

4.4.9 PEG-J

A Percutaneous Endoscopic Gastrostomy tube with Jejunal extension (PEG-J) is a specially designed jejunal tube that is passed through a PEG (see above), past the pylorus into the jejunum.

4.4.10 PEJ

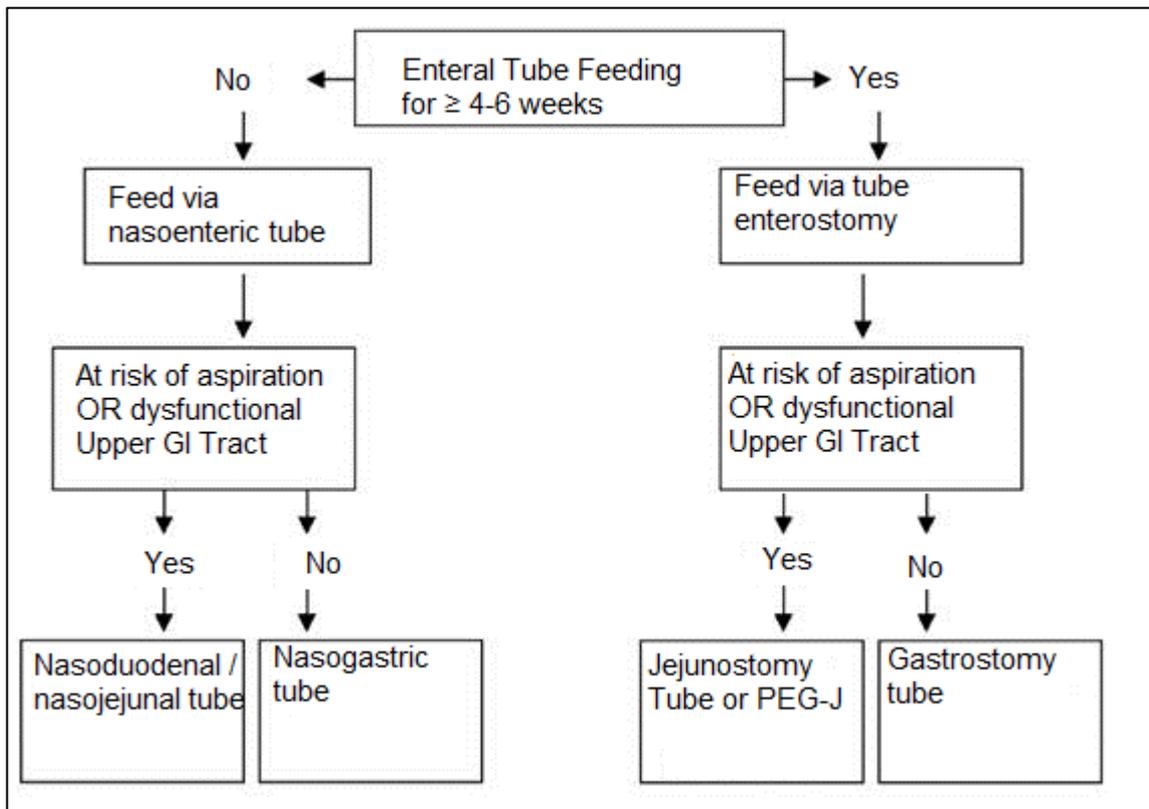
Endoscopic Percutaneous Jejunostomy (PEJ) is a tube placed endoscopically directly into the jejunum.

4.4.11 Orogastric tube

These are NPSA compliant wide bore tubes placed through the mouth into the stomach. They are used in patients with a suspected or confirmed fractured base of skull or nasal trauma. This is a very short term measure and the tube must be placed by a Doctor as the patient will have an unprotected airway and may vomit. If the tube is required longer than 7 days it must be replaced by a fine bore tube.

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4.4.12 Flowchart for Enteral Feeding Tube Choice



4.5 FOLEY / MALECOLT CATHETERS

These are not artificial nutrition support feeding devices and therefore should not be used for enteral feeding. To use them for this purpose is against NPSA guidelines.

If such a catheter has been placed for feeding they should be replaced with a balloon gastrostomy as soon as possible after discussion with the medical staff.

If such a catheter is to be used the consultant should document the reason for using a non-approved feeding tube for feeding in the medical notes using the template below (included in Appendix 4. The patient should be informed of the 'off label' or unlicensed use and the reason for such use. The tube should be replaced with a suitable alternative at the earliest opportunity.

4.6 USE OF NON-APPROVED FEEDING TUBE FOR ENTERAL FEEDING

Complete the following and file this in the patient notes

Which tube in situ:	
Placed by:	
Where:	
When:	
Reason for use:	
Discussed with patient:	Yes <input type="checkbox"/> Date and Time:
Documented in patient notes:	Yes <input type="checkbox"/> Date and Time:
Consultant Aware of NPSA breach	Yes <input type="checkbox"/> Date and Time Informed:

4.7 RISKS OF 'OFF LICENCE' TUBES FOR ENTERAL FEEDING

Potential problem	Control Measures
Tube displacement <ul style="list-style-type: none"> Urinary catheters do not have any form of fixation device or tube markings Risk of Bowel obstruction 	<ul style="list-style-type: none"> Replace tube as soon as possible Contrast study on admission to check tube position Balloon inflation to be checked weekly Tube to be marked with permanent pen to illustrate placement on the abdominal wall Tube to be securely taped or sutured in place
Tube perforation <ul style="list-style-type: none"> Risk of peritonitis 	<ul style="list-style-type: none"> Replace tube as soon as possible Contrast study to check tube patency Visual checks on external tube daily Stop feeding and repeat contrast study in each of the following circumstances: <ul style="list-style-type: none"> Pyrexia of unknown origin New abdominal pain Distended abdomen Increase in inflammatory / infective markers Any other signs or symptoms suggestive of peritonitis
Tube Leakage	<ul style="list-style-type: none"> Replace tube as soon as possible Visual checks on external tube daily Tube to be securely taped or sutured in place

Additional issues are the potential for tissue reactions and the absence of an external clamp.

Urinary catheters are sometimes used as an emergency measure to maintain a formed tract in patients where their feeding tube has fallen out. In this event the tube should be replaced with a licensed feeding tube as soon as possible, and the urinary catheter must not be used for feeding.

5. CONSENT

Enteral tube feeding is invasive and associated with potential complications. The Trust policy for Consent to Examination and Treatment should be followed with regard to tube insertion and feeding. Patients with impaired capacity to consent to treatment should be consented as per the Trust policy for Mental Capacity Act on Trustnet.

6. NASOGASTRIC FEEDING TUBES (NGT)

6.1 INDICATIONS

- Short term feeding (< 4-6 weeks)
- Functioning GI tract

6.2 ABSOLUTE CONTRAINDICATIONS TO BLIND NASOGASTRIC TUBE INSERTION

- Basal skull fracture
- Tracheo-oesophageal fistula

6.3 RELATIVE CONTRAINDICATIONS

- Nasal polyps/ injuries
- Frequent nosebleeds
- Upper GI obstruction
- Coagulation disorder
- Oesophageal stricture
- Oesophageal pouch
- Oesophageal tumour
- Uncontrolled vomiting

It may be necessary to consider radioscopic NGT insertion in the case of relative contraindications.

6.4 EQUIPMENT FOR INSERTION

6.4.1 Fine bore nasogastric tube

These are polyurethane and can remain in place for 8 weeks before replacement and are radiopaque throughout their length when the guidewire is removed.

6.4.2 Wide bore (Ryles) tube

These may be used for short term feeding if they are licensed for such use and meet NPSA guidelines which includes being radiopaque along the length. They are easier to aspirate larger volumes where gastric stasis is a possibility.

They should be avoided for long term use as they are larger bore and harden with time which is associated with complications including oesophageal ulceration, oesophageal stricture and haemorrhage. They should not be left in situ for longer than the manufacturers recommended time.

6.5 PROCEDURE FOR INSERTION

Nurses passing NGTs must hold the Trust competency for nasogastric tube insertion. See Competency on Trustnet

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6.6 CONFIRMING TUBE POSITION

NPSA guidelines state that correct positioning of nasogastric tubes must be tested by aspiration of gastric contents and checking them with pH paper as a first line measure. A pH of 5.5 or less is confirmation of nasogastric tube placement.

If an X-ray is used to confirm position, a suitably trained member of the medical team MUST document that the NGT is correctly positioned for feeding in the medical notes before feeding is commenced.

Once correct placement is confirmed by a suitable method the tube should be marked with a permanent pen at the tip of the nose and the length of tube inserted should be documented in the Nasogastric Feeding Care Plan.

It should be possible to aspirate the fine bore nasogastric tubes with or without the guide-wire in place.

Once correct placement is confirmed the NGT sticker should be placed in the medical notes and completed as appropriate. If no sticker is available, documentation including the date/ time, who placed the tube, what kind of tube it is, the reading at the nasal tip and how correct placement was confirmed and by whom, should be made in the medical notes.

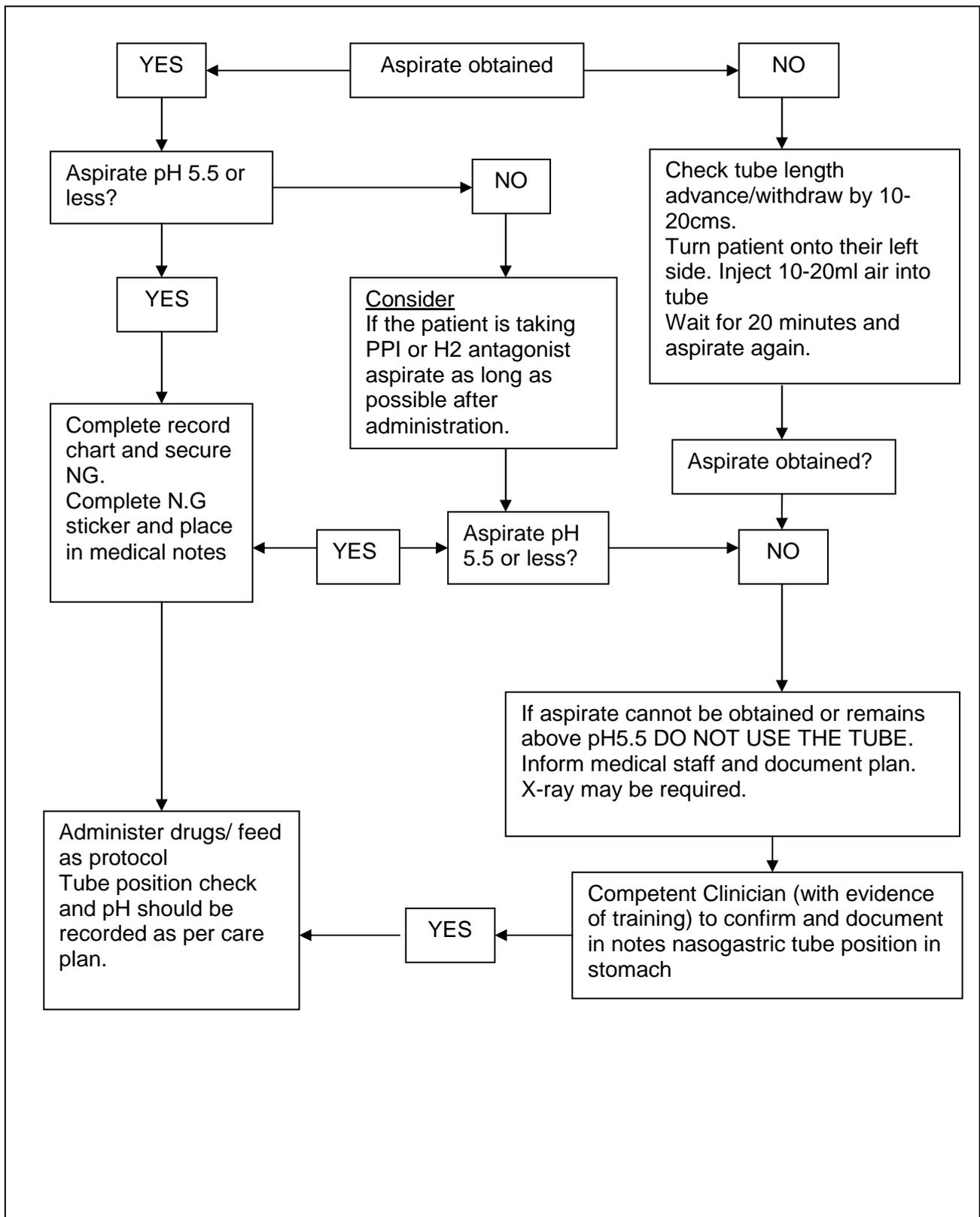
Patients on drugs to reduce their gastric acidity such as proton pump inhibitors (PPI) (e.g. Omeprazole, Lansoprazole), H₂ receptor blockers (e.g. Ranitidine) and antacids (e.g. Gaviscon) may produce gastric aspirates higher than pH 5.5.

Inappropriate methods for placement checking:

- Blowing air down the tube and auscultation ('Whoosh' technique) is not an acceptable method for checking tube position.
- Litmus paper is not sensitive enough to detect pH accurately and should not be used
- Interpreting a lack of respiratory distress is unreliable
- Observing appearance of aspirate - can be misleading

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FLOWCHART FOR OBTAINING NG ASPIRATE



6.7 WHEN TO CHECK NG TUBE POSITION

- On initial placement and then before each feed. The results should be recorded on the nasogastric feeding care plan.
- After the patient has retched, vomited or coughed severely
- After oropharyngeal suction
- If the tube appears to have moved

It may be easier to test the gastric aspirate after a feeding break when the gastric pH is likely to be highest.

If the patient is on PPI's or H2 receptor blockers consider changing to once daily and check pH just before the next dose of medication is due.

Nasogastric tubes should always be aspirated slowly to prevent the walls of the tube from collapsing under suction. A 50ml syringe should be used as smaller syringes may exert too much pressure and split the tube.

6.8 POST NG TUBE INSERTION

6.8.1 Skin

Dressings should be changed regularly and their security checked each shift, taking note of any skin sensitivity.

6.8.1 Nasal care

Where possible nostrils should be swapped each time the tube is replaced to prevent nasal erosion and discomfort. Observe nostril daily for signs of discomfort.

7. NASOJEJUNAL (NJ) FEEDING TUBES

7.1 INDICATIONS:

- Post pyloric feeding required
- Gastric reflux/ gastroparesis
- Therapeutic requirement to bypass duodenum eg pancreatitis
- Upper gastro-intestinal obstruction/ fistula
- Peri-operative feeding

7.2 ABSOLUTE CONTRAINDICATIONS:

- Basal skull fracture
- Trachea-oesophageal fistula

7.3 RELATIVE CONTRAINDICATIONS:

- Frequent nosebleeds
- Nasal polyps/ injuries
- Upper GI obstruction
- Coagulation disorder
- Oesophageal stricture
- Oesophageal pouch

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7.4 EQUIPMENT FOR INSERTION:

There are a variety of nasojejunal (NJ) tubes available within the Trust.

On ITU the Tiger 2 tubes are used and placed at bedside.

For ward-based patients an endoscopically or radioscopically placed NJ tube is usually used. NJ tubes may also be placed intra-operatively.

To ensure the most appropriate tube is used, the choice of tube should be discussed with the nutrition nurse, Nutrition Support Team or ward dietitian.

7.5 CONFIRMING TUBE POSITION

7.5.1 The tube position should be checked by x-ray prior to use (unless placed radioscopically). The end of the tube should be situated beyond the Ligament of Trietz.

7.5.2 The make and size of NJ tube should be documented in the nursing and medical records.

7.5.3 The tube should be marked with a permanent pen at the nose tip and the length of tube clearly documented in the nursing notes so that any movement of the tube is easily identified.

7.5.4 As placement of an NJ tube is time consuming to arrange it is recommended that NJ tubes are bridled soon after placement to avoid accidental displacement.

7.6 POST PLACEMENT CARE:

7.6.1 As this method bypasses the gastric acid, it is important to ensure sterile procedures during feed preparation.

7.6.2 The feeding regimen must be followed carefully as the rate must be gradually increased to prevent nausea and diarrhoea as there is no stomach reservoir to hold large amounts of feed. The patient is likely to be fed over 24 hours initially as there is no reservoir to hold large feed volumes.

7.6.3 As these tubes are long they are more prone to blocking and should be flushed a minimum of 6 times a day using sterile water and a push/ pause technique. If the tube becomes difficult to flush follow the 'tube blockage flow chart' on page 45 immediately.

7.6.4 As these tubes easily block it is recommended that drugs are not administered via the NJ tube. Suitable alternatives should be discussed with Pharmacy.

7.6.5 It is possible for NJ tubes to migrate back into the stomach. Feed noticed in vomit, gastric aspirate or an increase in pain in patients with pancreatitis should be notified to the medical staff and dietitian.

8. GASTROSTOMY FEEDING TUBES

8.1 INDICATIONS:

- Long term gastric feeding
- E.g. altered consciousness, neurological disorders affecting swallowing,
- Head and neck cancers

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8.2 CONTRAINDICATIONS

- Massive ascites
- Gastric varices
- Morbid obesity
- Massive hepatomegaly
- Gastric outlet obstruction
- Significant coagulation disorders
- Previous gastric surgery
- Oesophageal/ pharyngeal tumours

8.3 AIM OF GASTROSTOMY FEEDING

The main aim of gastrostomy feeding should be to improve the quality of life, rather than prolong the process of dying. Gastrostomy feeding is unlikely to change the clinical course of the underlying disease.

The decision to progress to a gastrostomy should involve the multi-disciplinary team, patient and carers. The likely 'benefit versus burden' to the patient should be weighed up and the possible complications fully discussed in light of all available evidence. This should include the likely prognosis from the underlying disease, likely longer term care in the community and realistic goals and objectives. Alternatives to gastrostomy feeding should be considered including the withdrawing of artificial nutrition and the return to oral intake with understanding and acceptance of risks involved.

8.4 GASTROSTOMY FEEDING FOR PATIENTS WITH DEMENTIA

Evidence suggests that outcome, either in terms of survival or quality of life, are not improved in dementia patients after PEG insertion. Survival post PEG is worse in dementia patients than for other indications (>50% 30 day mortality, 90% 1 year mortality nationally). PEG feeding is not proven to improve rates of aspiration pneumonia and patients may still pull at PEG tubes. Poor oral intake appears to be associated with the terminal phase of illness in patients with dementia.

For further information regarding supporting patients with dementia using the oral route please refer to the link below

<http://pad.res360.net/Search/DrugCondition/255>

8.5 CONSIDERATIONS BEFORE REFERRAL FOR GASTROSTOMY (PEG/ RIG) PLACEMENT

Before a PEG/ RIG tube is requested it is important that the following points are considered:

- Has the patient been referred to the Dietitian for assessment and advice?
- Has the patient been referred to Speech and Language Therapy for assessment and advice?
- Has the patient's GP and care worker been consulted?
- Has the patient, family and carers been involved in full discussions regarding PEG/ RIG placement including being given the Trust PEG booklet (available on Trustnet)
- Is the insertion of a PEG/ RIG going to impact on being able to go home/ home with current carers/ back to current nursing home?
- Does the patient have capacity to understand the implications of the procedure, living with the tube and is able to give informed consent?
- Has the patient made an Advanced Directive?
- Does a family member or friend have a registered Lasting Power of Attorney for Health?

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- Has a robust discussion on the pros and cons of gastrostomy feeding/ placement taken place with patient/ family and carers (using appropriate communication aids if required)?
- Has the patient/ family been advised of options should gastrostomy feeding be declined?
- Have social and domestic circumstances been fully discussed and are satisfactory in relation to having a gastrostomy feed at home?
- Is the patient able to care for the tube independently?
- Are family members or informal carers available/ willing to manage tube feeding/ PEG/ RIG care?
- Has the patient/ family been given time to reflect on decision?
- Has the District Nursing service been contacted regarding support for patients and carers?
- Have all above outcomes been documented clearly?

8.6 COMPLICATIONS OF PEG INSERTION:

Major (~3%)	Minor (5-30%)	Late
Peritonitis Aspiration pneumonia Intra-abdominal abscess Cancer seeding Necrotising fasciitis Gastric haemorrhage Gastric-colic fistula Gastric outlet obstruction Visceral perforation	Wound infection Stoma leakage Haematoma Abscess of abdominal wall Ileus Gastric ulceration Tube migration Aspiration of feed	Tube displacement or rupture Buried Bumper Syndrome

8.7 REFERRAL PROCESS FOR CONSIDERATION OF PEG/ RIG PLACEMENT

- Complete PEG/ RIG referral form (available on Trustnet) and send to Nutrition Support Team via Medical Support Worker, Doctors Office, May ward. The referral must be complete by 4pm the evening before the Nutrition Support Team ward round
- Ensure Dietitian is aware of referral via PAS
- Nutrition Support Team will assess patient on Tuesday and Friday ward rounds
- Nutrition Support Team will document their decision regarding appropriateness for PEG / RIG insertion in medical notes and make alternative recommendations if needed

8.8 IF PEG/ RIG INSERTION AGREED BY NUTRITION SUPPORT TEAM

1. Send PAS request to endoscopy or radiology as appropriate.
2. Ensure MRSA screen within 7 days of planned PEG/ RIG insertion.
3. Ensure FBC, clotting, U+E's, LFT's, calcium, magnesium and phosphate available on day of PEG/ RIG procedure.
4. Check if any medication needs to be stopped pre PEG/ RIG insertion e.g. clopidigrel and warfarin.
5. Ensure arrangements in place for training patient/ carers on tube care/ feed administration/ medication administration.
6. If the patient does not have capacity to consent to PEG/ RIG a Consent Form 4 should be completed by the patient's medical team after liaison with the appropriate next of kin or IMCA. This will be countersigned by the gastroenterologist at the time of PEG insertion or the radiologist at the time of RIG insertion.
7. Follow instructions on pre-PEG or pre-RIG form.
8. Ensure PEG or RIG care plan placed in bed-end notes.

8.9 POST PEG/ RIG CARE

1. See post PEG or RIG care plan for post PEG/ RIG care.
2. Monitor temperature, pulse and respiration every 30 minutes for first 4 hours then 4 hourly for 24 hrs.
3. Nil via PEG/ RIG for 4 hrs.
4. After 4 hours, if patient remains well, start water at 50mls/hr.
5. After 4 hours of water, if no concerns, start feed as per dietitians regimen.
6. Check tightness of external fixator after 24 hours. If concern about tightness contact Nutrition Nurse or gastroenterology team for advice to prevent pressure necrosis.
7. Any dressing placed at time of PEG placement should be removed after 24 hours. A Dry dressing may be applied if leakage is problematic.
8. Medication may be given via the PEG/ RIG after 4 hours if no other alternative route is available.
9. Ensure adequate pain control.
10. Continue IV fluids as per feeding regimen or longer if clinical need.

IF there is pain on feeding OR prolonged or severe pain post procedure OR fresh blood OR external leakage of gastric contents with 72 hours of PEG / RIG placement stop feed and medication delivery immediately. Obtain senior medical advice urgently and consider CT scan, contrast study or surgical review to check gastrostomy is not misplaced outside of the stomach (NPSA 2010)

8.10 IF A PEG/ RIG TUBE BECOMES DISLODGED/ FALLS OUT

The following actions should be taken:

8.10.1 Within 30 days of insertion:

1. Treat as a medical emergency
2. Check tube is complete and keep tube for inspection
3. Inform the medical team who should contact the on-call medical Registrar for advice
4. Apply a sterile dressing to the site
5. Keep patient Nil By Mouth as there is risk of peritonitis
6. Keep 4 hourly observations
7. Consider IV fluids
8. Inform dietitian

8.10.2 After 30 days of insertion:

1. Keep tube for further inspection.
2. Inform the medical team, dietitian and nutrition nurse
3. A replacement balloon gastrostomy is available from the Nutrition and Dietetic Department during working hours or in the 'Nutrition Kit Box' located in Accident and Emergency Department at St Peters Hospital out of hours. Contact either the gastro SpR or surgical SpR out of hours to carry out replacement
4. Place urinary catheter into stoma to maintain tract if no replacement balloon gastrostomy or suitably trained staff member is available. This should not be used for feeding
5. Consider requirement for IV fluids if patient is NBM

8.11 IF THE PEG END OR CLAMP BREAKS:

- Spare PEG ends and clamps are available from the Nutrition and Dietetic Department during working hours Mon-Friday (contact 8479 or phone 2202)

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- Outside these times PEG ends are available from the 'Nutrition Kit Box' held in the Accident and Emergency Department or CNSP office at St Peters Hospital
- A PAS referral MUST be sent to the dietitians after a tube has been replaced to allow the box to be refilled and ensure the patient is followed up appropriately

8.12 REPLACING GASTROSTOMY TUBES

PEG tubes are designed to last 18 months - 2 years, however may last longer than this. Tubes will be assessed by the community dietitian and replaced as needed. The first replacement of a gastrostomy tube for a balloon gastrostomy should be done within the acute hospital setting by a member of the gastroenterology team or suitably competent staff. If there is any doubt about placement, a contrast x-ray should be performed before feeding commences.

8.13 REMOVAL OF GASTROSTOMY TUBES

Patients considered for removal of a gastrostomy tube should be referred to the dietitian for full nutritional assessment. If it is appropriate to remove the tube, the patient's team should then write a referral letter to the Consultant Gastroenterologist requesting removal.

PEG tubes are generally removed endoscopically.

The 'cut and push' method may be offered to selected patients if meeting appropriate criteria defined by the Nutrition Support Team.

Buttons, balloon gastrostomies and pigtail RIG's may be removed at bedside or in clinic by suitably qualified staff as advised by the Nutrition Support Team.

Following tube removal a gauze and film dressing should be applied to the stoma site for 48 hours by which time the stoma should have closed. If the stoma has not closed the Consultant Gastroenterologist or Nutrition Nurse should be contacted for advice and surgical closure may be required.

8.14 BALLOON GASTROSTOMIES

These may be inserted surgically, used as a first line radiological tube or as a replacement for a PEG or RIG tube. The tube is retained in the stomach by a small balloon which is inflated with water after insertion.

- If the tube falls out it should be replaced with another balloon gastrostomy of the same French gauge size as soon as possible, as the stoma will begin to close within 2 hours
- Replacement tubes are available from the Dietetic Department or Endoscopy Monday-Friday or from the 'Nutrition Kit Box' held in the Accident and Emergency Department outside working hours
- A PAS referral MUST be sent to the dietitians after a tube has been replaced to allow the box to be refilled and ensure the patient is followed up appropriately
- The Gastroenterology Consultant or SpR can be contacted for advice on placement
- Tube position should be checked after placement with aspiration of gastric contents and pH strips
- A pH of less than or equal 5.5 is acceptable for stomach placement

If no suitably trained member of staff is available to reinsert the balloon gastrostomy a urinary catheter should be used to maintain stoma patency until the correct gastrostomy tube can be placed. The urinary catheter MUST NOT be used for feeding.

8.15 CARE OF BALLOON GASTROSTOMIES

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1. Check the volume of balloon fluid on a weekly basis and document in care plan.
This must be done as follows:
 - Disconnect and flush the tube (if feeding)
 - Check and note the position of the tube
 - Prepare two 10ml luer lock syringes, one with the specified amount of sterile water to reinsert into balloon (as marked on balloon port) and one empty
 - Attached the luer lock syringe firmly to balloon port, draw back the plunger and completely remove all the water, securely holding the tube in place
 - Note the amount of water removed. It is normal for a small amount of water to have evaporated from the balloon
 - Discard the previously withdrawn water
 - Re-inflate the balloon with the second syringe containing the measured amount of sterile water.
 - Ensure the balloon is securely pulled back against the abdominal wall
 - Document the water volumes removed and re-inserted on care plan
 - DO NOT exceed water volume specified as this may over inflate the balloon and cause rupture
 - DO NOT fill the balloon with air
 - If there is greater than 10% water loss specified, the balloon may be beginning to perish. Re inflate the balloon with the specified amount of water and secure the tube in place and contact ward Dietitian or Nutrition Nurse for advice.
2. Avoid using oil based ointments at stoma site as they may cause the tube to perish
3. Avoid the use of talcum powder, creams and other non-prescribed treatments unless advised by the Nutrition Nurse or member of the Nutrition Support Team

8.16 BUTTON GASTROSTOMY TUBES

These are low profile gastrostomy tubes used as replacement tubes in selected patients. They are small and therefore more comfortable and discreet but require considerable manual dexterity to attach to feeding giving sets which make them difficult to use in the older population.

They are held in place with a water filled balloon and an extension set is used to connect to the feed giving sets.

Extension sets are available from Nutrition and Dietetic Department during working hours or from the 'Nutrition Kit Box' held in St Peters Hospital Accident and Emergency Department outside working hours.

8.17 PERCUTANEOUS ENDOSCOPIC GASTROSTOMY WITH JEJUNAL EXTENSION (PEG-J)

The PEG-J tube is a double lumen tube with 2 ports. This tube can allow drainage of gastric contents or administration of medications requiring an acid environment whilst simultaneously allowing feeding jejunally.

STRAIGHT PORT with green band is the jejunal port (marked intestinal) for feeding.
WHITE PORT is the gastric port (marked gastric).

Caution must be used in accessing ports as errors may lead to nausea, vomiting, the risk of aspiration pneumonia or poor medication absorption. In case of doubt please contact the ward Dietitian, Nutrition Nurse, Nutrition Support Team or the Gastroenterology team for advice.

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Requirement for this type of tube will require discussion with the ward dietitian, Nutrition Support Team and gastroenterology team. The tubes are difficult to maintain in situ and occlude easily.

8.17.1 Pre-insertion advice

As for PEG placement

8.17.2 Post-insertion care

1. Observations including blood pressure, temperature, respiration, oxygen saturations every 30 minutes for the first 2 hours, then 4 hourly.
2. **IF there is pain on feeding OR prolonged or severe pain post procedure OR fresh blood OR external leakage of gastric contents with 72 hours of PEG placement stop feed and medication delivery immediately. Obtain senior medical advice urgently and consider CT scan, contrast study or surgical review (NPSA 2010).**
3. Flush tube every 2 hours post insertion with 50 mls sterile water until feeding commenced to prevent occlusion
4. IV fluids may be required until full feeding regimen established
5. Feeding regimen should be strictly adhered to as per dietitian recommendations
6. Feed is being administered jejunally so strict sterile technique should be used as the gastric acid protection is bypassed
7. Clean skin underneath fixation plate daily with water and gauze
8. DO NOT loosen fixation plate until day 10 (as for post PEG care plan)
9. DO NOT rotate tube
10. DO NOT advance tube until day 10 (as for post PEG care plan)
11. Ensure that the tube does not become kinked or pulled

8.17.3 Accidental Displacement

- If the PEG-J becomes dislodged contact the gastroenterology team for replacement
- It may be possible to feed via the gastric port if the jejunal port has been removed, depending on the underlying reason for placement and overall clinical condition of the patient
- Contact patient's medical team or ward Dietitian for advice

8.18. RADIOLOGICALLY INSERTED GASTROSTOMIES (RIG)

RIGs are placed in the interventional radiology suite. They require a fine bore nasogastric tube to be placed prior to RIG insertion to allow air to inflate the stomach. Barium must also be given enterally the night before the procedure. See section 8.1 - 8.8 for information regarding patients being considered for a RIG tube.

8.18.1 Indications:

When long term feeding is required but patients cannot have an endoscopic procedure.

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8.18.2 Contraindications:

As for PEG tubes.

8.18.3 Immediate Post RIG care:

As for PEG tubes.

8.18.4 Care of RIG tubes

See RIG care plan.

There are many different types of RIG tube. The care and management of the tube varies depending on the type of tube placed. In any case of uncertainty please contact the Nutrition Support Team, Nutrition Nurse, ward Dietitian or Radiology Department for advice. The most common RIGs seen in this Trust are:

- **PIGTAIL RIG**
These are held in place by a pigtail retention device attached to a thread. The tube has a rubber cuff at the end and a red enteral feeding adapter. The rubber cuff protects the thread running through the center of the tube. Any 'thread' around the RIG **MUST NOT** be cut without assessment by the Nutrition Nurse or Dietitian or the tube may become displaced. These tubes must not be advanced and rotated.
- **BALLOON RIG**
The tube will have a designated port for inflation of the balloon and a circular external fixation plate.
- **Gastropexy stitches** are inserted around the RIG to 'sandwich' the stomach to the abdominal wall until a tract and stoma has fully formed. These stitches are removed after 10-14 days. Any stitches must not be removed without agreement with the Nutrition Nurse or Dietitian.
- For further advice on RIG care please contact the Nutrition Nurse, Nutrition Support Team or ward dietitian

If any RIG tube is dislodged see section 8.10 for advice.

8.19 SURGICAL GASTROSTOMIES

Occasionally patients require a gastrostomy tube to be placed in the operating theatre as a mini-laparotomy. Guidance should be sought from the surgical team regarding when to commence water and feed, type of tube placed and aftercare of the wound.

9. JEJUNOSTOMY FEEDING TUBES

9.1 INDICATIONS:

- Upper GI surgery requiring post-operative nutritional support
- Little or no stomach remaining from previous surgery therefore requiring long term nutritional support
- Unable to safely have PEG/ RIG placed and requiring long term nutritional support

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9.2 PLACEMENT

Patients requiring a surgical jejunostomy should be referred to the surgeons and the Dietitian who will advise on appropriate tubes. They are placed as a laparotomy or laparoscopy.

9.3 SHORT TERM JEJUNOSTOMIES (NOT PERMANENT)

- The majority of jejunostomies placed in this Trust are for short term use
- Tubes used are the Freka 9 Fr surgical jejunostomies or the Vygon 14 Fr jejunostomy and the complete kit is available in the operating theatre
- The tube is secured by suturing the external fixation device to the abdomen and by the external dressing
- **THERE IS NO INTERNAL BUMPER SECURING THE TUBE**
- The sutures should be reviewed daily and once red should be removed with extreme care
- The tube should then be re-sutured or secured with fixation devices such as Clinifix or Statlock
- Urinary catheters should not be placed for jejunal feeding (see section 4.5)

9.4 LONGER TERM JEJUNOSTOMIES

- Longer term tubes can only be place at the time of laparotomy or laparoscopy
- The MIC jejunostomy is designed for long term feeding and is not routinely kept in theatre
- Patients expected to require long term feeding should be identified and the dietitians informed at the earliest opportunity so a suitable tube may be purchased
- Long term tubes are held in place with a Dacron cuff and must be sutured for the first 2 weeks to allow the cuff to adhere

9.5 CARE OF JEJUNOSTOMY FEEDING TUBES

- Extreme caution must be taken with all jejunostomies as they are easily displaced and cannot be replaced at bedside
- DO NOT loosen any fixation plate present
- DO NOT advance or rotate tube
- Observe sutures daily (see below)
- The tube should be flushed at least 6 times a day with 50mls sterile water post insertion to prevent occlusion using a push pause technique
- The tube should be marked at skin level by permanent pen so any future displacement can be assessed
- Ensure tube does not become kinked or pulled
- Feed should commence as directed by surgeons
- Feeding regimen from dietitian must be strictly followed as there is no stomach reservoir for large volumes
- See chapter 10.10 feeding via jejunostomy tubes
- Drug administration should be avoided where possible as the tubes occlude easily.
- **IF THE PATIENT DEVELOPS PROGRESSIVE ABDOMINAL PAIN, DISTENSION AND HIGH GASTRIC ASPIRATES this should be treated as a surgical emergency as small bowel necrosis has been reported following jejunostomy insertion. Contact on call surgical team urgently.**
- Patients may have a shower but not a bath

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9.6 CARE OF SUTURES AROUND JEJUNOSTOMY TUBE

1. DO NOT remove sutures without advice from Nutrition Support Team, Nutrition Nurse or ward dietitian
2. If sutures are red, carefully remove after above discussion and replace. Sutures usually need replacing every 2-3 weeks
3. If sutures are loose tube may become displaced. Replace sutures and secure tube with dressing. Ensure tube is held securely until tube can be resutured
4. If the skin around the sutures is infected it is acceptable to carefully reposition the fixation plate so healthy skin may be sutured

9.7 ACCIDENTAL JEJUNOSTOMY TUBE REMOVAL

If the tube is accidentally removed re-insertion should not be attempted by nursing staff. Contact surgical team urgently for advice who may reinsert a jejunostomy tube. The tract can close within 2 hours.

A replacement tube may need to be inserted via intervention radiology or the operating theatre

10. MANAGEMENT OF THE PATIENT, ENTERAL FEEDING TUBE AND ADMINISTRATION SYSTEMS

10.1 CARE OF TUBES

Only NPSA compliant equipment should be used in conjunction with enteral feeding. Oral and enteral syringes (purple) should be used to measure and administer oral and enteral medicines. Three way taps and syringe adaptors should not be used.

10.2 FEED ADMINISTRATION

The feed should be started at an appropriate rate for the patients individual needs based on the dietitians assessment and refeeding risk (see chapter 13). The feed will be gradually increased, as tolerated, until the patient's requirements are met.

Feed should be given at room temperature to prevent gastric intolerance.

10.3 DELIVERY METHODS

10.3.1 Intermittent infusion

This is the most common way feed is delivered in the acute setting. It involves feeding via a pump or gravity set with feed breaks e.g. 4 hour break or overnight feeding. The Dietitian will adapt the feed break to best suit the patient's medical and rehabilitation needs. The feed break is thought to be beneficial in allowing the gastric pH to return to normal and limit any aspiration or contamination risk. If poor tolerance is suspected gastric aspirates should be obtained every 4 hours and the Dietitian contacted if these exceed 200mls on a general ward. Higher gastric residuals are tolerated in the critical care units.

10.3.2 Continuous infusion

This is when the patient is feed for a full 24 hours without a break. It is common in critical care settings when blood glucose control needs to be tighter, and in jejunal feeding when there is no need to allow time for gastric pH to lower. It may also be beneficial in patients who are unable to tolerate large feed volumes. Intermittent feeding should be commenced as soon as possible to allow the patient more freedom away from the pump.

10.3.3 Bolus

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This is when feed is syringed down the tube at regular intervals. This may be used to mimic meal and snack times and reduce or prevent the need to be attached to a pump. It is useful in patients who are very agitated and may become entangled in pump feeding equipment. Bolus feeding is not usually possible in jejunal feeding and needs time to become established. Bolus feeds should be administered via a 50 mls syringe over at least 5 minutes, ideally with the aid of gravity rather than the syringe plunger.

10.4 ASPIRATION

To limit the risk of aspiration all patients should be fed with the head of the bed elevated to an angle of 45 degrees. Patients with a hiatus hernia will need the bed raised even higher. The head of the bed should be raised for one hour after feeding. If it is not possible to elevate the bed head due to the patient's medical condition, the need and appropriateness for enteral feeding should be discussed with the doctors. If aspiration is suspected at any time the feed should be stopped and the patient's medical team contacted immediately. The Dietitian should also be contacted for advice and assessment.

10.5 FEEDING REGIMEN

This will be advised by the Dietitian following their assessment on an individual patient basis. The regimen will be based on a calculation of energy, protein and fluid requirements taking into account the patients underlying medical condition, activity levels and stress factors. The regimen will also take into account type of feeding tube, previous nutritional history, anthropometry and refeeding risk (chapter 13).

The regimen will be documented on the purple enteral feeding chart. Fluid volumes will be advised on all wards except high dependency units and ITU. The fluid volume may be amended by the medical team in consultation with the Dietitian. All feed and fluid given via the enteral feeding tube, including medication volumes, must be accurately recorded on the fluid balance chart.

10.6 STARTING AN ENTERAL FEED OUT OF HOURS

Enteral feeding is never a clinical emergency, however it may be necessary to start a feed during the weekend or over a bank holiday weekend when a Dietitian is not available. Any ethical issues should be discussed and goals of feeding should be established and clearly documented in the medical notes prior to starting a feed out of hours to avoid potential dilemmas at a later date. Any feeding should be commenced as a time limited trial with a clear review date and aims (see chapter 3).

If feeding is required outside Dietetic Department normal working hours (e.g. weekends) the 'out of hours enteral feeding regimen' should be used and is available on Trustnet.

1. A referral must also be sent to the Dietitians via PAS so the patient may be fully assessed as soon as possible.
2. Additional IV fluids may be required while the patient is on the 'out of hour's' regimen.
3. Patients admitted from home who are already established on a feed or transferred from another hospital on a feed should continue on their normal regimen or an equivalent feed unless otherwise medically advised e.g. nil by mouth and tube. If the equivalent feed is unclear use standard 1kcal/ml feed at patient's usual rate until assessed by the Dietitian.

10.7 ADMINISTERING A FEED

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Standard infection control techniques should be used as feed is associated with infection risk, diarrhoea, pneumonia and septicaemia. Ward staff should only connect a feed if they are competent and confident to do so. Additional training can be provided by the Nutrition Nurse or the feed company.

- Patients must be fed at an angle of 45 degrees to minimise the risk of aspiration and reflux
- Wash hands
- Check position of tube if nasogastric
- Flush tube with 50mls sterile water
- Use a minimal handling, aseptic non-touch technique to connect feed, giving set and pump
- Ensure giving sets and reservoirs are changed every 24 hours
- Sterile Feed bags must be changed a minimum of every 24 hours. Discard unused feed after this time
- Items labelled single use must not be reused
- Ensure fluid balance chart is accurately recorded including name of feed given
- Ensure feeding regimen is followed, including rest periods, rate of feeding and types of feed used
- Always flush tube with advised amount of water between feed bags. NEVER LEAVE FEED STATIC IN FEEDING TUBE as this leads to occlusion and is an infection risk
- Always check the expiry date of feed before connection

10.8 PUMPS

- Pumps are available from the equipment library
- Instructions for the pump are available in the Nutrition Link Nurse File on each ward
- Ward pumps MUST NOT leave the hospital when patients are discharged
- Pumps should be cleaned as per pump instructions
- Spillage of feed or drugs onto the pump must be wiped off immediately
- Faulty pumps should be returned to the equipment library clearly labelled as such

10.9 JEJUNAL FEEDING

Feeding jejunally avoids the protection of gastric acid therefore additional care must be taken with feed administration.

Feed will initially be given at a slower rate as there is no gastric reservoir.

Feed is usually started over 24 hours as there is no need to allow a rest period for gastric pH to return to normal.

10.10 FEED HANGING TIMES

- Sterile ready to hang bags 24 hours then discard
- Sterile feed which has been decanted 24 hours then discard
- Reconstituted powdered feed 4 hours then discard

10.11 ADDITIONS TO READY TO HANG FEED BAGS

Additions should not be made to the feed.

Occasionally additional sodium chloride may be added for patients with a high output stoma on the direction of the Dietitian and the medical team.

10.12 FLUSHING THE TUBE

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Tubes should be flushed with sterile water using a 50ml syringe using a push-pause technique rather than constant pressure. This ensures water moves in all directions around the tube rather than just moving residue feed quickly through the tube without water coming into contact with the walls of the tube and will limit the chance of tube blockage.

Flushing should be carried out:

- Prior to feeding
- After feeding prior to capping the tube
- Before and after medication
- Additionally as advised for hydration
- Jejunal tubes should be flushed every 4 hours to avoid occlusion
- Other tubes - every 4 – 6 hours during the day if the tube is not been used for feeding in order to maintain tube integrity

The amount used will be dependent on the patient's individual needs and clinical status and will be advised on the feeding regimen or by medical staff. It is imperative that the amount of fluid advised is given on a daily basis to avoid over or under hydration and deranged electrolytes. All fluid administered via the enteral feeding tube must be accurately recorded on the fluid balance chart.

Large volumes of additional water may be given via a water reservoir filled with the required amount of sterile water. The water reservoirs must be changed every 24 hours.

10.13 OBTAINING ENTERAL FEEDS

The four most commonly used feeds are available from pharmacy as stock items for all wards. They are only available in 500mls ready to hang bags and include:

- Standard 1 kcal/ml feed
- Standard 1 kcal/ml feed with fibre
- 1.5 kcals/ml (energy) feed
- 1.5 kcal/ml (energy) feed with fibre

Additional feed may be prescribed by the Dietitian depending on clinical condition. These are also available from pharmacy but may need to be requested specially via the ward pharmacist, depending on the ward. Such feeds include:

- Peptide feed
- Elemental feed
- High protein feed
- Low electrolyte feed for renal disease
- High fat low carbohydrate feed for respiratory failure

10.14 STORAGE OF FEEDS

Unopened bags of feed should be stored at room temperature, away from direct sunlight or heat sources.

Feed should not be stored in the fridge as this can cause diarrhoea and abdominal discomfort. Feed stock should be rotated to prevent feed going out of date.

10.15 ORAL CARE

Many patients receiving enteral nutrition are nil by mouth (NBM) although poor oral hygiene will also adversely affect swallowing and nutritional intake if patients are allowed to eat and drink.

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Poor mouth care will change the bacterial composition of saliva making it more harmful if aspirated into the lungs. This will enhance the risk of aspiration pneumonia, especially in patients unable to manage their own secretions.

Regular mouth care is essential (see Care Plan for Mouth Care) and additional advice may need to be requested from the Speech and Language Therapy Department.

Daily mouth care should include the following:

1. Regular brushing of teeth or dentures and gums.
2. Mouth care using sponge swabs including brushing tongue and palate.
3. Lip salve or similar applied to lips regularly to avoid cracking.

If mouth is persistently dry, consider use of artificial saliva and a medication review.

10.16 MANAGEMENT OF DIABETES IN PATIENTS WHO ARE ENTERALLY FED

Patients with diabetes should avoid the extremes of hyperglycaemia and hypoglycaemia. Warning signs of hypoglycaemia may not be easily identified in patients who are unwell or unable to communicate.

Risks for hypoglycaemia include:

- Inappropriate use of diabetic medication
 - Interruption of nutrition support e.g. tube displacement/ feed not replaced promptly/ tube blocked
 - Enteral feeding discontinuation
 - Vomiting
 - Feed intolerance
 - Diabetic gastroparesis
 - Reduction in drugs that induce hyperglycaemia e.g. steroids
 - Deterioration in renal function
 - Severe hepatic dysfunction
-
- In stressed patients, blood glucose should be kept between 5.5–11mmol/l and once established, control should be tightened to 5.5-9mmol/l
 - Intensive Care patients require tighter glycaemic control and insulin infusion combined with 24 hour enteral feeding is used, as per unit protocol
 - Patients with diabetes who are either diet controlled or take oral hypoglycaemic agents often require conversion to insulin when starting enteral feeding. NONE of the oral hypoglycaemic medications can be crushed. Liquid formulations may be available and should be discussed with Pharmacy and the Diabetes Specialist Nurse
 - Patients already on insulin usually need considerable adjustment to their usual insulin regimen to compensate for the hyperglycaemia caused by the enteral feeding and severity of illness
 - Blood glucose should be monitored 4 hourly until stable, then twice daily unless otherwise advised

10.17 ENTERAL FEEDING AND INSULIN TREATMENT

- On commencing enteral feeding hyperglycaemia can occur within a few hours. The medical team should be advised to start sliding scale insulin initially to keep blood glucose under control. Sliding scale insulin may be required until the full enteral feeding regimen is reached

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which may take a few days. Patients not adequately controlled may become grossly polyuric and dehydrated.

- Once full feeding is achieved stable patients can be converted to a subcutaneous insulin regimen and liaison with the Diabetes Specialist Nurse will be required to devise the most suitable regimen.
- It is **vital** that the feeding regimen is strictly adhered to once the subcutaneous insulin regimen is finalised. Break times should not be adjusted without informing the Diabetes Specialist Nurse, as patients will be at risk of hypoglycaemia.
- **If the enteral feed is stopped unexpectedly (e.g. tube displacement/ for investigations) the Diabetes Specialist Nurse and/or medical team should be advised and close monitoring of blood sugars is essential. It may be appropriate to administer IV glucose if the patient is NBM.**

10.18 TREATMENT OF HYPOGLYCAEMIA FOR PATIENTS WHO ARE NIL BY MOUTH (NBM)

If blood glucose is less than 4.0mmol/l treat as below:

- Give 15-20g quick acting carbohydrate via the tube e.g:
3-4 teaspoons sugar dissolved in 100mls water
50-70mls Fortijuice
25ml undiluted original Ribena
- Wait 10 minutes and recheck blood sugar. If still less than 4.0mmol/l, repeat the above step up to 3 times. If blood glucose remains less than 4.0mmol/l after 45 minutes, or 3 attempts as above, consider IV 10% dextrose infusion at 100mls/hr as directed by medical team
- Once blood glucose above 4.0 mmol/l give a source of complex carbohydrate via the tube by either:
Starting enteral feed or
Bolus feeding of 20g carbohydrate as an addition to usual feed

DO NOT omit insulin injection if due, although dose may need reviewing.
Document event in medical and nursing notes. Ensure regular blood glucose monitoring.
Inform Diabetes Specialist Nurse and Dietitian of event so patient can be reviewed.

11. ENTERAL FEED MONITORING

Adequate monitoring is vital to reduce the incidence of complications, reduce electrolyte and metabolic abnormalities and ensure adequate nutrition is delivered.

The goals of nutritional support should also be regularly reviewed

Parameter	Frequency	Rationale
Food chart (if appropriate)	Daily	To compare intake with requirements and aid transition between nutrition support and oral intake
Fluid balance charts	Daily	Help assess hydration status

		<p>To compare feed given with feed prescribed</p> <p>To assess fluid volume prescribed with volume given</p> <p>To assess if feed rest periods are adhered to</p>
Weight	Twice weekly, more frequently if fluid concerns	To assess changes on fluid and muscle/fat mass over time
Body Mass Index	Weekly	Aids nutritional requirement calculations
Temp/ pulse/ respiration	Daily	To monitor overall condition and monitor for signs of infection/ hydration
Stool charts	Daily	To monitor bowel function and tolerance of feed
Blood sugars	Random daily initially until stable, more frequently if unstable	<p>To detect hyper/hypo glycaemia</p> <p>To ensure timing of feed and medication optimal for blood glucose control</p>
Medication	Daily	<p>To ensure side effects and drug/nutrient interactions are limited</p> <p>Ensure drugs are in an appropriate format for tube administration/ absorption</p>
Nausea and vomiting	Daily	Ensure tolerance of feed
Gastric Residual Volumes	4 hourly where clinically indicated	To assess gastric emptying and ascertain appropriateness of increasing feed rate
Feeding Tube position	As per care plan	To prevent aspiration pneumonia (pH less than 5.5 for gastric feeding)
Feeding Tube insertion site	As per care plan	<p>To check for infection/ soreness/ leakage</p> <p>To ensure tube appropriately secured</p>
Tube integrity	Daily	To ensure tube is safe to use and prevent leakage
General clinical condition of patient	Daily	To ensure feed is tolerated and that feeding and feeding route remain appropriate
Aims and Objectives of feeding	Daily or as appropriate for aim	<p>To ensure progress towards agreed objectives of nutrition support</p> <p>To ensure feeding remains appropriate</p>

Biochemical monitoring

Sodium Potassium Urea Creatinine	Daily until stable then twice weekly	Assess fluid status Detect electrolyte or metabolic abnormalities Assess renal function
Phosphate Magnesium Corrected Calcium	Daily until stable then twice weekly	To detect electrolyte/ metabolic abnormalities
Glucose	If needed	To ensure optimum glycaemic control
Liver Function Tests	Baseline then as needed	To detect overfeeding
C-reactive protein	Twice weekly until stable	To assess acute phase response and assist interpretation of protein and trace element results
Albumin	Weekly	Aids interpretation of minerals. Low albumin reflects disease not protein status
Full blood count	Twice weekly until stable then weekly	To monitor for infection and anaemia
Zinc Copper Selenium	When clinically indicated	Deficiency common with increased losses but results can be difficult to interpret as altered by disease, infection and trauma
Folate B12	Baseline if indicated	Deficiency common in certain disease states
Vitamin D	6 monthly on long term nutrition or if deficiency suspected	Often low in housebound patients

12. DOCUMENTATION

Patients receiving enteral tube feeding should have the following documents available in their nursing record:

- Dietitian Enteral Feeding Regimen (purple sheet) -placed in care plan so it is easily accessible
 - Adjust feeding rate as per dietitians regimen
 - Identify duration of feed during a 24 hour period
 - Administer sterile water as per feeding regimen
- Fluid Balance Chart with feed type, all feed flushes, all medication administered and all other fluids given (oral and IV) accurately recorded
- Care plans for relevant tube care (NGT, PEG, RIG, balloon gastrostomy)
- Food chart if appropriate
- Bowel record
- Blood sugar monitoring chart if patient has diabetes

13. REFEEDING SYNDROME

13.1 DEFINITION

Refeeding syndrome is the severe fluid and electrolyte shift that can occur when nutrition support is initiated in a malnourished patient, and the associated metabolic implications. (Soloman and Kirby 1990).

- The mode of feeding is unimportant and includes oral, enteral and parenteral nutritional support
- It is a common and probably under-recognised condition. The exact morbidity and mortality attributable to refeeding syndrome are difficult to separate from those relating the patient's underlying condition

Signs of refeeding syndrome include:

- Hypophosphataemia
- Hypokalaemia
- Hypomagnesaemia
- Altered glucose and lipid metabolism
- Fluid balance abnormalities
- Vitamin deficiency

These can lead to cardiac, respiratory, neuromuscular, renal, metabolic, hepatic and gastrointestinal complications (Soloman and Kirby 1990, NICE 2006, ESPEN 2006). It is therefore essential that serum electrolyte concentrations are monitored during the first few days of refeeding as this is when the biochemical shifts will occur.

13.2 PHYSIOLOGICAL CHANGES DURING STARVATION

- In the fasting state (catabolism)
 - Plasma insulin levels fall because of the reduced intake of carbohydrates. Glycogen stores are rapidly converted to glucose and gluconeogenesis starts resulting in the catabolism of protein and lipid to provide glucose.
 - Adipose tissue lipase is activated releasing large amounts of fatty acids and glycerol and these free fatty acids and ketones bodies become the main energy source, rather than glucose.
 - This breakdown of fat and muscle tissue leads to a loss of lean body mass, water and the intracellular loss of electrolytes especially phosphate but also potassium and magnesium
- The serum concentrations of electrolytes are often normal

13.3 PHYSIOLOGICAL CHANGES DURING REFEEDING

- When feeding recommences there is a shift from fat to carbohydrate metabolism which leads to increased insulin production, stimulated by glucose load
- This leads to the cellular uptake of phosphate, magnesium, potassium, glucose and water and the stimulation of anabolic protein synthesis
- The combined effect of depleted total body phosphate during starvation and the movement of phosphate into cells during refeeding causes a severe extracellular hypophosphatemia often in association with hypokalaemia and hypomagnesaemia
- There is also a considerable uptake of thiamine (vitamin B1), which is required as a co-enzyme in carbohydrate metabolism. In malnourished patients, the available thiamine may not be sufficient to meet the requirements of refeeding

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13.4 CRITERIA FOR IDENTIFYING PATIENTS AT HIGH RISK OF DEVELOPING REFEEDING PROBLEMS

The patient has one or more of the following:

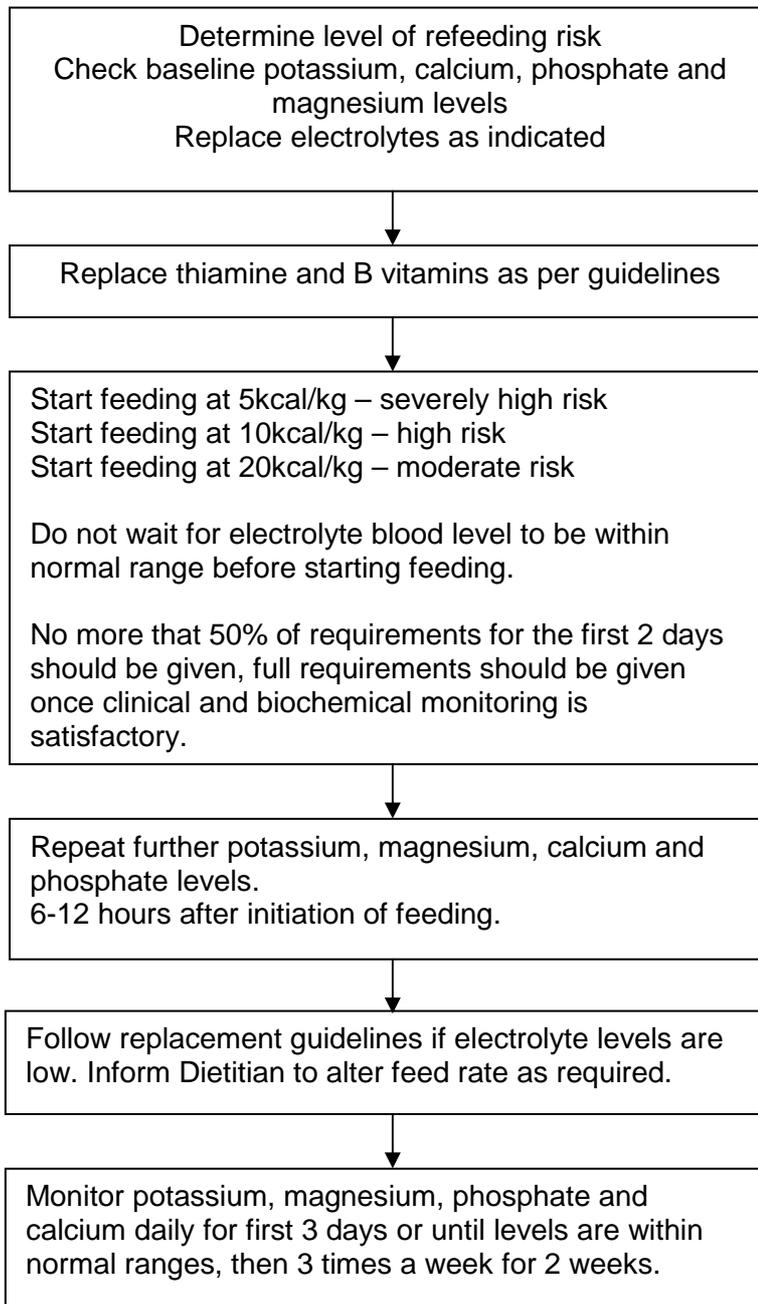
- BMI less than 16kg/m²
- Unintentional weight loss greater than 15% within the last 3-6 months
- Little or no nutritional intake for more than 10 days
- Low levels of potassium, phosphate or magnesium prior to feeding

Or

The patient has two or more of the following:

- BMI less than 18.5 kg/m²
- Unintentional weight loss greater than 10% within the last 3-6 months
- Little or no nutritional intake for more than 5 days
- A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics

13.5 REFEEDING SYNDROME FLOW CHART



MONITORING the severely at risk – Restore circulatory volume and monitor fluid balance and overall clinical status closely. Monitor cardiac rhythm continually in these patients and any other who develop cardiac arrhythmias (NICE 2006)

13.6 GUIDELINES FOR COMMENCING FEEDING IN PATIENTS AT RISK OF REFEEDING SYNDROME (NICE 2006)

Patients who have had limited intake for more than 5 days should have their nutrition support introduced at no more than 50% of their estimated energy and protein needs.

People at high risk of developing refeeding problems should consider starting nutrition support at a maximum of 10 kcal/day, increasing levels slowly to meet or exceed full needs by 4-7 days.

- Use only 5 kcal/kg/day in extreme cases (for example, BMI less than 14kg/m² or negligible intake for more than 15 days) and monitoring cardiac rhythm continually in these people and any others who already have or develop any cardiac problems
- Restoring circulatory volume and monitoring fluid balance and overall clinical status closely
- Providing immediately before and during the first 10 days of feeding:
 - oral thiamine 200-300 mg daily
 - vitamin B co strong 1 or 2 tablets, three times a day (or full dose daily intravenous vitamin B preparation Pabrinex)
 - a balanced multivitamin/trace element supplement once daily (where suitable formulations exist)
- Providing oral, enteral or intravenous supplements of:
 - potassium (likely requirement 2-4 mmol/kg/day)
 - phosphate (likely requirement 0.3-0.6 mmol/kg/day)
 - magnesium (likely requirement 0.2 mmol/kg/day intravenous, 0.4 mmol/kg/day oral)
 - unless pre-feeding plasma levels are high

Correction of low plasma electrolyte levels before commencing feeding is unnecessary.

13.7 ELECTROLYTE MANAGEMENT IN REFEEDING SYNDROME

13.7.1 Potassium

Hypokalaemia is usually defined as a serum concentration of potassium <3.5 mmol/l.

Potassium is excreted by the kidneys, caution in dose when administering in renal failure

	Mild hypokalaemia	Moderate hypokalaemia	Severe hypokalaemia
Serum levels	3.0 -3.5 mmol/l	2.5-3.0 mmol/l	<2.5mmol/l
Oral/enteral supplementation	Sando-K (12mmol K ⁺ /tablet) 2 tablets BD (48mmol) or KayCeeL syrup (1mmol K ⁺ /ml) 20ml BD (40mmol)	Sando-K (12mmol K ⁺ /tablet) 2 tablets TDS (72mmol) or KayCeeL syrup (1mmol K ⁺ /ml) 20ml TDS (60mmol)	Not appropriate

Intravenous supplementation – Via rate control device.	Ready-prepared infusion bags containing 20mmol/l or 40mmol/l potassium Caution in dosing when administering in renal failure	Ready-prepared infusion bags containing 20mmol/l or 40mmol/l potassium Caution in dosing when administering in renal failure	Specialist areas & via central line only (A&E, CCU, ITU, SDU, MHDU & theatres): Ready-made concentrated potassium bags (40mmol potassium/100ml NaCl 0.9%) Maximum rate is 20mmol/hr Caution in dosing when administering in renal failure
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Ensure need for supplementation regularly reviewed and drug chart amended accordingly. **Any potassium supplementation must be written up for a maximum of 3 days before review of need.**

13.7.2 Phosphate

Hypophosphataemia is usually defined as a serum concentration of phosphate <0.8 mmol/l. **Phosphate is excreted by the kidneys, caution in dose when administering in renal failure.**

	Mild hypophosphataemia	Moderate hypophosphataemia	Severe hypophosphataemia
Serum levels	0.6-0.8 mmol/l	0.4 -0.6 mmol/l	<0.4mmol/l
Oral/enteral supplementation	Phosphate-Sandoz (16.1mmol PO ₄ ³⁻ /tablet) 1 tablet BD (32mmol)	Phosphate-Sandoz (16.1mmol PO ₄ ³⁻ /tablet) 2 tablets BD (64mmol)	Not appropriate
Intravenous supplementation - Via rate control device.	First choice: Oral/enteral supplementation If IV indicated: Phosphate polyfusor 50mmol/500ml (note also contains sodium and potassium!) <u>9 mmol over 12hrs</u> (peripherally or centrally) rate = 7.5ml/hr Caution in dosing when administering in renal failure	Phosphate polyfusor 50mmol/500ml <u>9 mmol over 12 hrs</u> (peripherally or centrally) rate = 7.5ml/hr Caution in dose when administering in renal failure	Phosphate polyfusor 50mmol/500ml <u>25-50mmol (500ml) over 24 hrs</u> (peripherally or centrally in critical care setting) rate = 21ml/hr – caution if peripheral access only monitor for reactions repeat if necessary (max 50mmol per 24hours) Caution in dosing when administering in renal failure (give 25mmol then recheck levels)

13.7.3 Magnesium

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Hypomagnesaemia is usually defined as a serum concentration of magnesium <0.7 mmol/l.
Magnesium is excreted by the kidneys, caution in dose when administering in renal failure.

	Mild hypomagnesaemia	Moderate hypomagnesaemia	Severe hypomagnesaemia
Serum levels	0.5-0.7 mmol/l	0.4 -0.5 mmol/l	<0.4mmol/l
Oral supplementation (not for tubes)	Magnesium glycerolphosphate (4mmol Mg ⁺ /tablet), unlicensed 2 tablets TDS (24mmol)	Magnesium glycerolphosphate (4mmol Mg ⁺ /tablet), unlicensed 2 tablets TDS (24mmol)	Not appropriate
Intravenous supplementation - Via rate control device	Magnesium sulphate 10mmol in 250ml NaCl 0.9% (or Dextrose 5%) over 2-3hrs Caution in dosing when administering in renal failure	Magnesium sulphate 20mmol in 250ml NaCl 0.9% (or Dextrose 5%) over 4-6hrs Specialist areas with monitoring (A&E, CCU, ITU, SDU, MHDU & theatres): 20mmol in 50-100ml NaCl 0.9% (or Dextrose 5%) over 2hrs – if in 50ml Central-line only Caution in dosing when administering in renal failure	Magnesium sulphate 20mmol in 250ml NaCl 0.9% (or Dextrose 5%) over 4-6hrs Specialist areas with monitoring (A&E, CCU, ITU, SDU, MHDU & theatres): 20mmol in 50-100ml NaCl 0.9% (or Dextrose 5%) over 2hrs - if in 50ml Central-line only Caution in dosing when administering in renal failure.

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14. POTENTIAL COMPLICATIONS OF TUBE FEEDING

Problem	Possible cause	Potential action needed
Aspiration pneumonia and regurgitation	<ul style="list-style-type: none"> • Incorrect positioning • Aspiration of saliva/oral intake • Tube displacement 	<ul style="list-style-type: none"> • Stop feed • Inform medical team • Ensure feeding position is at >45° if clinical condition allows during feeding and for 1 hour afterwards • Give feed only at prescribed rate and duration • Always check tube position prior to feed commencing • Consider prokinetic medicine • Consider post pyloric feeding
Constipation	<ul style="list-style-type: none"> • Immobility • Dehydration • Low fibre feed • Drug therapy • Gut mobility disorders 	<ul style="list-style-type: none"> • Follow dietetic/medical instructions for fluid administration including flushes accurately. • Accurate fluid balance charts • Contact Dietitian for advice • Chart stools accurately for assessment • Consider laxatives/enema • Improve mobility if possible
Diarrhoea (DO NOT stop feed immediately)	<ul style="list-style-type: none"> • Infection • Constipation overflow • Antibiotics • Feed contamination • Medication (especially with sorbitol content/ antibiotics/ antacids/ digoxin) • Hyperosmolar feed • Feed intolerance • Malabsorption • Underlying disease • Cold feed administration • Rapid introduction of feed 	<ul style="list-style-type: none"> • Stool sample for analysis • Accurate Stool chart for assessment • Contact Dietitian for review • Check if constipated • Ask pharmacist/ doctor to review medication • Ensure clean handling of feed and equipment • Keep feeds at room temperature • If stool sample negative consider anti-diarrhoeals • Follow infection control guidelines • Ensure electrolytes are monitored and corrected as required • Ensure adequate hydration
Electrolyte imbalance	<ul style="list-style-type: none"> • Refeeding syndrome • Fluid imbalance • Renal function 	<ul style="list-style-type: none"> • Inform doctors • Inform Dietitian • Follow refeeding guidelines (section 13.5)

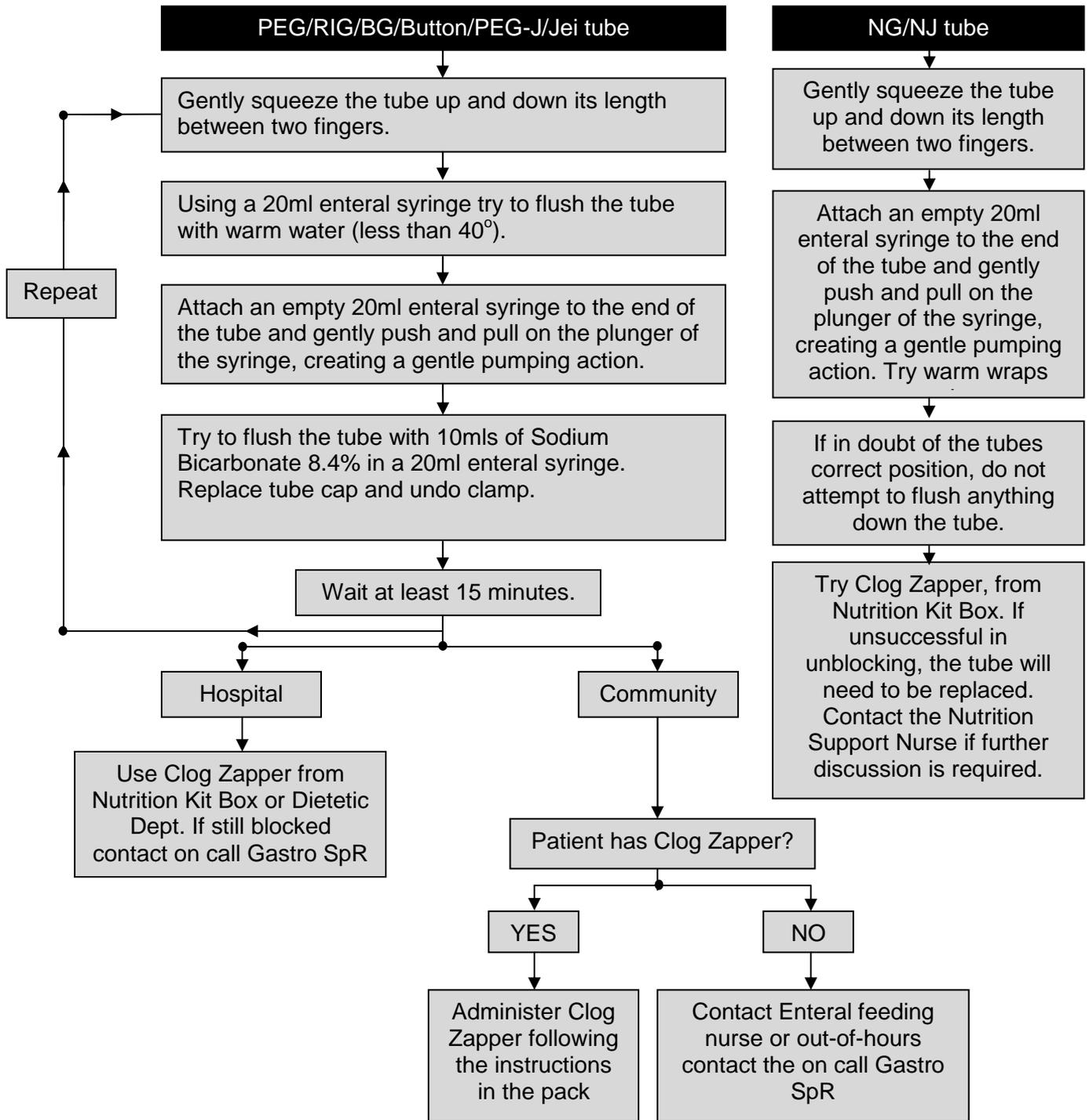
Dehydration	<ul style="list-style-type: none"> • Inadequate fluid intake • Excessive losses, e.g. diarrhoea, vomiting, drains , excessive drooling and pyrexia 	<ul style="list-style-type: none"> • Review fluid intake • Inform doctors • Inform Dietitian • Increase fluid if necessary
Hyperglycaemia	<ul style="list-style-type: none"> • Diabetes • Sepsis 	<ul style="list-style-type: none"> • Contact doctor • Contact Dietitian • Consider short term insulin • Blood glucose charts
Nausea and vomiting	<ul style="list-style-type: none"> • Medication • Underlying disease • Poor position during feeding • Gastric paresis • Gastro intestinal obstruction • Rapid feed rate • Infection • Constipation • Feed intolerance • Excessive coughing/mucous 	<ul style="list-style-type: none"> • Contact doctor to rule out medical cause • Contact Dietitian for consideration of amendments to feeding regimen • Consider prokinetics/antiemetics • Monitor fluid balance • Consider temporary reduction in feed rate for 24 hours • Consider alternative hydration • Check feed use by date • Check feeding rate • Check feed temperature • Check tube position • Ensure suitable angle for feeding (>30°) • Review medication and pharmacist • Treat constipation <p>If the abdomen is acutely distended or tender stop feed and request urgent medical/ surgical review</p> <p>If appropriate consider jejunal feeding</p>
Sore mouth	<ul style="list-style-type: none"> • Poor mouth care 	<ul style="list-style-type: none"> • Consider mouthwash or artificial saliva • Ensure regular mouth care • Check for oral candida
Abdominal pain/guarding/	<ul style="list-style-type: none"> • Possible dislodged tube 	<ul style="list-style-type: none"> • Stop all feeds and medication via tube

acute abdominal distension	<ul style="list-style-type: none"> • Possible bowel perforation • Ileus • Obstruction 	<ul style="list-style-type: none"> • Contact medical team for urgent review • Consider CT scan
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Tube blockage	<ul style="list-style-type: none"> • Inadequate flushing • Insoluble medication administration • Aspiration of stomach contents leading to feed coagulation • Tube kinked or knotted 	<ul style="list-style-type: none"> • SEE FLOW CHART BELOW • Flush tube with sterile water before and after feed, medications or gastric aspiration • Follow dietetic advice, i.e. additional fluids to unblock tube • Flush with warm water • Aspirate if possible • Massage all external tube length between fingers • Wrap tube in a hot flannel for 10 minutes • Retry warm water flush • Draw back on syringe and use push/pause technique to push water through tube with turbulence • DO NOT use excessive force as this could rupture the tube • Try using soda water • DO NOT use acidic fluids e.g. Cola, fruit juices as these may coagulate the proteins in the feed • DO NOT use guide wire/sharp implements • Consider 'Clog Zapper' or pancreatic enzymes if blockage is due to feed not medication • Contact the Dietitian for advice
Tube displacement	<ul style="list-style-type: none"> • Accidental • Failure of fixation • Coughing or vomiting • Non-compliance 	<ul style="list-style-type: none"> • Explain need for tube care if appropriate • Mark nasal exit site of tube with permanent pen and document on NGT care plan • Check fixation regularly • Consider mittens or nasal bridle if appropriate If gastrostomy tube: • Insert spare tube immediately if able • If no spare tube is available use Foley catheter as short term alternative (do

		<p>not use for feeding)</p> <ul style="list-style-type: none"> • Contact gastroenterologist urgently • Contact Dietitian
Cloudy tube	<ul style="list-style-type: none"> • Fungal infection • Medication residue 	<ul style="list-style-type: none"> • Flush tube as advised between medications • Wash gastrostomy stoma site daily • Observe gastrostomy tube regularly for clarity, unseen softening of tube and document unusual signs • Contact Dietitian if unusual signs noticed for advice. Gastrostomy tube change may be needed
Tube migration	<ul style="list-style-type: none"> • Worn or removed external fixation device 	<ul style="list-style-type: none"> • Check fixation device is in place regularly • Contact Dietitian if replacement device is required • If out of hours tape tube securely to stoma • If tube has migrated contact gastroenterologist or surgical on call team
Stoma site infection	<ul style="list-style-type: none"> • Poor hygiene around stoma site • Cross infection • Moist environment • Malnutrition/elderly/obese • External fixator too loose or too tight 	<ul style="list-style-type: none"> • Swab site
Granuloma at gastrostomy stoma site	<ul style="list-style-type: none"> • External fixation device too tight or too loose • Incorrect tube site for stoma tract • Infection • Friction or pulling of tube 	<ul style="list-style-type: none"> • Contact medical team, Nutrition Nurse, Tissue Viability Nurse or Dietitian

ENTERAL TUBE BLOCKAGE FLOW CHART



15. MEDICATION

It is vital that the ward pharmacist is aware of the type of tube and route of feeding to enable the correct formulation and dose of medication to be given.

Medicines are not generally licensed for administration via an enteral tube feeding route. The prescriber and nurse accept liability for any adverse effects from drugs administered via this route. The pharmacist and prescriber should have authorised the administration of the drug via the feeding tube and this should be documented on the drug chart. The ward pharmacist should be contacted for advice.

Potential problems identified when enteral feed and medication are given via an enteral feeding tube include:

- The drug may directly interact with the enteral feed to reduce effectiveness or cause tube occlusion
- The enteral feed may interfere with the absorption or metabolism of the drug, or the drug may prevent absorption of certain nutrients
- The enteral feed may alter the pharmacokinetics of the administered drug e.g. reducing absorption

Common drug/ nutrient interactions include antibiotics, antacids, phenytoin, digoxin, warfarin and sucralfate.

It is strongly recommended that nasal jejunal or jejunal feeding tubes are not used for drug administration as these tubes occlude easily and have a significant length.

The table below gives a guide to the suggested method of administration if medications are required to be administered via the enteral feeding tube.

Intravenous syringes **MUST NOT** be used to measure or administer oral liquid medicines.

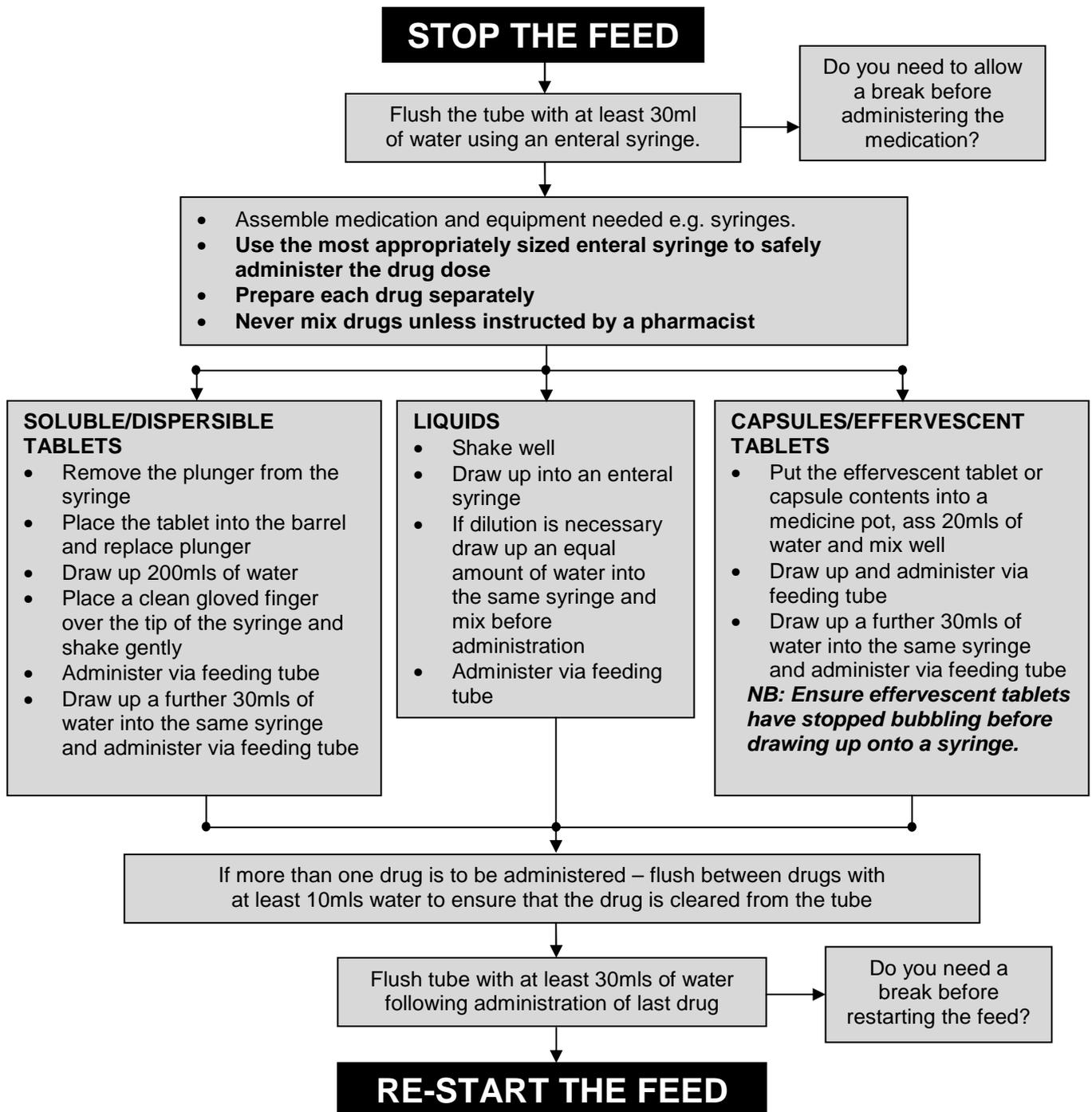
Enteral syringes must be used with enteral feeding tubes.

Three way taps and syringe adaptors must not be used in enteral feeding systems as safeguard design will be bypassed.

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15.1 STEP BY STEP GUIDE TO ADMINISTERING DRUGS VIA ENTERAL FEEDING TUBES

- Can patient still take their medication orally?
- Do not add medication directly to the feed
- Seek further advice for fluid restriction or paediatric patients as flushing volumes may need to be reduced
- Review all medication. Is it really necessary?
- Can an alternative route be used?



Adapted from BAPEN (2013)

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16. TRANSITION TO ORAL FEEDING

- 16.1 Patients on enteral tube feeding should be regularly assessed by the Dietitian who will advise when enteral feeding can be reduced.
- 16.2 The following needs to be assessed and accurately documented to enable accurate dietetic assessment:
1. Food record charts.
 2. Fluid balance charts.
 3. Weight (twice weekly unless otherwise specified).
- 16.3 Throughout the period of reducing the enteral feed it is important that an accurate food chart is completed daily including snacks eaten and nutritional supplements taken. The charts should also include meals missed or refused.
- 16.4 Patients may have their enteral feeding changed to overnight feeding during the weaning period to further facilitate oral intake, until they are tolerating their appropriate nutritional intake orally on the advice of the Dietitian.
- 16.5 The feed should not be stopped or the tube removed until full oral intake has been established or an alternative appropriate outcome achieved.**
- 16.6 Patients with diabetes will require particularly close monitoring during the weaning period with adjustment to their medication as advised by the Diabetes Specialist Nurse.
- 16.7 A trial period without feeding is recommended before the tube is removed, especially if the patient has been artificially fed for a prolonged period of time. When the tube is not being used it should be flushed regularly with water to keep it patent as per tube specific guidance.

17. DISCHARGE PLANNING

Home enteral tube feeding is a rapidly growing area of community-based nutrition support. The most common method of feeding is using a PEG or RIG tube, although after careful risk assessment and in selected patients, some patients may be discharged home with nasogastric, nasojejunal or jejunostomy feeding tubes for short term use.

Successful home enteral tube feeding requires close liaison across acute and community services to achieve planned safe discharges, efficient delivery of supplies and ongoing nutritional follow up.

Patients being considered for discharge with an enteral feed should meet the following criteria:

- Medically stable (including blood glucose and optimised bowel function) but unlikely to meet nutritional requirements orally in the near future
- Have a functioning gastrointestinal tract
- Has reliable, secure access for ongoing feeding
- Is psychologically stable and is manually dextrous if self-caring and being discharged home
- Is capable, or has identified carers capable of performing home enteral feeding procedures to required standard for safe ongoing feeding

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- If being discharged home, the environment must be clean, have space for safe storage of feed and ancillaries away from a direct heat source, have suitable electrical socket access for pump and have a clean sink

Before discharge it is important to have documented the following information in the medical notes to allow appropriate ongoing care:

- Type of tube (NG, RIG, PEG, PEG-J, jejunostomy)
- Place of insertion (bedside/ endoscopy/ radiologically/ surgically)
- Date inserted
- Make and size of tube
- Presence of any sutures and when or if they should be removed
- Area being discharged to
- Place of discharge
- Name of carers or staff who will be responsible for ongoing feeding and monitoring

It is unsafe to leave patients alone whilst an enteral feed is in progress as the patient may be at risk of vomiting, choking, aspiration and leakage of feed or falls.

It is important to identify who will be responsible for ongoing feed administration and tube care early in the discharge process to allow adequate time for training. If the patient is not self-caring, family members or informal carers may be considered.

In North West Surrey the District Nurses do not usually have the resources or capacity to be involved with feed administration on a daily basis.

Many local care agencies do not have trained staff to manage home enteral feeding so if home care agencies will be required a suitable agency must be identified prior to discharge.

If appropriate family members or local care agency cannot be identified the patient may need to be considered for a nursing home.

Patients on home enteral feeding will be registered with the appropriate area feed delivery company who deliver the enteral feed and all necessary equipment on a monthly basis. If inadequate notice is given for discharge this may not be possible in a timely manner and the patient will need to be discharged with 2 weeks supply of feed. This may also be required when a patient is being discharged out of area.

17.1 ROLES OF HEALTH CARE PROFESSIONAL ON DISCHARGE

Ward Nurse	<ul style="list-style-type: none"> • Informs ward dietitian of discharge plans minimum 1 week pre discharge • Liaises with discharge location to establish training needs and ability to look after feeding requirements (in combination with Dietitian) • Ensures adequate feed, giving sets and syringes available for discharge (minimum 7 days) as per discharge letter • Educates patient/ carer on correct drug administration • Ensures BAPEN medication booklet correctly completed • Ensures carers/ patient are confident about feed and medication administration and dosages • Ensures all equipment, feed supplies and paperwork are provided for patient on day of discharge and discharged with patient • Checks PEG is not damaged pre discharge and is patent. Contacts Dietitian/ Nutrition nurse in good time for replacement parts if required • Checks PEG site is clean and dry • Liaises with District Nurses if appropriate
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	<ul style="list-style-type: none"> Ensures regular mouth care given and educates patient/ carers on mouth care
Dietitian	<ul style="list-style-type: none"> Provides pump and feed stand to ward if appropriate Completes list of TTOs for nursing staff Assesses nutritional and fluid requirements Provides suitable feeding regimen for discharge with patient and ensures it is also recorded in medical notes and communicated to GP Liases with community Dietitian regarding follow up Liases with Nursing Home/ carers to ensure adequate pump/ feed administration education (in combination with ward staff) Liases with Community Home Feeding Company nurse to ensure training completed and follow up care Contacts GP with feeding information and request for prescriptions if required Registers patient with home enteral feeding company for ongoing delivery of feed and ancillaries Registers patient with BANS (national audit) Liases with District Nurses if appropriate Provides BAPEN medication booklet for completion by pharmacy/ medical team/ nursing staff Provides information on PINNT support group (if appropriate)
Pharmacy	<ul style="list-style-type: none"> Ensure medication compatible with feed regimen and is appropriate for method of delivery Provides TTO's
Medical Team	<ul style="list-style-type: none"> Ensures feed written on TTOs and discharge letter Ensures medication prescribed in suitable formulation for administration (in liaison with pharmacy) Ensures patient is not discharged until relevant carers competent in tube care and feed administration and a suitable safe environment for discharge has been arranged
Homefeeding Company Nurse	<ul style="list-style-type: none"> Educates patients/ carers in infection control techniques, use of giving sets, use of pump, delivery of feed and equipment, patient positioning during feeding, care of equipment, flushing of tube and disposal of equipment. Feeds back suitability of home situation to Dietitian and ward staff Provides list of emergency contact numbers Provides written information on care of tube, stoma site and use of feeding pump Explains home feeding delivery system to patient/ carers Monitors patient in community in collaboration with community Dietitian
Home enteral feeding company	<ul style="list-style-type: none"> Delivers feed and ancillaries as specified by registering Dietitian Liases with GP for prescription (if needed, not currently required in North West Surrey area) Provides regular deliveries and stock checks for all registered patients

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8. REFERENCES AND BIBLIOGRAPHY

Arrowsmith H., (1993) Nursing Management of Patients Receiving a Nasogastric Feed British Journal of Nursing, Vol 2, No 21, pp1053-1058

Arrowsmith H., (1996) Nursing Management of Patients Receiving Gastrostomy_Feeding British Journal of Nursing, Vol 5, No 5, pp268-273

Ashley and Currie(2009) The Renal Handbook, 3rd edition

BAPEN (1999) (ed. C.A.McAtear) Current perspectives on enteral nutrition in adults_British Association of Parenteral and Enteral Nutrition

BAPEN (1996) Ethical and legal aspects of clinical hydration and nutritional support British Association of Parenteral and Enteral Nutrition

BAPEN (1996) (ed. T.Sizer) Standards and guidelines for nutritional support of patients in_British Association of Parenteral and Enteral Nutrition

BAPEN (2012) Annual BANS report, Artificial Nutrition Support in the UK'

BAPEN (1998) Ethical and legal aspects of clinical hydration and nutrition support

Bankhead R et al (2009) A.S.P.E.N Enteral Nutrition Practice Recommendations: J Parenter Enteral Nutr; 33; p122-167

Barrett JS et al (2009) Strategies to manage gastrointestinal symptoms complicating enteral feeding; JPEN; 33; 21

BNF No 62, September 2011

British Medical Association (1999) Withholding or withdrawing life prolonging medical treatment. London. BMJ books.

British Society of Gastroenterologists/ RCP (2010) Oral feeding difficulties and dilemmas: a guide to practical care particularly towards the end of life. London. Royal College of Physicians

Finucane TP et al (1996) Use of tube feeding to prevent aspiration pneumonia. The Lancet. Nov 23; 348 (9039); 1421-4

Friedrich L (2010) PEG tube feeding at the end of life – when it appropriate, When it's not; Today's Dietitian; April; 12 (4) 42-47

Gardiner KR (2011) Management of acute intestinal failure: Proc Nutr Soc: Aug; 70 (3); 321-8

Gillick MR (2000) Rethinking the role of tube feeding in patients with advanced dementia. N Eng Joun Med. Jan 20; 342 (3) 206-10

Kurien M et al (2011) National survey evaluating provision for percutaneous endoscopic gastrostomy within the UK; Scand J Gastroenterol: Dec; 46 (12): 1519-24

Kurien M et al (2010) percutaneous endoscopic gastrostomy (PEG) feeding. BMJ. 340:c2414: 1075-78

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Loser C et al (2006) ESPEN guideline on artificial enteral nutrition-percutaneous endoscopic gastrostomy. Clin Nutr. 24; 848-861

Medusa Injectable Medicines Guide <http://medusa.wales.nhs.uk> (accessed 31/10/11)

MHRA (2004) Medical Device alert. MDA/2004/026

Mitchell SL et al (2009) The clinical course of advanced dementia, N Eng J Med: 361: 1529

NICE, Clinical guideline 32, Nutrition Support in Adults (2006) London

NPSA briefing paper 2005 No 5, Balloon replacement

National Patient Safety Agency (March 2010) Early detection of complications post gastrostomy insertion. Patient Safety Alert

National Patient Safety Agency (2011) Reducing the harm caused by misplaced nasogastric feeding tubes in adults, children and infants., Patient Safety Alert

National Patient Safety Agency (Feb 2005) Reducing the harm caused by misplaced nasogastric feeding tubes, Patient safety Alert

National Patient safety Agency (March 2007) Promoting safer measurement and administration of liquid medicines via oral and other enteral routes, Patient Safety Alert

National Patient safety Agency (2012) Harm from flushing of nasogastric tubes before confirmation of placement, Rapid Response Alert

NCEPOD (2004) Scoping out practice. London, National Confidential Enquiry into Patient outcome and death

NNNG (2004) Guideline for confirming correct positioning of nasogastric feeding tubes National Nutrition Nurse Group

NNNG (2004) Evidence based practical guidelines for nasogastric tube insertion and maintenance National Nutrition Nurse Group

NNNG, 2013, Exit site Management for Gastrostomy Tubes in Adults and Children, National Nurses Nutrition Group

P. Austin and M. Stroud (2007) Prescribing Adult Intravenous Nutrition, 1st edition

Saunders DS et al (2004) Percutaneous endoscopic gastrostomy: an effective strategy for gastrostomy feeding in patients with dementia, Clin Med: 4: 235-241

Saunders DS et al (2000) Survival analysis in percutaneous endoscopic gastrostomy feeding: a worse outcome in patients with dementia. Am J Gastro. Jun: 95 (6) 1472-5

Soloman, SM and Kirby D.f (1990) The Refeeding Syndrome, a review. Journal of Parenteral and Enteral Nutrition, 14, 90-97

SPC of Phosphate polyfusor (Fresenius Kabi)
http://medusa.wales.nhs.uk/docs/SPCs/Polyfusor_NA.pdf (accessed 31/10/11)

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Stanisstreet D, Walden E (2010) The hospital management of hypoglycaemia in adults with diabetes mellitus: NHS Diabetes

Stroud M et al (2003) Guidelines for enteral feeding in adult hospital patients, Gut: 52 (Supp VII

Stroud, M. , Duncan, H. Nightingale, J. (2003) Guidelines for enteral feeding in adult hospital patients_Gut vol. 52, suppl. VII, pp1-12

The Mental Capacity Act (2005) OPSI

UCLH (2007) Injectable Medicines Administration Guide, 2nd edition

UKMI Medicines Q&A 350.2: How is acute hypomagnesaemia treated in adults
<http://www.nelm.nhs.uk/en/NeLM-Area/Evidence/Medicines-Q--A/How-is-acute-hypomagnesaemia-treated-in-adults/?query=hypomagnesaemia&rank=100> (accessed 31/10/11)

Wernerman J (2012) Combined enteral and parenteral Nutrition. Curr Opin Clin Nutr Metab Care; Mar: 15 (2): 161-165

Westaby D et al (2010) The provision of a percutaneously placed enteral tube feeding service: Gut, 59, 1592-1605

WHITE S., (1998) Percutaneous Endoscopic Gastrostomy (PEG) Nursing Standard, 12, 28, pp41-47

Wohlt PD, Zheng L et al (2009) Recommendations for the use of medications with continuous enteral nutrition; Am J Health-Syst Pharm; 66: 1458-1467

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Decision-Making for Enteral Feeding Tube Placement in Adult Patients

Expect Medical Benefits of Treatment	Disease/Condition	Action Regarding Long-Term Enteral Feeding Tube	Other Actions
Likely to benefit	Dysphagia associated with non-progressive, or slowly progressive underlying disease and a good quality of life.	Recommend enteral feeding.	Provide support and education in long-term enteral tube management. Complete Enteral Feeding Decisions making sheet.
	Nutritionally compromised without dysphagia but unable to meet daily nutritional needs; may have a non-progressive underlying disease but has a good quality of life		
Benefit is unclear	Dysphagia associated with significant co-morbidities and quality of life related to underlying progressive disease.	Discussion regarding benefits and burdens for individual situation (both with and without tube feeding). Consider personal religious beliefs related to provisions of food and fluid by artificial means. Option to involve ethics consultation. Consider time-limited trial of tube feeding (to be discussed and agreed by MDT)	<i>Provide Nasogastric Feeding/ PEG booklet</i> to patient and/or involve family decision makers if appropriate. Determine goals and time-frame to review benefit/burden through tube feeding trial. The decision may require more than one discussion with patient, family and/or care team. If decision is made to feed, complete Enteral Feeding Decision making sheet.
	Dysphagia with unknown diagnosis.		
	Persistent vegetative state (less than 12 months-no awareness of self or environment)		
Unlikely to benefit	Progressive condition (e.g. dementia) where benefit is likely to be limited and burden of treatment might be high. No awareness of self, eating process or environment. E.g. palliative care on admission – not eating and drinking.	Do not recommend enteral feeding. Consider personal religious beliefs related to provision of food and fluid by artificial means.	Comfort measures and family support. Consider referral to palliative care, social work or spiritual care as appropriate.

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Feeding guidance and Trial Guidelines

Trial Guidelines

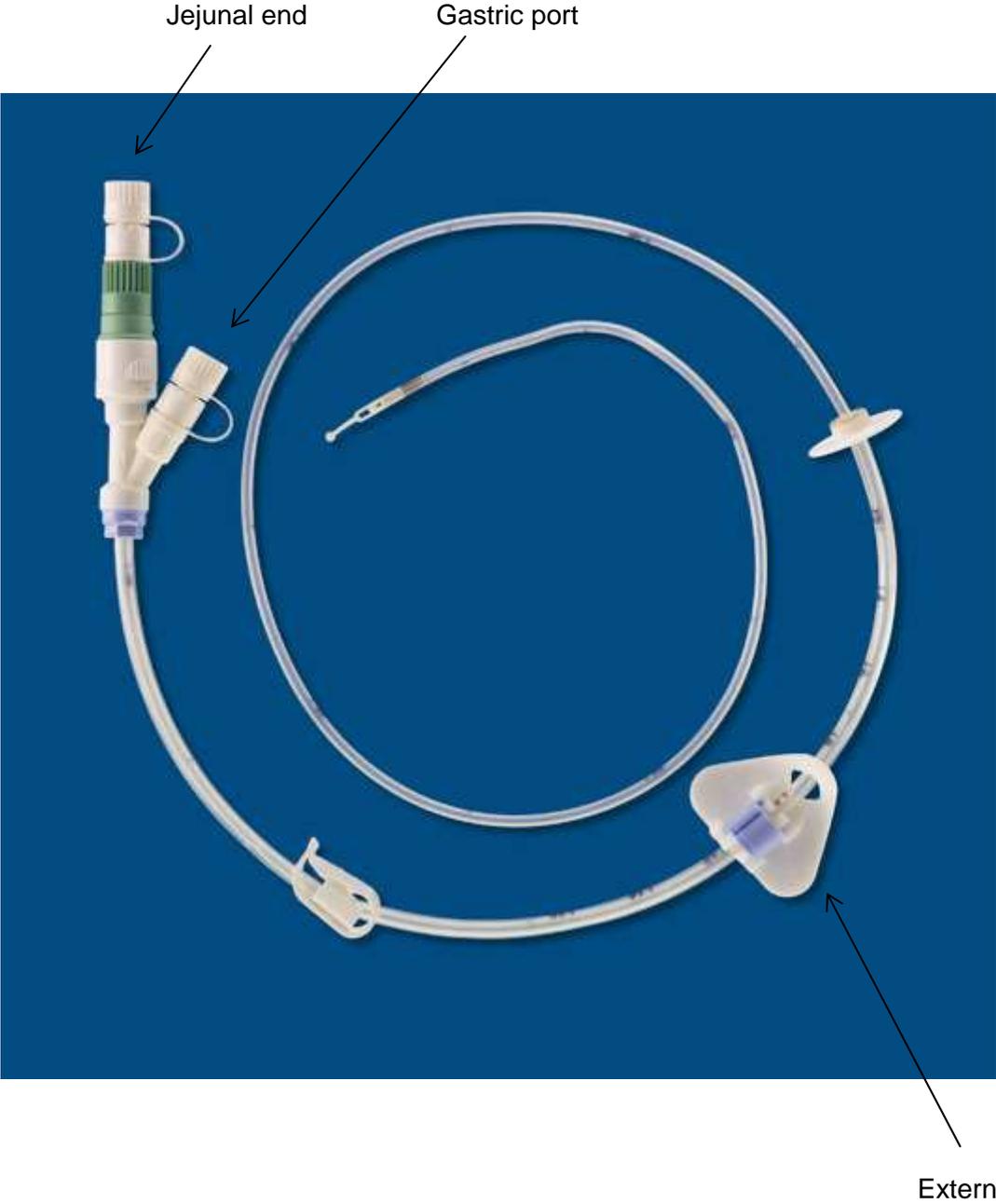
The standard trial period for an artificial nutrition support trial is 1-2 weeks although this should be discussed on an individual patient basis.

All patients considered for artificial feeding need to be referred to the Dietetic Department prior to intervention.

No patients should start artificial nutrition support without a trial period including the following:

1. Start and end date of feeding trial
2. Goal of feeding. The goal plan should involve appropriate members of the MDT depending on the purpose of the feeding trial.
3. A clearly documented agreement on the next steps after the trial has ended e.g. continue with feeding if patient less distressed, stop the feeding if no improvement to patients condition, refer for PEG.
4. Consultation with patient/ family regarding the trial, goals and potential outcomes which must be documented.

Picture of PEG-J Tube



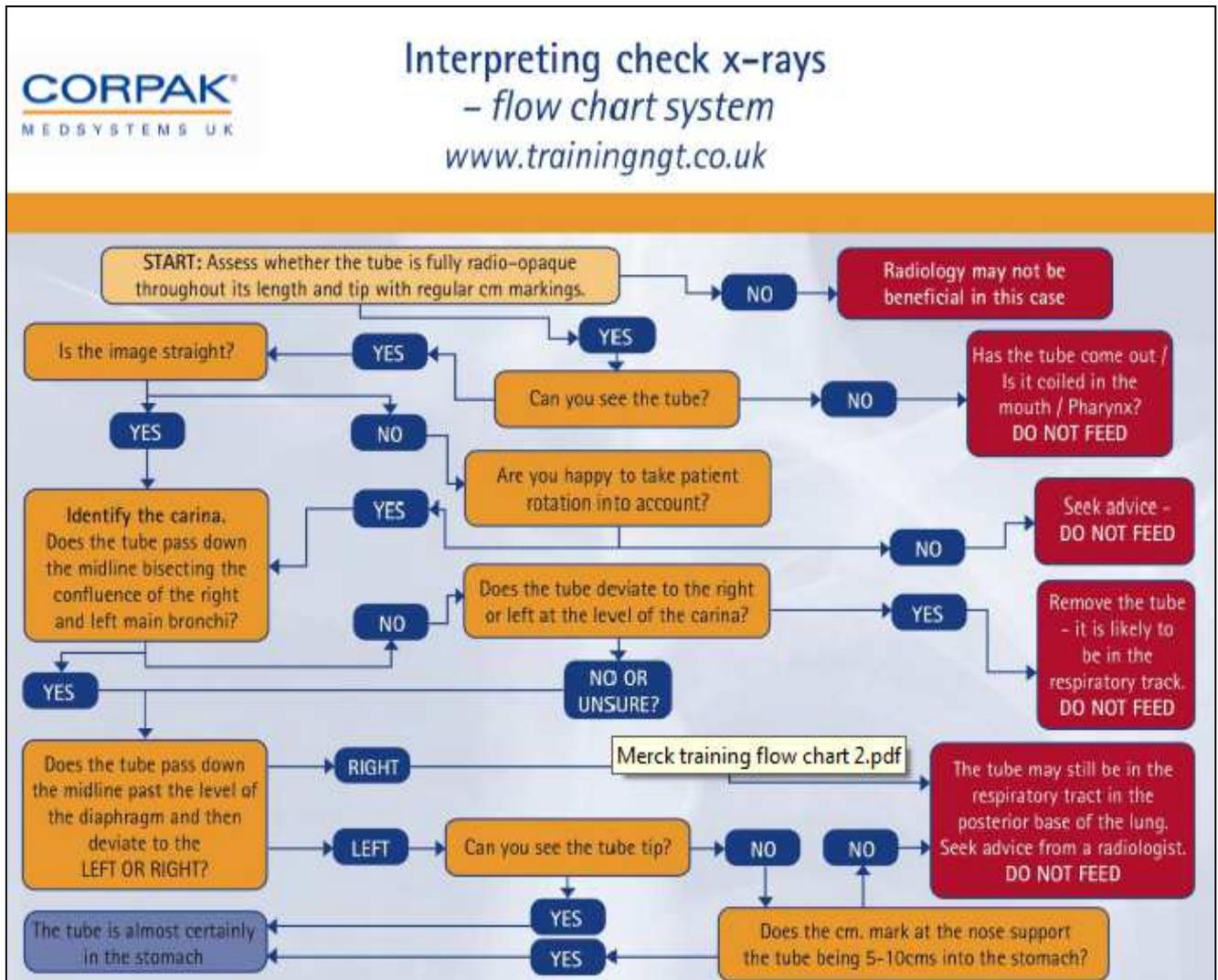
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Use of non-approved feeding tube for enteral feeding

Complete the following and file this in the patient notes

Which tube in situ:	
Placed by:	
Where:	
When:	
Reason for use:	
Discussed with patient:	Yes <input type="checkbox"/> Date and Time:
Documented in patient notes:	Yes <input type="checkbox"/> Date and Time:
Consultant Aware of NPSA breach	Yes <input type="checkbox"/> Date and Time Informed:

Interpreting check x-ray flowchart



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Equality Impact Assessment Summary

Name: Caroline Goodger

Policy/Service: Adult Enteral Feeding Policy

Background

- Description of the aims of the policy
- Context in which the policy operates
- Who was involved in the Equality Impact Assessment

To provide evidence based guidance to all staff involved in adult enteral tube feeding with the aim to minimise potential risks and harm.

The policy is designed for use by all healthcare professionals involved with adult enteral tube feeding throughout the Trust. The policy covers the indications and contraindications for each method of feeding, goals, assessment and safe discharge planning. It also contains principles of care and a troubleshooting section.

Methodology

- A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age)
- The data sources and any other information used
- The consultation that was carried out (who, why and how?)

These guidelines have been considered in terms of ethical diversity. Any intervention would meet MCA guidance.

Data used – see reference section

Consultation with:

Dr M Parris (Clinical Lead for Nutrition), Infection Control department, Department of Gastroenterology (Dr's Evans/ Guneskera/ Alexandropolou), Endoscopy Department, Pharmacy, Nutrition and Dietetic Department, Speech and language Therapy Department, Dr David Cartwright (Consultant Chemical Pathology and Metabolic Medicine), Nina Cron and Lisbeth Dean (Nutrition Nurses), Dr A Chapman (Interventional Radiology Consultant), Nutrition Steering Group, Nutrition Support Team, Tissue Viability Nurse, Stoma Nurses, Diabetes Specialist Nurses

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Key Findings

- Describe the results of the assessment
- Identify if there is adverse or a potentially adverse impacts for any equalities groups

There is no adverse or potentially adverse impact for any equality group

Conclusion

- Provide a summary of the overall conclusions

No equality groups are adversely impacted as a results of this policy

Recommendations

- State recommended changes to the proposed policy as a result of the impact assessment
- Where it has not been possible to amend the policy, provide the detail of any actions that have been identified
- Describe the plans for reviewing the assessment

n/a