



Crumlin | Temple Street | Tallaght | Connolly

**CHILDREN’S HEALTH IRELAND NURSING PRACTICE**  
**GUIDELINE ON NASOGASTRIC TUBE PLACEMENT AND NASOGASTRIC/OROGASTRIC FEEDING**

<b>Area of use:</b>	All of organisation <input checked="" type="checkbox"/>	CHI at Connolly <input type="checkbox"/>	CHI at Crumlin <input type="checkbox"/>
		CHI at Tallaght <input type="checkbox"/>	CHI at Temple Street <input type="checkbox"/>
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## 1.0 Guideline Statement

The purpose of this guideline is to outline the principles of care, and standardise practice for Nasogastric tube placement and Nasogastric feeding.

## 2.0 Scope

This guideline applies to all employees and agents undertaking nasogastric care and should be used in conjunction with the Nursing care plan.

### 2.1 Employees

All full-time, part-time and fixed term employees employed by CHI are covered by this guideline.

### 2.2 Agents

Agents are considered to be students on placement, who would complete a Nasogastric tube insertion and feeding competency assessment under supervision.

## 3.0 Procedure

A nasogastric tube is a Polyvinyl or polyurethane tube that is passed through the nose and oesophagus into the stomach (Clynes and O Connor 2010). Some infants and children require nasogastric tube feeding because they are unable to take nourishment orally due to conditions such as anomalies of the throat, oesophagus or bowel or impaired swallowing capacity, or breathing difficulties. Some children with Anorexia Nervosa or vomiting due to treatment may need nasogastric feeding for a period of time.

### 3.1 Contraindication and Cautions

Some patients are at a greater risk than others for inadvertent placement of a nasogastric tube in the pulmonary tract (Metheny et al. 2019). Consultation with the medical consultant responsible for the child’s care should be sought prior to inserting a nasogastric in the following situations. A misplaced tube increases the risk of aspiration and could also result in tracheal or pulmonary perforation or pneumothorax (Irving et al., 2014).

• Suspected spinal injury	• Recent caustic ingestion
• Known structural abnormality e.g. choanal atresia	• Upper gastrointestinal stricture/ oesophageal stricture/ obstruction
• Gastro-oesophageal surgery	• Post-surgical repair of Cleft Palate
• Trauma to the face and neck	• Suspected base of skull fractures
• Caution in children with bleeding disorders	• Craniofacial disorders
• Unconscious patient with an absent gag reflex	• Recent caustic ingestion

### 3.2 Special Considerations

• Altered level of consciousness	• Significant developmental delay
• Diminished or absent gag reflex	• The use of anticoagulant therapy
• Heavy sedation	• Tracheostomy insitu
	• Deviated septum
	(Vermilyea & Goh, 2015; Price & Shuss, 2016).

### 3.3 Insertion of Nasogastric Tubes

The insertion of a nasogastric tube is a commonly performed procedure. Enteral feeding is indicated for infants and children who are unable to tolerate adequate oral feeding to sustain their nutritional requirements. The therapeutic goal is to maintain nutritional status, metabolic balance to achieve balanced somatic growth (Vermilyea & Goh, 2015).

Prior to inserting a nasogastric tube, the healthcare professional should ensure the procedure is clinically indicated and that an assessment has been carried out to exclude contraindications or potential complications.

#### 3.3.1 Equipment Required for Insertion of Nasogastric Tube

<ul style="list-style-type: none"> <li>Personal Protective Equipment (refer to Standard Precautions Appendix 2).</li> </ul>	<ul style="list-style-type: none"> <li>Syringes x 2.</li> <li>10ml – 20ml enteral syringe for PVC tube (minimum size should be 10ml syringe)</li> <li>50ml/60ml enteral syringe for polyurethane tube (Macqueen at al., 2012).</li> </ul>
<ul style="list-style-type: none"> <li>Plastic apron</li> </ul>	<ul style="list-style-type: none"> <li>Scissors.</li> </ul>
<ul style="list-style-type: none"> <li>Disposable latex free gloves</li> </ul>	<ul style="list-style-type: none"> <li>Clear occlusive polyurethane dressing or other suitable dressing.</li> </ul>
<ul style="list-style-type: none"> <li>Appropriate tube type and tube size.</li> </ul>	<ul style="list-style-type: none"> <li>Hypoallergenic tape to secure the tube to the child’s cheek (check that the child is not allergic to the tape). If the child has especially sensitive skin, a hydrocolloid dressing such as extra thin duoderm™ may be used to provide a protective layer between the child’s skin and the adhesive tape holding the tube in place.</li> </ul>
<ul style="list-style-type: none"> <li>Sterile water vial for lubrication.</li> </ul>	<ul style="list-style-type: none"> <li>Scissors.</li> </ul>
<ul style="list-style-type: none"> <li>Sterile water vial for flushing tube.</li> </ul>	<ul style="list-style-type: none"> <li>Clear occlusive polyurethane dressing or other suitable dressing.</li> </ul>
<ul style="list-style-type: none"> <li>pH indication strip (<b>range 0-6</b>).</li> </ul>	<ul style="list-style-type: none"> <li>Emesis bowl</li> </ul>

- Sucrose if prescribed (suitable for infants under 6 months, CHI Formulary 2023)

#### 3.3.2 Procedure

- Preferably feeds should be stopped for two hours prior to insertion of a nasogastric tube to prevent vomiting. This may not always be possible, for example in neonates or if the child is hypoglycaemic, there may be a need to reinsert the nasogastric tube without delay. Each patient should be assessed individually.
- Correct nasogastric tube placement begins with choosing the correct size tube, this is determined based on the length of time feeding is required for and the child’s needs.
- The size of the tube is determined by clinical assessment based on the type of feed, size of the child and clinical need in collaboration with the medical team and the dietitians.
- Soft pliable (Polyurethane) small bore tubes (6-12F) are recommended when tube feeding is required for more than 28 days. Polyurethane tubes may be left in place for up to 90 days with regular review of the condition of tubes and nares.
- Polyvinyl tubes are used for short term feeding and should be used according to manufacturer’s instructions. Polyvinyl tubes must be replaced every 7 days (Macqueen et al., 2012). All tubes passes are SINGLE USE ONLY as per infection control guidance and manufacturer’s instructions.

Note the polyurethane tube is softer and more prone to damage. The smaller the syringe the greater the suction which in turn may damage the tube. Please refer to the manufacturers guidelines for the most suitable syringe.

Type	Length of time for Use	Short/Long Term use	Type of lubricant	Presence of a guide wire
Polyvinylchloride (PVC)	As per manufacturer 7 days.	Short Term	Sterile water	No
Polyurethane tubes	As per manufacturer for up to 90 days	Long Term	Sterile water	No In CHI Temple Street, we do not use Nasogastric tubes with guidewires such as Corflo.
Fine bore feeding tube (polyurethane (PU/ silk tube)	As per manufacturer Up to 6 weeks	Long term	Pre insertion lubrication present within the tip of the tube. To activate lubrication dip the tip in sterile water. Internal lubricant must be activated prior to the removal of the guide wire. Flush side arm access port with 10ls of sterile water. <b>Confirm tube tip before flushing it with water.</b>	Yes. Optional to use in CHI may not be required in a conscious cooperative patient

#### Complications of Nasogastric Tubes Include


- Incorrect tube placement
- Tube occlusion
- Tube breakage
- Nasal irritation
- Epistaxis

(Lister et al, 2021)

ACTION	RATIONALE & REFERENCE
Passing a nasogastric tube may be 1-2 person procedure depending on size of infant/child.	The insertion of an NG tube can be traumatic. For this reason the assistance of a second person can help relax and distract the child (Lister et al, 2021).
Explain procedure to child / parents / carers. Obtain verbal consent from the parents/guardians and child as appropriate	Explanations can gain co-operation and trust and allay fears (Lister et al 2021), depending on the age of the child discuss the procedure with the child and parent. Obtain verbal consent from the parents/guardians.
Gather equipment & ensure it is intact.	To prepare environment.
Decontaminate hands thoroughly and put on disposable plastic apron. Use Aseptic Non-Touch Technique (ANTT) throughout the procedure.	Prevention of cross infection (SARI HSE 2009, Infection Control Department).
Ensure with the PU tube (silk tube) that the guide wire is not bent and that it is correctly inserted into the middle of the tube.	To prevent injury from guide wire (Clynes and O’Connor 2010).

Arrange assembled equipment, open packages and cut tape & dressing to correct size. Draw up flush of correct volume for type of nasogastric tube as per manufacturer’s guidelines.	
Attend to nasal care and oral hygiene needs.	As infants are nasal breathers, obstruction to the other nostril may affect their patent airway (Clynes & O’Connor 2010) Therefore it is important to remove debris and organisms from around the nose and mouth.
Sublingual sucrose can be given immediately prior to and during NG insertion in infants <b>up to 6 months</b> . Offer soother to infant if appropriate.	In order to reduce pain and provide comfort. Non-nutritive sucking enhances analgesic effect of sucrose. (Hospital Formulary online)
Elevate the head of the bed.  Position the infant/child with assistance, if appropriate (parent/staff member), so that the nostril can be easily accessed. Position them by placing them on their side or back on the elevated part of the bed. Restrain hands by wrapping the infant in a baby blanket.  Younger children may have to be held.	To allow easier swallowing to facilitate passage of the tube (Lister et al 2021)  Holding the infant/child securely will help to prevent movement and injury to the child during the procedure. It will also ensure that the procedure is carried out swiftly therefore causing less distress to the child. This should be done in compliance with the clinical holding guideline.

ACTION	RATIONALE & REFERENCE
Don Personal Protective Equipment (PPE) and Decontaminate hands	Infection Control Department
To measure the length of tube to be inserted:  Place the tip of the tube at the tip of the child’s nose and extend the tube to bottom of the child’s earlobe. From there, extend downward to midway between the xiphoid process and the umbilicus.	This measurement is the approximate length of tubing needed to reach the stomach. (Lister, 2021)  All other methods of measuring the length of the tube to be inserted are frequently found to be either too short or go beyond the body of the stomach (NPSA 2011).
Mark the place on the tube with pen or tape or take note of the number on the length of the tube	To record the length needed (NPSA 2011).
Lubricate the tube tip of the NG tube by placing the tip of the NG tube in sterile water or as indicated on the tube instructions. Some tubes are self-lubricating.	Lubrication facilitates the passage of the tube through the nasopharynx (Bunford 2010)

<p>Do not use KY jelly it may affect the PH.</p>	
<p>Stabilise the infant/child’s head:</p> <p>Infant, side lying position: place the palm of the non-dominant hand along the side of the infant's face. Avoid hyper extending the neck.</p> <p><b>OR</b></p> <p>Infant, supine position: encircle mandible with an extended thumb and forefinger.</p>	<p>There is less risk of aspiration in a side lying position (Clynes &amp; O’Connor 2010).</p> <p>Hyper extension of an infant’s neck can occlude the airway. (Clynes &amp; O’Connor 2010).</p> 
<p>Child: <u>Ask the child to</u> :</p> <ul style="list-style-type: none"> <li>• sit in an upright position</li> <li>• extend their neck,</li> <li>• keep their head still,</li> <li>• Breathe through the mouth and to swallow when instructed. Encourage child to have a sip of water</li> </ul>	<p>Extending the neck relaxes the child and provides a better angle for tube insertion</p> <p>Giving the child a role to play in the procedure elicits cooperation (Lister et al 2021).</p>
<p>Ensure the cap at the end of the tube is closed.</p> <p>Insert the tube into the selected nostril ensuring that the curved end of the tube is facing downward. Angle it slightly upwards and gently advance it along the base of the nose into the pharynx.</p> <p>Continue to pass the tube until the marked point is at the opening of the nostril. The tip should now be in the stomach</p>	<p>Prevents leakage of stomach contents (Clynes &amp; O’Connor 2010).</p> <p>Following the curves of the nasal passage facilitates tube insertion and decreases trauma (Bunford 2010).</p> <p>(Clynes and O’Connor 2010).</p>
<p><b>Infants:</b></p> <ul style="list-style-type: none"> <li>• Encourage swallowing with use of a soother.</li> <li>• In synchrony with the child's swallow reflex continue to advance the tube to the pre measured length.</li> </ul>	<p>Swallowing eases the passage of the tube and reduces risk of insertion into trachea (Lister et al 2021)</p>

<p>Check the child/infant’s mouth and oropharynx to ensure the NG tube is not coiled in the child / infant’s throat.</p>	<p>To help ensure correct positioning</p>
<p>Observe for signs of vagal stimulation while passing the tube past the gag reflex area.</p> <p><b>These include:</b></p> <ul style="list-style-type: none"> <li>• decreased pulse</li> <li>• gasping</li> <li>• coughing</li> <li>• cyanosis</li> <li>• apnoea</li> <li>• gagging</li> <li>• vomiting</li> </ul> <p>If any of the above symptoms occur, remove the tube and wait for the child’s/infant’s condition to stabilise before proceeding. (Metheny, 2019).</p>	<p>Vagal stimulation can cause cardiac depression, bronchial constriction, coughing, gagging and vomiting. (Lister et al, 2021)</p> <p>GOSH (2012) state that if gagging occurs ask the child to take a sip of water and swallow to aid the passage of the NG tube over the glottis.</p> <p>If gagging occurs in infant encourage infant to suck on soother.</p> <p>Swallowing helps ease discomfort and closes the epiglottis and facilitates passage of the tube into the oesophagus (Bunford 2010).</p>
<p>Observe for signs that NG tube placement is in the trachea or bronchus:</p> <ul style="list-style-type: none"> <li>• excessive coughing</li> <li>• choking</li> <li>• cyanosis</li> </ul> <p>If this occurs withdraw the NG tube and reinsert after the child/infant has recovered and symptoms have ceased.</p>	<p>Presence of the tube in the trachea or bronchus occludes the airway and is potentially hazardous. (Clynes &amp; O’Connor 2010).</p>
<p>Ask the person assisting to hold the tube in place or tape the tube temporarily in place while you verify <b>correct placement</b>.</p>	<p>To keep it secure when the nurse is getting the tape to prevent slippage.</p> <p>Correct and safe functioning of the tube requires correct placement (Gasper et al 2021).(see appendix 1)</p>

**Clarifying tube placement**

ACTION	RATIONALE & REFERENCE
<p>Aspirate 1 ml of stomach fluids into a 10/20ml syringe if PVC tube or 50/60ml if PU syringe, by applying gentle negative pressure.</p>	<p>Aspiration of stomach contents indicates the presence of the tube in the stomach (Clynes &amp; O’Connor 2010, NPSA 2011).</p>



<p>Test aspiration fluid with pH paper (NPSA 2011).</p> <p>Match colour change of the strip with colour code reference on the box to identify the pH of the stomach contents</p> <p><b>Note:</b> Absence of fluid is not necessarily evidence of incorrect placement. The stomach may be empty, or the tube may not be in contact with stomach contents. (Clynes &amp; O’Connor 2010).</p> <p><b>Note: DO NOT INJECT AIR INTO THE NG TUBE TO DETERMINE POSITION</b></p> <p>If in doubt about correct placement of NG tube - <b>DO NOT COMMENCE FEED.</b></p>	<p>A pH reading of 0-5.5 indicates contact with stomach contents and this verifies that the tube is in the stomach (Bunford 2010).</p> <p>Note: An infant/child on gastric acid blocking medications e.g. ranitidine, omeprazole may have a gastric pH of &gt;5.5.</p> <p>Testing placement by injecting air into the tube and listening with a stethoscope can be misleading because a bolus of air can be auscultated over the stomach when the tube is still in the oesophagus. Also the sounds heard are similar to those heard when air is instilled into the lungs via a nasogastric tube. (NPSA, 2011, Clynes &amp; O’Connor 2010).</p>
<p>If unable to aspirate stomach contents:</p> <ul style="list-style-type: none"> <li>Place the infant/child on the left side to pool gastric secretions and aspirate again.</li> <li>If still unable to aspirate stomach contents, slightly advance the tube (approximately 1 cm) and re attempt aspiration.</li> <li>The child/infant may be offered a drink if appropriate to their fasting status / oral restrictions and re attempt aspiration after 5 minutes.</li> <li>If this is unsuccessful, contact medical team for further management. An x-ray should be obtained if any questions arise concerning the placement. (ASPEN 2009)If a pH reading is &gt;5.5, review patient’s medications.</li> </ul>	
<p>Once correct placement is determined secure the tube to the infant/child’s cheek with adhesive tape. Adhesive tape should be wide enough to cover the NG tube with overlap at each side, allowing 3cms of tube to be secured.</p> <p>A skin protector or hydrocolloid dressing may be applied to the infant/child’s cheek prior to securing the tube. Adhesive tape should not extend beyond the boundary of the skin protector.</p>	<p>A secure taped tube decreases the risk of tube displacement and aspiration and allows for freedom of head movement.</p> <p>To prevent skin reaction &amp; damage.</p>
<p>If the feed is not to be commenced immediately, gently flush the tube with 2-5mls of sterile water once correct placement is determined (volume and fluid restriction appropriate).</p>	<p>To ensure patency of the tube.</p>

For a polyurethane feeding tube the internal lubricant of the tube must be activated immediately before the stylet is removed. Flush the tube through the stylet connector with 10mls of water and remove stylet, <b>flush only after position of tube has been clarified</b> (see table 1).	The wire is intended for insertion only as it occludes the tube’s lumen.
Dispose of all equipment appropriately.  Decontaminate hands	To promote safety and prevent cross contamination. (As per waste disposal guidelines)  To prevent cross infection (SARI HSE 2009)
Document insertion depth of tube and side it is inserted	To maintain accountability through accurate recording of clinical practice (NMBI 2015)
<b>Note</b> – where possible children who require long term nasogastric tubes should be encouraged to pass their own NG tubes (if age- appropriate).	To promote independence in managing their own care therefore encouraging compliance with feeding regime

**NOTE: Orogastric Tubes.**

The technique and precautions taken with an Orogastric tube are the same as those for NG tube insertion and management. Care should be taken not to damage lips or gums which can occur if the Orogastric tube is secured too tightly (GOSH 2012).

**3.3.3 Checking the position of a nasogastric tube**

- a. The position of the nasogastric tube should be checked
  - Immediately after insertion
  - Prior to each feed
  - Before administration of medication
  - If on continuous feed, 12 hourly
  - If the child has vomited
  
- b. Along with obtaining a gastric aspirate, the following observations should also be performed to confirm that the nasogastric tube is located in the correct position
  - The tape is secure
  - Observe the position marker of the nasogastric tube and compare to the initial measurement
  - Observe the child for any signs of respiratory distress.

**3.3.4 Obtaining a gastric aspirate**

- a. The lower the pH, the more convincing that the aspirate is from the stomach not the respiratory tract (Metheny et al., 2019)
- b. To check the position of the nasogastric tube the following equipment is required
  - pH test indicators
  - Enteral syringes
  - Gloves (WHO, 2009)

**Procedure**

**Step 1:** Attach a 10 - 20ml enteral syringe to the nasogastric tube in the infant/child.

If using a polyurethane tube, attach a 50ml syringe. Attach a 5 - 10ml enteral syringe to the nasogastric tube in the neonate.



**Step 2:** Aspirate minimum 0.5 - 1ml of gastric content (sufficient amount to enable pH testing).



**Step 3:** Utilising pH indicator strip, a reading between 0 - 5.5 should be obtained and confirmed with a second person & document documented.



**Step 4:** If the gastric aspirate is outside this range, follow flow algorithm attached (Appendix 1).

### 3.3.5 Issues with obtaining a Gastric Acid pH Value

- The use of histamine-2 receptor antagonist (H<sub>2</sub>RAs) and/or Proton Pump Inhibitors (PPIs) reduces stomach acidity, thus resulting in a higher pH result.
- The typical pH of an infant formula is 6 to 7. Patients receiving continuous enteral feeding may require a period of cessation, typically 15 to 20 minutes from formula and flush of the nasogastric tube with water to ensure accuracy of gastric acid to measure pH (Lyman, 2017).
- Turn the infant/child onto their left side to allow pooling of gastric secretions and reattempt to obtain a gastric aspirate after 15 minutes (Lyman, 2017).

### 3.3.6 When to consider radiology

While the gold standard for checking the position of a nasogastric tube remains abdominal radiography, other methods such as pH aspirate are utilised. Radiology may need to be considered

- If you remain unable to obtain a gastric aspirate
- If the insertion of a nasogastric tube is contraindicated but required
- If you observe signs of respiratory distress Metheny et al. (2019).

When requesting abdominal radiography to confirm tube position, it should be clearly indicated on the request that the purpose of the abdominal X-ray is to confirm the position of a nasogastric tube. When the X-ray has been formally reported by the Radiologist, the child's Clinician should document in the healthcare record that they have reviewed the report and that the correct feeding tube position has been confirmed.

## 3.4 Management of Nasogastric Tubes

### 3.4.1 Flushing a Nasogastric Tube

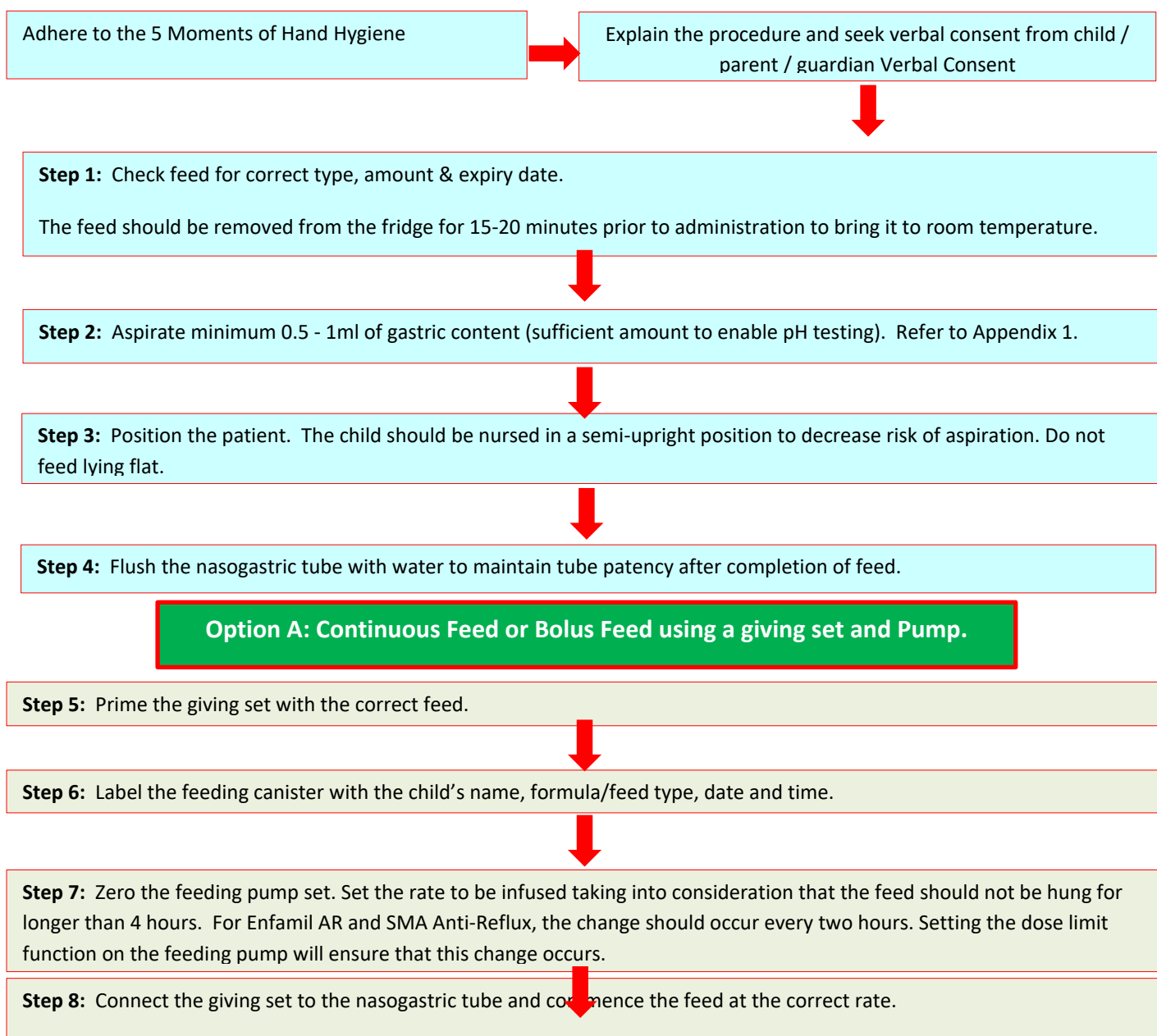
Nasogastric tubes should be flushed with between 5-10mls of water depending on the viscosity of the feed/medication, the child's fluid status and the child's size. The minimum volume required to clear the tube is typically 2 ml; however, for shorter tubes 1.5 ml may be sufficient.

### 3.4.2 Feeding via a Nasogastric Tube

- Feeds can be administered via syringe, gravity feeding or feeding pump using a container and giving set.

- b. For children requiring a newly established feeding regime, liaise with the dietitian for the type of feed and flushing volumes required.
- c. For children that have enteral feeding regimes at home, speak to the family to establish normal feeding regimes where possible, taking into consideration the child's reason for admission and clinical condition. Feeds should be ordered from the Special Feeds Unit in line with the local site policy. All feeds made up by the Special Feeds Unit must be refrigerated and should not be hung for longer than 4 hours. Feeds which are 'ready to pour' and remain unopened in their original container do not have to be refrigerated. Packs of feed which are connected directly to the giving set (500ml and 1000ml packs) can be hung for 24 hours as it is considered a 'closed' system. Feeds which are decanted into a feeding container should not be hung for more than 4 hours. Smaller bottles of feed (125ml, 200mls), which are connected to a giving set will typically be treated as an 'open' system and should not be hung for more than 4 hours. If unsure regarding any feeds, hang for a maximum of 4 hours and liaise with the ward dietitian.
- d. Notify the ward dietitian of any patients requiring enteral feeding.

### Procedure



**Step 9:** On completion of a feed, the tube should be flushed with water to prevent it from blocking.

### Option B: Using Gravity feeding for bolus, intermittent feeds and

**Step 5:** Remove plunger from the barrel of a 50ml syringe.

**Step 6:** Clamp the nasogastric tube to prevent air entering the stomach.

**Step 7:** Attach the barrel of the 50ml syringe to the nasogastric tube and pour the correct feed directly into the syringe. The syringe should be 6cm above stomach level.

**Step 8:** Unclamp the tube and allow the feed to be administered slowly. Administration of the feed should take the same length of time it would normally take the child to consume the volume orally. Rapid feeding can cause Dumping Syndrome.

**Step 9:** On completion of a feed, the tube should be flushed with water to prevent it from blocking.

#### 3.4.3 Medication administration via a nasogastric tube

- Confirm the position of the nasogastric tube prior to administering medication.
- After administration of the medication, the tube should be flushed with water to prevent it from blocking. Some medications may require a feed break prior to administration.
- Do not administer drugs through nasogastric tubes that are used for aspiration or on free drainage unless specifically directed by medical staff.

#### 3.4.4 Choice of Drug Preparation

- Ideally, the medication should be available in liquid formation for administration via the nasogastric tube. This will prevent the nasogastric tube blocking.
- Consult with pharmacy in relation to medication and follow manufacturer's recommendations with regards to administration.
- Do not crush enteric-coated medication.
- If Omeprazole is not available in liquid form for administration, then an omeprazole tablet should be dissolved in warm water.

#### 3.4.5 Venting a Nasogastric Tube

- Feeding tubes may be used to facilitate venting or decompression of the stomach.
- Continuous venting;
  - Safely secure the distal end of the tube above the head of the child.

- Remove the plunger from an enteral syringe (5ml or 10ml) to create a reservoir
- Attach the enteral syringe to the distal end of the tube.

### 3.4.6 Unblocking a nasogastric tube

- a. Flushing with water **before, during** and **after** administration of enteral medications and **before and after** each feed is the best way to prevent a nasogastric tube from blocking.
- b. If a nasogastric tube becomes blocked, consideration should be given to the child’s age, size and clinical status, and if the nasogastric tube needs to be changed.
- c. There is no evidence to support the practice of using carbonated drinks to unblock enteral tubes.

## 4.0 Glossary of Terms & Definitions

**Dumping Syndrome:** results from a rapid passage of carbohydrate into the small intestine. This will result in peripheral and splanchnic vasodilation, which in turn leads to epigastric pain, diarrhoea, sweatiness and may result in relative hypovolaemia.

**Enteral Nutrition:** Is the provision of food and/or nutrients beyond the oesophagus via a tube either to the stomach or small intestine. Enteral Nutrition is indicated when energy and nutrient requirements are not met by regular food intake in patients (Vermilyea & Goh, 2015).

**Nasogastric Feeding:** Is the provision of food and/or nutrients beyond the oesophagus via a tube either to the stomach or small intestine (Vermilyea & Goh, 2015).

**Nasogastric Tube:** A nasogastric tube is a narrow bore tube passed into the stomach via one nostril. It is used for nutritional support, administration of medication, and can also be used for decompression of the stomach and aspiration of stomach contents (Metheny et al. 2019).

**pH Strip:** The single, double or triple reagent panels of pH testing strips/paper used to confirm tube placement. 0.5 to 1ml of aspirate will cover an adequate area on the single, double or triple reagent panels of pH testing strips/paper. Allow ten seconds for any colour change to occur.

## 5.0 Monitoring, Audit & Evaluation

This guideline will be **Reviewed** and updated at least every three years by the Author/and or Owner, or earlier if required, in order to determine its effectiveness and appropriateness. In addition, the Author/and or Owner will **Audit** compliance of key practice principles with this guideline on an annual basis.

## 6.0 Key Stakeholders

The following Key Stakeholders were consulted in the development/review of this document:

Amy Craddock	Senior Dietitian	CHI Temple street
Susan Keane	CNM 3 Quality and Practice	CHI Temple street
Kizzy Moroney	Clinical Specialist Dietitian	CHI Temple street
Anthea Bryce-Smith	Clinical Nurse Specialist Nutrition	CHI Crumlin
Emma Nolan	Clinical Nurse Education Facilitator	CHI Tallaght
Fionnuala O’ Neill	NPDC	CHI
Approved by the CHI Nurse Practice Committee May 23		

## 7.0 References

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**Summary: Guidelines on The Hang Time of Enteral Feeds & Plastics for Inpatients**

Feeds should always be handled using a non-touch aseptic technique. Always check the label and date on bottle before using

System	Max Hang Time of Giving Set Pack/ Reservoir	Max Hang Time of Feed	Comment
Sterile Pre Filled Pack Feeds or Closed Systems (e.g. Infatrini™, Nutrini™ and Nutrison™ range of feeds)	24 hours	24hours	<p><b>Pack feeds and Closed Systems Pack feeds</b> may be hung for a maximum period of 24 hours if child is being fed continuously (ASPEN 2009). For Bolus Feeds using the pack system.</p> <ul style="list-style-type: none"> <li>• Always use the Infinity Pack giving set with the drip chamber (i.e. not the mobile giving set). The drip chamber prevents retrograde contamination of the feed from the feeding tube (ASPEN 2009). This is the giving set used In OLCHC.</li> <li>• Always leave the giving set connected to the pack between bolus feeds.</li> <li>• Packs can be left hanging between feeds (i.e. there is no need to keep the pack and giving set refrigerated between feeds as there is no evidence to support this).</li> <li>• Use a new giving set every time the pack is changed.</li> <li>• Try to minimize the number of disconnections</li> <li>• When disconnecting the giving set from the feeding tube (i.e. NG/PEG) use aseptic techniques.</li> <li>• Replace clear cap on the purple end of the giving set between feeds. Do not discard purple tip or clear cap when setting up feeds</li> <li>• To be conservative, before reconnecting the giving set to the NG/PEG tube for the next bolus feed, press the “fill set” button on the Infinity pump to flush out the 10-15mls of feed in the tube and refill with new feed from the pack. This will flush out any contamination in the distal end of the giving set (Moffitt et al. ‘97).</li> </ul>
Powdered infant Formulae and other Reconstituted Powdered Feeds	4 hours	4 hours	These feeds are <b>non-sterile</b> .



Ready to feed infant Formula (e.g. SMA HE / Infatrini )	4 hours	4 hours	When these feeds are decanted their sterility is decreased and therefore they become non-sterile.
Expressed Breast Milk (EBM) (Fresh or defrosted)	4 hours	4 hours	Always check the name on the EBM bottle and dates on label before using. Use second checker
Bolus Syringe Feeds that remain on Reservoir	Change with each feed.	Gravity Infusion	Change with every feed irrespective of feed type.
Feeds infused via jejunal route (naso jejunal, jejunostomy or gastrojejunal).	4 hours	4 hours	When a patient is fed directly into the small intestine there is a greater risk of developing infection as the defence mechanism of the acidic stomach has been bypassed (Courtney-Moore, 1985).

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**Special Considerations for Children with Epidermolysis Bullosa (EB)**

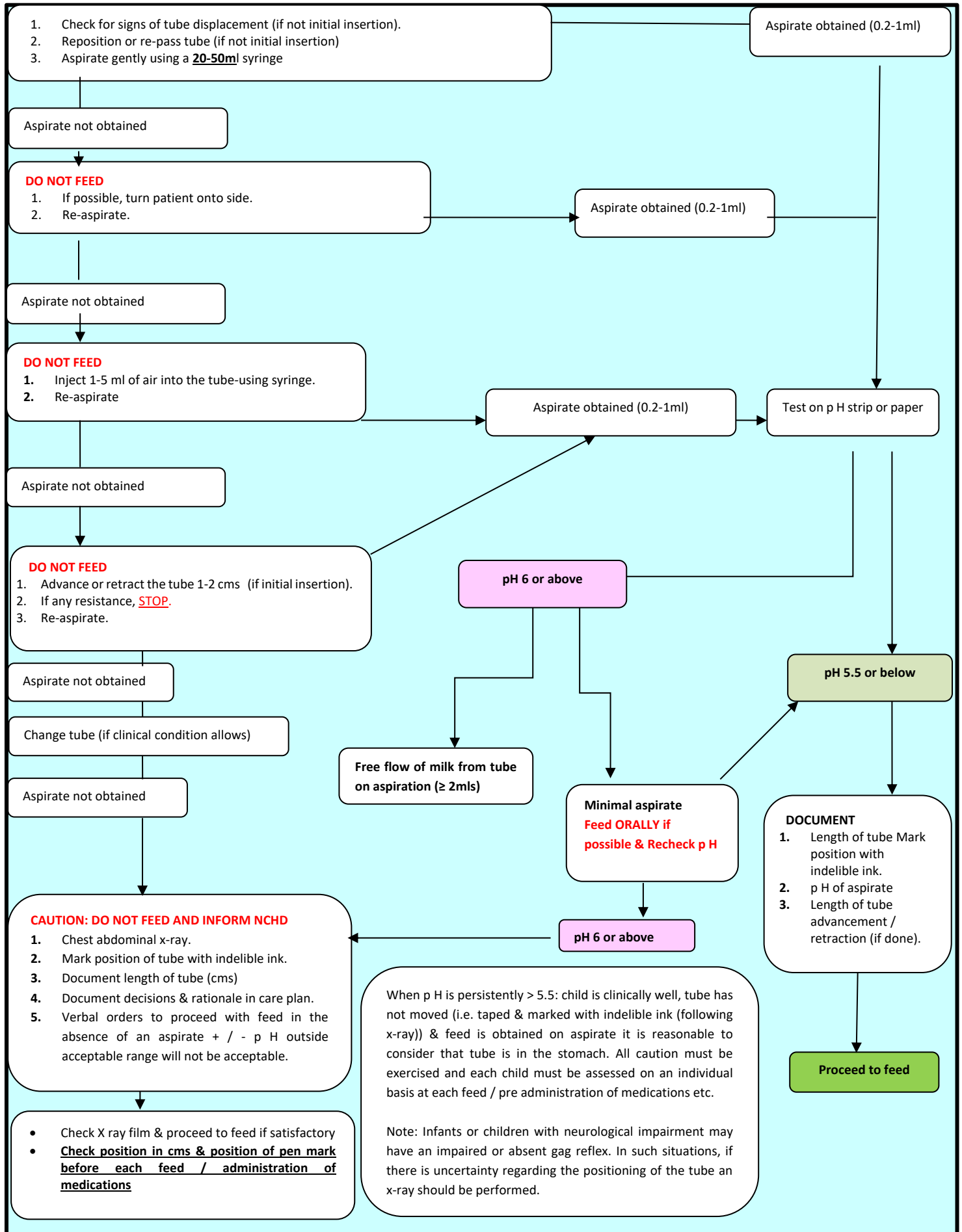
Despite great care, NG tubes can cause internal and external trauma and they should not be placed routinely in a child with EB.

Due to the sensitive nature of the mucosa and skin of children with EB, the following special considerations should be taken into account:

ACTION	RATIONALE
<p>Whatever the age of the patient, the tube used should be as soft and of as narrow a gauge as possible.</p> <p>Use a small size NG tube – A size 5FR is the smallest available and is the tube of choice.</p>	<p>This tube will minimise the risk of damage to the oral and oesophageal mucosa as it is the softest tube available (Hayes 2010).</p>
<p>NG tubes are difficult to secure, and only non-adhesive dressings or silicone tape that are recommended for fragile skin should be used.</p> <p>Secure the NG tube in place by firstly placing a protective dressing on the skin e.g. Mepitel® and securing tube with a soft silicone tape e.g. Mepitac®</p>	<p>Prevents damage to the skin as it provides a non-adhesive method of securing the tube. (Haynes 2010, Trigg &amp; Mohammed 2010).</p> <p>These wound dressings are recommended as they do not adhere to the skin. They are 'sticky' to the touch but are easily removed from the wound without pain or trauma (Denyer 2010, Lara- Corrales <i>et al</i> 2010).</p>
<p>For removal of nasogastric tube, use silicone medical adhesive removers</p>	<p>To safely remove adhesive products. (Denyer 2011)</p>

Consider contacting the CNS in EB for advice if necessary.

Appendix 1: pH Aspirate Flow



NOTE: This may be used for children with various skin conditions.

