PAEDIATRIC NURSING PRACTICE MANUAL
SECTION 3

GENERAL CARE OF THE SICK CHILD

3.3 NUTRITION

3.3.2 INSERTION OF A NASOGASTRIC TUBE

Aims

To insert a nasogastric tube into the stomach

Background information

A reliably obtained and interpreted radiograph that visualises the entire course of the tube provides the best evidence of correct tube placement [1] although x-ray should not be undertaken routinely.

If undertaking x-ray for other reason then check nasogastric tube site also.

If results from pH testing do not support correct positioning, the tube can be removed, reinserted and retested – thus keeping the number of x-rays to a minimum.

While the risk of respiratory placement is low, the potential consequences of incorrect tube placement can be catastrophic.

Key points

1. This policy applies to infants and children above the age of 28 days. Refer to the neonatal guidelines for neonates.
2. For unblocking of nasogastric tubes refer to PNPM 3.3.3 Oro/Naso Gastric Tube Feeding.
3. Consider timing of insertion of nasogastric tube. Withhold feeds for one hour where possible or delay passing the tube for one hour post feed. Acid inhibiting medication can increase the pH of gastric aspirate. (For example Omeprazole has peak effect two hours following administration, with 50% of peak effect at 24 hours).[11]
4. Only tubes that are radio-opaque should be inserted.
5. Change nasogastric tubes according to manufacturer recommendations.
6. Complications of nasogastric insertion include nasal tissue necrosis, undetected placement in the respiratory system leading to aspiration pneumonia, pneumothoraces, broncho-pleural fistula or pulmonary haemorrhage, inadvertent intracranial insertion, vocal cord dysfuntion.[2]
7. Patients with facial or base of skull fractures, gastric oesophageal surgery or laryngectomy, oncology patients with low platelet count should **not** have a nasogastric tube passed by nursing staff without prior discussion with specialty medical team.

Equipment

Nasogastric tube of appropriate size

Lubricant

Adhesive tape/Duoderm®

Enteral feed syringe - 20mL

pH testing strips

Additional equipment which may be required

Enteral feed syringe adaptor
Spigot
Specimen container
Cup of water

PROCEDURE	ADDITIONAL INFORMATION
Consider the need for analgesia or sedation prior to the procedure.	Some children may benefit from analgesia or sedation prior to the procedure.[3]
Explain procedure and reassure the child.	
Position child in a supine or supported sitting position.	Restrain movements if necessary with splints or mittens.
Clean nostrils if necessary.	
Measure and note the length of tube to be inserted. Flush silastic tubes with 10ml of water prior to insertion to uncoil guidewire.	Measure from nose to ear lobe and to the base of the sternum. Note the length for insertion. **Note:** The silastic tubes require measuring from the end of the weight, not the tube tip.
Lubricate the tube.	
Gently insert the tube into a nostril in a backward direction to the predetermined measure. If resistance is encountered, stop advancement, slightly adjust direction of tube and reattempt insertion. If resistance persists, remove tube and reattempt via other nostril.	Where possible, encourage the child to swallow repeatedly during insertion. Where appropriate offer the child water to drink. Inspect the oral cavity to ensure tube has not coiled in the mouth.
Remove the tube immediately if the child has difficulty breathing or becomes cyanosed.	The absence of such symptoms does not mean the NG tube is not in the respiratory tract.[4-6]
Using a 20mL or 50mL enteral feed syringe aspirate 0.5 to 1mL of fluid and apply aspirate to pH testing paper, read according to manufacturer instructions. Note colour, appearance and volume of aspirate.	Measuring the pH of withdrawn fluid is helpful in differentiating between respiratory and gastric placement when gastric pH is low.[1] Antacid medication or continuous feeds may raise the gastric pH.
If aspirate is pH 5.5 or below, feed, medication, fluids can be commenced once tube is secured.	A pH of 5.5 or less indicates the tube tip is in a gastric location.[9]
If aspirate is above pH 5.5 DO NOT FEED, wait 30-60 minutes and repeat testing procedure. If pH remains above 5.5 seek help from an experienced nurse or medical officer and refer to “Factors To Consider When Undertaking A Risk Assessment.”	When gastric pH is >6, using pH alone to predict tube placement is of no benefit. pH of a feeding tube cannot identify if it is in the oesophagus. The oesophageal pH may be as low as 1 because of refluxed gastric fluid, or as high as 7 probably due to recently swallowed saliva.

PROCEDURE	ADDITIONAL INFORMATION
If unable to aspirate gastric contents: 1. If possible turn patient onto side. 2. Inject 1-5 mL of air using a 20mL or 50mL enteral feed syringe and re-aspirate. 3. If no aspirate wait for 15-30 minutes, leave the tube on free drainage ensuring the tube is at a lower level than the patient. 4. Re-aspirate, if no aspirate obtained advance or retract the tube by 1-2 cm. 5. Re-aspirate, if no aspirate obtained consider replacement/repassing of tube and/or checking position by x-ray.	Injecting air through the tube may dislodge the exit-port of the feeding tube from the gastric mucosa and increases the probability of success.[9,10] Gravity may assist in drainage of aspirate. X-rays should not be undertaken routinely. If x-ray required for another reason, check position of nasogastric tube also.
If there is any doubt about the position of the tube, seek help from an experienced nurse or medical officer. If there is still doubt remove the tube and repeat the procedure. Refer to "Factors To Consider When Undertaking A Risk Assessment" Policy No. 3.3.2.1 Testing the Placement of a Nasogastric Tube.	
Fix the tube in place and document length of tube inserted from stomach to nares. **Note:** If tube has no cm markings use indelible ink to mark position at nares and measure external tube.	To protect the skin, DuoDerm CGF dressing can be applied directly to the skin with hypoallergenic adhesive over eg. Fixomull. PMH enteral feed tubes have manufacturer markings. Exceptions may include some intestinal tubes.
Documentation will include: Type of tube Date and time of insertion Length of tube inserted into patient pH, volume and appearance of aspirate; Actions and rationale of retractions, advancement or replacement of tube Confirmation of tube position prior to administering all feeds, fluids, medications	Document on Enteral Tube Checking and Order form MR935.02
Report any misplaced tubes.	Utilise organisation reporting systems.

References:

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