NASOGASTRIC TUBE INSERTION

The procedure is the same for both nasogastric and orogastric tubes. As nasogastric tubes are more commonly used in neonates, the term nasogastric will be used throughout this guideline.

INDICATIONS

- To keep stomach deflated or to instil enteral feeds when full oral feeding not possible
- Orogastric tubes are used predominantly in babies in respiratory distress or with structural abnormality of nasal cavity where full bottle feeds are contraindicated
- Nasogastric tubes are used short-term for all other neonates until full oral feeding achievable

EQUIPMENT

- Largest sized nasogastric tube that will pass: 6FG or 8FG most commonly used
- Use tubes with markings to enable accurate measurement of depth and length
- 10 mL syringe
- pH testing strips
- Duoderm
- Adhesive tape (e.g. Transpore or Hyperfix)
- Non-sterile disposable gloves

PROCEDURE

Preparation

- To prevent risk of aspiration, pass nasogastric tube before a feed
- To reduce risk of epidermal stripping, apply Duoderm to skin of face as an attachment for adhesive tape
- Wash hands and prepare equipment
- Wrap baby securely in a sheet
- Determine length of tube to be inserted
  - Keeping tube in its packet, extend tip of tube from nose to ear and then from ear to stomach, aiming for the space in the middle below ribs; note the mark on the tube or keep your fingers on the point measured
  - For orogastric tube, measure as nasogastric tube but start from the centre of the bottom lip rather than the nose

Insertion

- With clean hands, put on gloves and pass tube slowly and steadily until required pre-measured depth reached
- Observe baby throughout procedure for colour change, vomiting, respiratory distress or resistance
  - If any distress occurs, stop and remove tube

Checking position of gastric feeding tube

- Neonatal units and carers in the community should use pH indicator strips or paper
  - For recommended products go to www.pasa.nhs.uk/PASAweb
- Do NOT use radiography ‘routinely’ but, if baby being X-rayed for another reason, use X-ray to confirm position is satisfactory by noting position of tube on film
- Do NOT use ‘Whoosh test’ (auscultation of injected air entering the stomach) to determine position of nasogastric tube as it is unreliable
Nasogastric tube 2011-13

**Checking position using pH**
- Aspirate stomach contents with 10 mL syringe and test for acid response using pH testing strips
  - pH <6 indicates correct gastric placement
  - even though aspirates with pH <6 indicate correct placement in most babies, including the majority of those receiving acid suppressants, some babies will consistently have pH values >6 despite correct placement
- If pH values ≥6, seek senior advice
- ensure you work through the NPSA flowchart below and record findings before making any decisions
- the multidisciplinary care team should then discuss possible actions, balancing the risk between feeding (with a possibility of the tube being in the lungs) and not feeding the baby in the short-term, and record how they reached their decision

**NPSA Flowchart as a basis for decision making when checking position of naso- and orogastric feeding tube in babies on neonatal units**

1. If not initial insertion, check for signs of tube displacement
2. If not initial insertion, reposition or repass tube
3. Aspirate using a syringe and gentle pressure

Aspirate obtained (0.2–1 mL)

Aspirate not obtained

**DO NOT FEED**
1. Turn baby onto his/her side, if possible
2. Re-aspirate

Aspirate obtained (0.2–1 mL)

Aspirate not obtained

**DO NOT FEED**
1. Inject 1–2 mL of air into tube using syringe
2. Re-aspirate

Aspirate obtained (0.2–1 mL)

Aspirate not obtained

**DO NOT FEED**
1. If initial insertion, advance or retract tube 1–2 cm, any resistance – STOP
2. Re-aspirate

Aspirate not obtained

**CAUTION: DO NOT FEED**
1. If initial insertion, consider replacing or re-passing tube
2. If tube in-situ, seek senior advice
3. Only consider chest and abdominal X-ray if timely
4. Document decisions and rationale

Aspirate not obtained

**CAUTION: DO NOT FEED**
1. Consider waiting 15–30 min, then re-aspirate
2. Consider replacing or re-passing tube and re-aspirating
3. If pH still ≥6, seek senior advice – ask about:
   - medication
   - the tube – is it the same as that documented on last X-ray and is length the same?
   - feeding history
   - balancing risks
4. Only consider X-ray if timely
5. Document decisions and rationale

Aspirate obtained (0.2–1 mL)

Test pH strip or paper

pH ≥6

pH <6

**DOCUMENT**
1. Length of tube, if initial
2. pH of aspirate
3. Length of any tube advancement/retraction, if done

Proceed to feed
**Risk assessment when pH >6**
The following factors can contribute to a high gastric pH (>6)
- Presence of amniotic fluid in a baby <48 hr
- Milk in baby’s stomach, particularly if having 1–2 hrly feeds
- Use of medication to reduce stomach acid

**Securing tube**
- Once correct position of tube ascertained, secure to face with adhesive tape (e.g. Transpore or Hyperfix) over Duoderm

**DOCUMENTATION**
- Record procedure in nursing documentation, noting size of tube, length passed and, if a nasogastric tube, which nostril used

**FURTHER MANAGEMENT**

**Monitoring**
- Check integrity of skin around nostril at frequent intervals for signs of deterioration
- If signs of pressure appear, reposition tube and/or tape, or re-pass nasogastric tube via opposite nostril, or use orogastric route if necessary
- Check nasogastric tube position by measuring aspirate pH. Follow NPSA flowchart above:
  - after initial insertion and subsequent reinsertions
  - before administering each feed
  - before giving medication
  - after vomiting, retching or coughing (absence of coughing does not rule out misplacement or migration)
  - if evidence of tube displacement (e.g. if tape loose or visible tube appears longer or kinked)
  - when chest X-ray taken for another reason
- If having continuous feeds, synchronise tube, checking with syringe changes
- When continuous feeding has stopped, wait 15–30 min to allow stomach to empty of milk and for aspirate pH to fall

**Changing nasogastric tubes**
- When changing nasogastric tubes, follow manufacturer’s recommendations
- Pass new nasogastric tube via opposite nostril wherever possible

**Reporting misplaced tube incidents**
- Report all misplaced feeding tube incidents using local risk management procedure

**FURTHER INFORMATION**
- Further details on determining correct position of oro-/nasogastric tubes in infants are available from www.npsa.nhs.uk/nrls/alerts-and-directives/alerts/feedingtubes