Appendix 1. Summary Guideline for insertion and placement confirmation of a fine bore nasogastric feeding tube with introducer in adults - Click here for the full guideline

Tube Placement Decision Tree – Adults

Equipment

- Clinically clean tray.
- Fine-bore radio-opaque nasogastric tube.
- Introducer for tube.
- Receiver.
- Sterile water.
- 50 mL Enteral syringe (for paediatric patients please refer to manufacturer’s instructions).
- Griplock nasogastric securement device.
- Glass of water (if patient has safe swallow).
- CE marked indicator strips with pH range of 0-6 or 10-11 with gradations of 0.5

Start

1. Explain and discuss the procedure with patient

2. Arrange a signal by which the patient can communicate if they want the nurse to stop, for example by raising their hand.

3. Assist the patient to sit in a semi-upright position in the bed or chair. Support the patient’s head with pillows. Note: The head should not be tilted backwards or forwards. Find the most appropriate position for the younger child depending on age and the ability to co-operate.

4. Select the appropriate distance mark on the tube by measuring the distance on the tube from the patient’s earlobe to the bridge of the nose plus the distance from the earlobe to the bottom of the xiphisternum (the NEX measurement). See Fig 1

5. Wash hands with bactericidal soap and water or bactericidal alcohol handrub, and assemble the equipment required.
6. Follow manufacturer’s instructions to prepare the tube.

**NOTHING SHOULD BE INTRODUCED DOWN THE TUBE BEFORE GASTRIC PLACEMENT HAS BEEN CONFIRMED.**

7. Check that the nostrils are patent by asking the patient to sniff with one nostril closed. Repeat with the other nostril.

8. Insert the rounded end of the tube into the clearer nostril and slide it backwards and inwards along the floor of the nose to the nasopharynx. If any obstruction is felt, withdraw the tube and try again in a slightly different direction or use the other nostril.

9. As the tube passes down into the nasopharynx, unless swallowing is contraindicated, ask the patient to start swallowing and sipping water.

10. Advance the tube through the pharynx as the patient swallows until the predetermined mark has been reached (NEX measurement). If the patient shows signs of distress, for example gasping or cyanosis, remove the tube immediately.

11. Remove the introducer by using gentle traction. If it is difficult to remove, then remove the tube as well.

12. Secure the tape to the nostril with adherent dressing tape, for example Griplock nasogastric securement device. A hypoallergenic tape should be used if an allergy is present.

**REMINDER: NOTHING SHOULD BE INTRODUCED DOWN THE TUBE BEFORE GASTRIC PLACEMENT HAS BEEN CONFIRMED.**
13. Measure the part of the visible tube from tip of nose and record this and the NEX measurement in care plan. Mark the tube at the exit site with a permanent marker pen (nares).

14. Check the position of the tube to confirm that it is in the stomach by using the following methods:

**First line test method: pH paper**
Aspirate 0.5-1mL of stomach contents and test pH on indicator strips. When aspirating fluid for pH testing, wait at least 1 hour after a feed medication has been administered (either orally or via the tube). Before aspirating, flush the tube with 20mL of air to clear other substances. A pH level of between 1 and 5.5 is unlikely to be pulmonary aspirates and it is considered appropriate to proceed to feed through the tube.

If a pH of 6.0 or above is obtained or there is doubt over the result in the range of 5-6 then feeding must not commence until a second competent person checks the reading or retests. The nasogastric tube may need to be repositioned or checked with an X-ray.

**Second line test method: X-ray confirmation**
Take an X-ray of chest and upper abdomen.

15. The following methods must not be used to test the position of a nasogastric feeding tube: auscultation (introducing air into the nasogastric tube and checking for a bubbling sound via a stethoscope, also known as the ‘whoosh test’), use of litmus paper or absence of respiratory distress.


End
Fig 1. Measuring for a nasogastric tube: measure from patient’s ear lobe to bridge of nose and ear lobe to bottom of xiphisternum
**Decision tree for nasogastric tube placement checks in ADULTS**

- Estimate NEX measurement (Place exit port of tube at tip of nose. Extend tube to earlobe, and then to xiphisternum.
- Insert fully radio-opaque nasogastric tube for feeding (follow manufacturer’s instructions for insertion)
- Confirm and document secured NEX measurement
- Aspirate with a syringe using gentle suction

**Aspirate obtained?**

If aspirate obtained:

**Try each of these techniques to help gain aspirate:**

- If possible, turn adult onto left side
- Inject 10-20ml air into the tube using a 50ml syringe
- Wait for 15-30 minutes before aspirating again
- Advance or withdraw tube by 10-20cm
- Give mouth care to patients who are nil by mouth (stimulates gastric secretion of acid)
- Do not use water to flush

If aspirate obtained:

Test aspirate on CE marked pH indicator paper for use on human gastric aspirate

If pH between 1 and 5.5:

**PROCEED TO FEED or USE TUBE**

Record result in notes and subsequently on bedside documentation before each feed/medication/flush.

If pH NOT between 1 and 5.5:

**Proceed to x-ray: ensure reason for x-ray documented on request form**

If competent clinician (with evidence of training) to document confirmation of nasogastric tube position in stomach:

**DO NOT FEED or USE TUBE**

Consider re-siting tube or call for senior advice

A pH of between 1 and 5.5 is reliable confirmation that the tube is not in the lung, however it does not confirm gastric placement as there is a small chance the tube tip may sit in the oesophagus where it carries a higher risk of aspiration. If this is any concern, the patient should proceed to x-ray in order to confirm tube position.

Where pH readings fall between 5 and 6 it is recommended that a second competent person checks.