Guidelines for Nasogastric Tube Insertion & Position Checking

Clinical Nutrition Services

2014

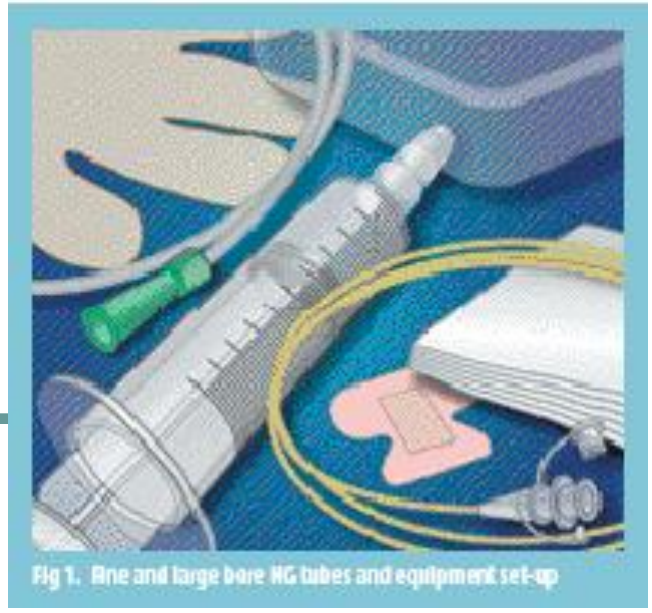


Fig 1. Fine and large bore NG tubes and equipment set-up

Approvals

The approval of all the Nursing Directors and Managers and the Chairpersons of the various Hospital Departments is being sought.

Application of Guidelines

- These guidelines are applicable to all patients:
  - Neonates
  - Children
  - Adults

Guideline Sections

Section 1: Ethical considerations prior to nasogastric tube insertion.

Section 2: The procedure for nasogastric tube insertion.

Section 3: The procedure for checking the position of a nasogastric tube after insertion.

Section 1

Ethical Considerations Prior to NGT Insertion

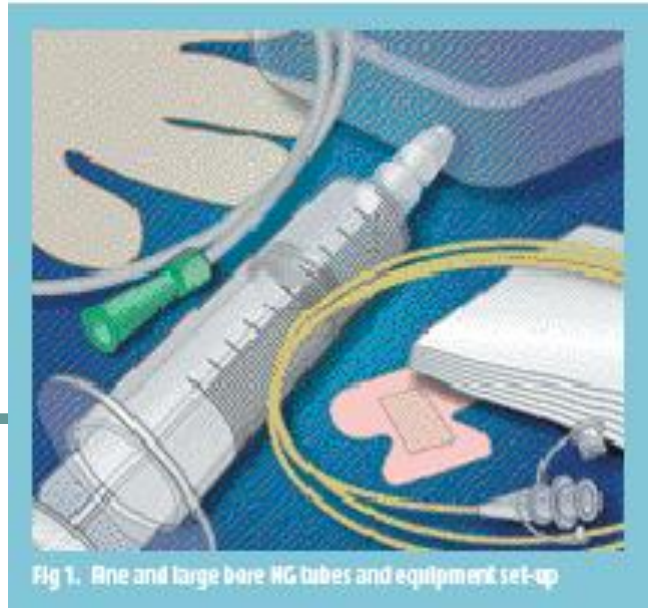


Fig 1. Fine and large bore NG tubes and equipment set-up

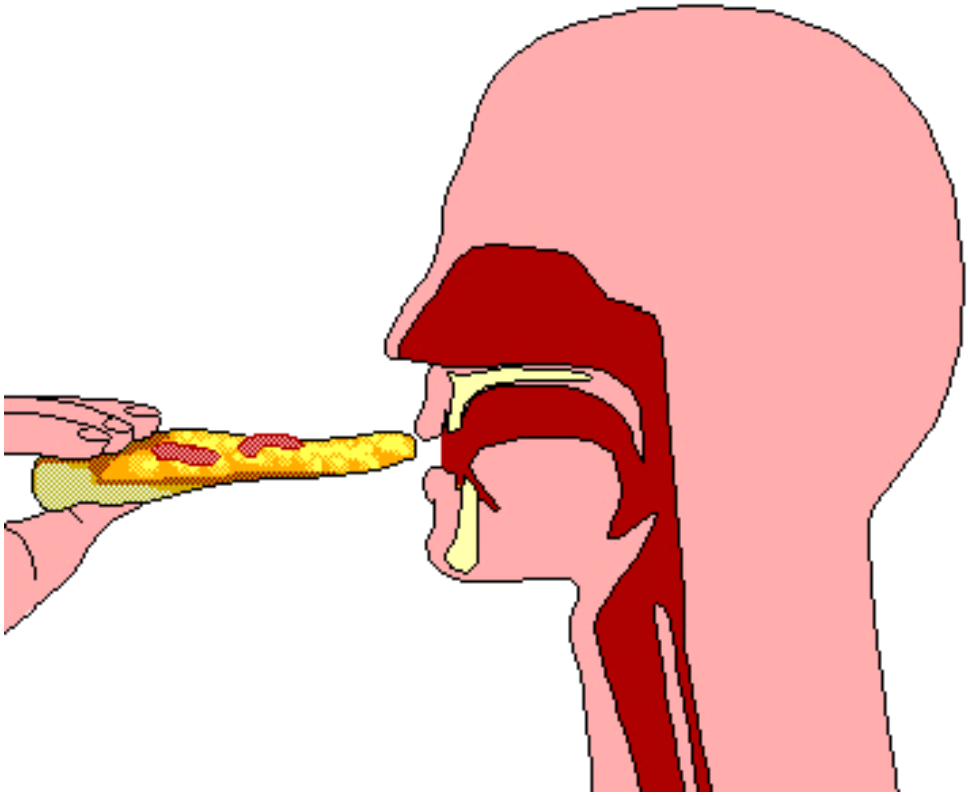
Ethical Considerations (BCCM, 2003)

- Information Giving & Informed Consent
  - Inform the patient
    - Procedure
    - Reason for insertion
    - Implications after insertion
  - Informed consent
- Confidentiality
- Refusal of procedure
  - Patient has a right to refuse treatment.

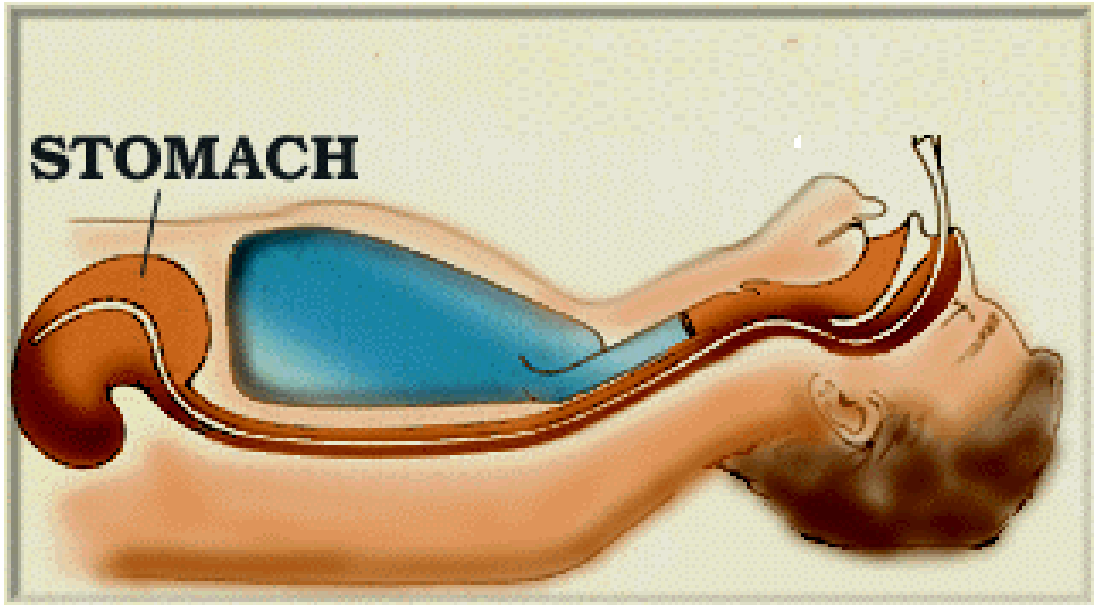
Background Information

- "Deaths spark alert on NG tube checks" (Nursing Times, 1st March, 2005).
- Most health care professionals consider NG tube placement as a routine, low risk procedure as it is a daily procedure on most units.
- Yet, a misplaced NG tube can have disastrous consequences even leading to the death of a patient!

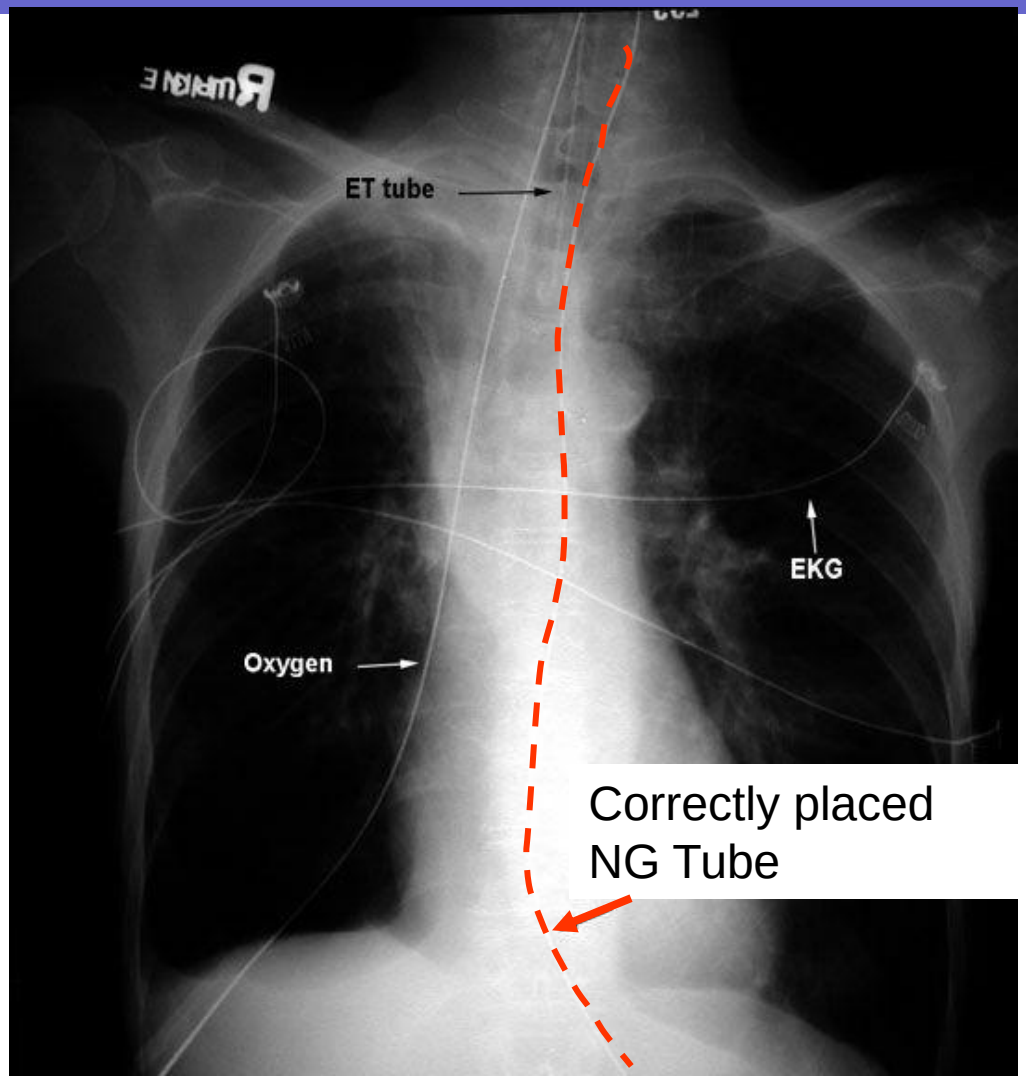
The Process of swallowing



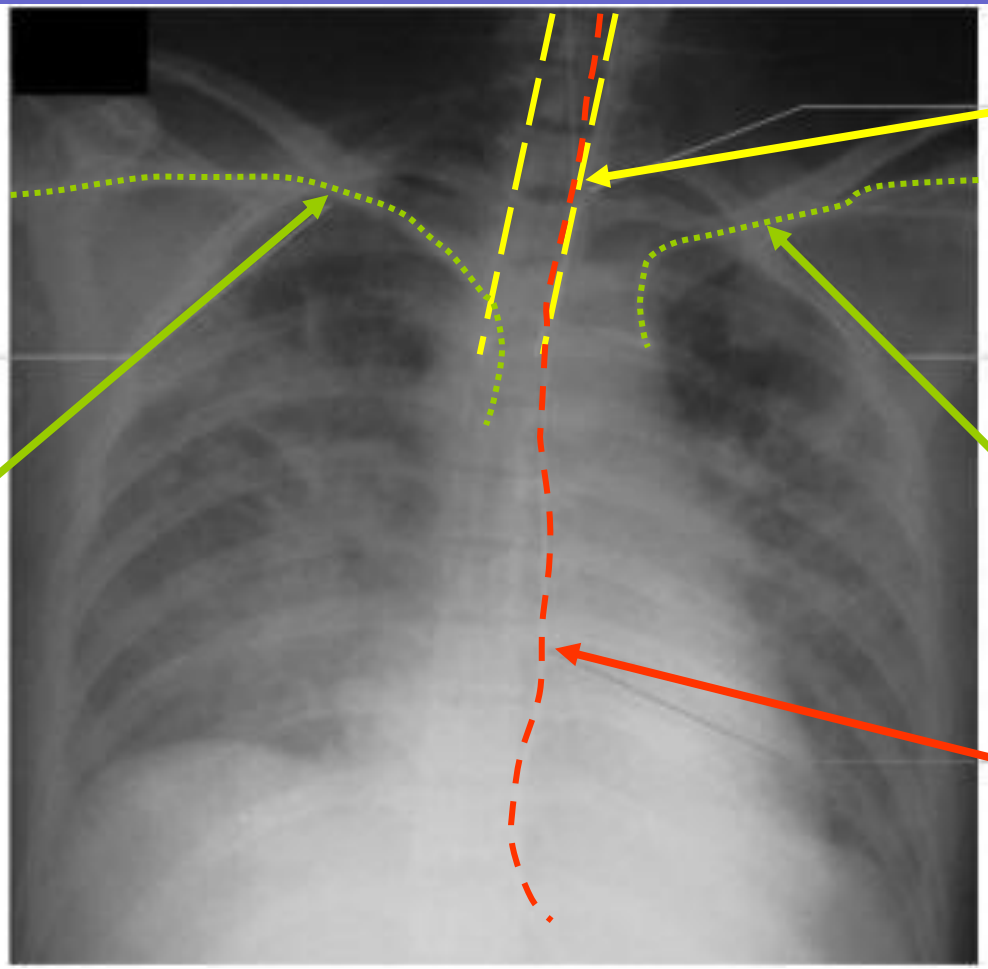
Nasogastric Tube In Situ



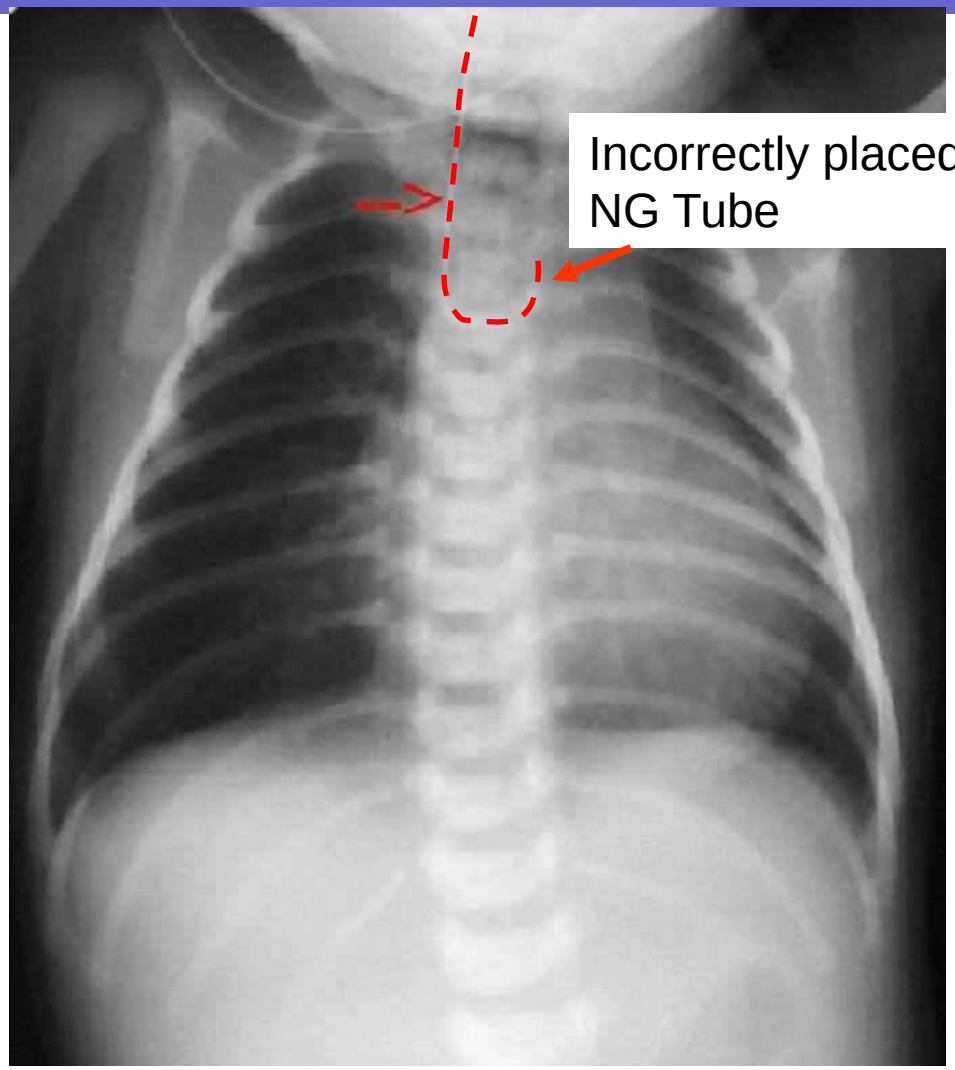
Correctly Placed NG Tube



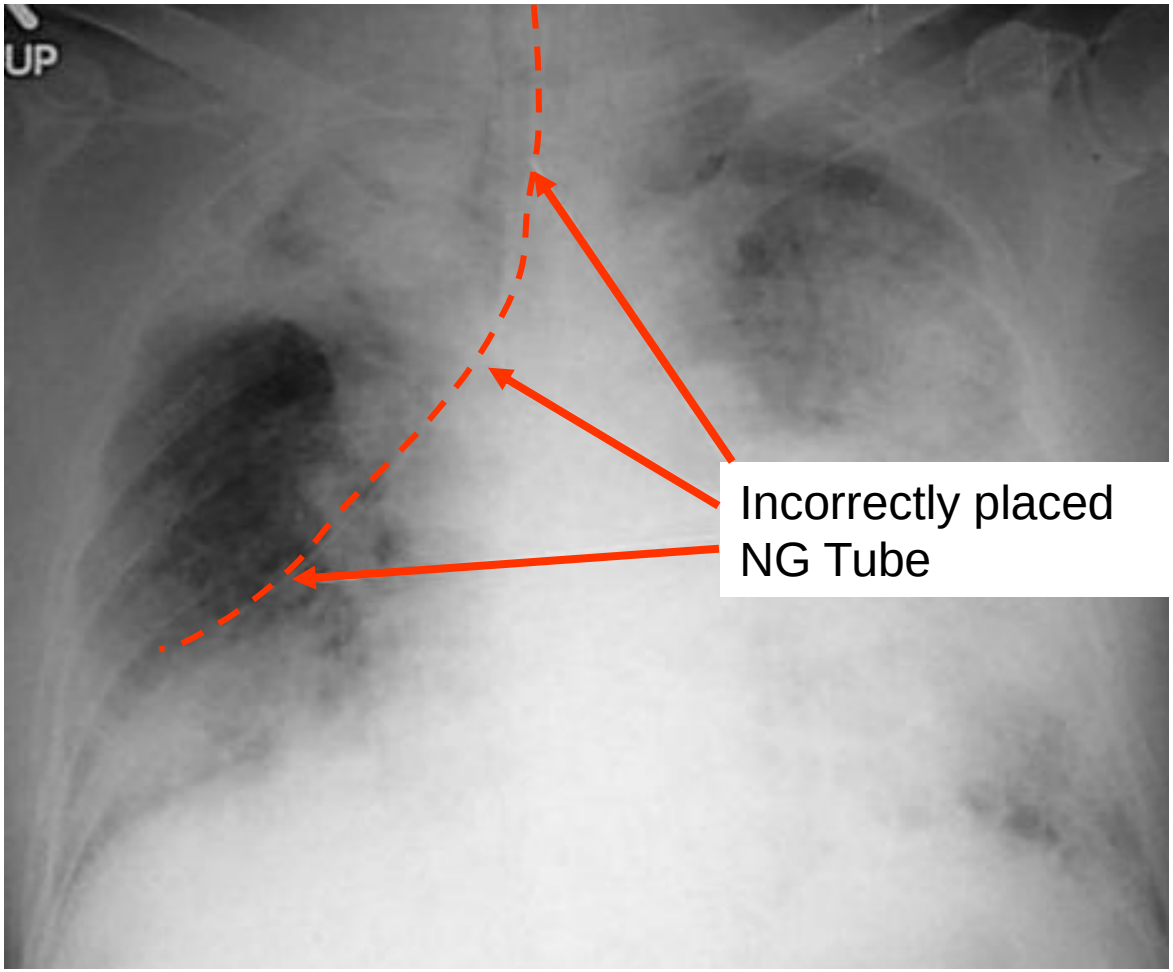
Correctly Placed NG Tube



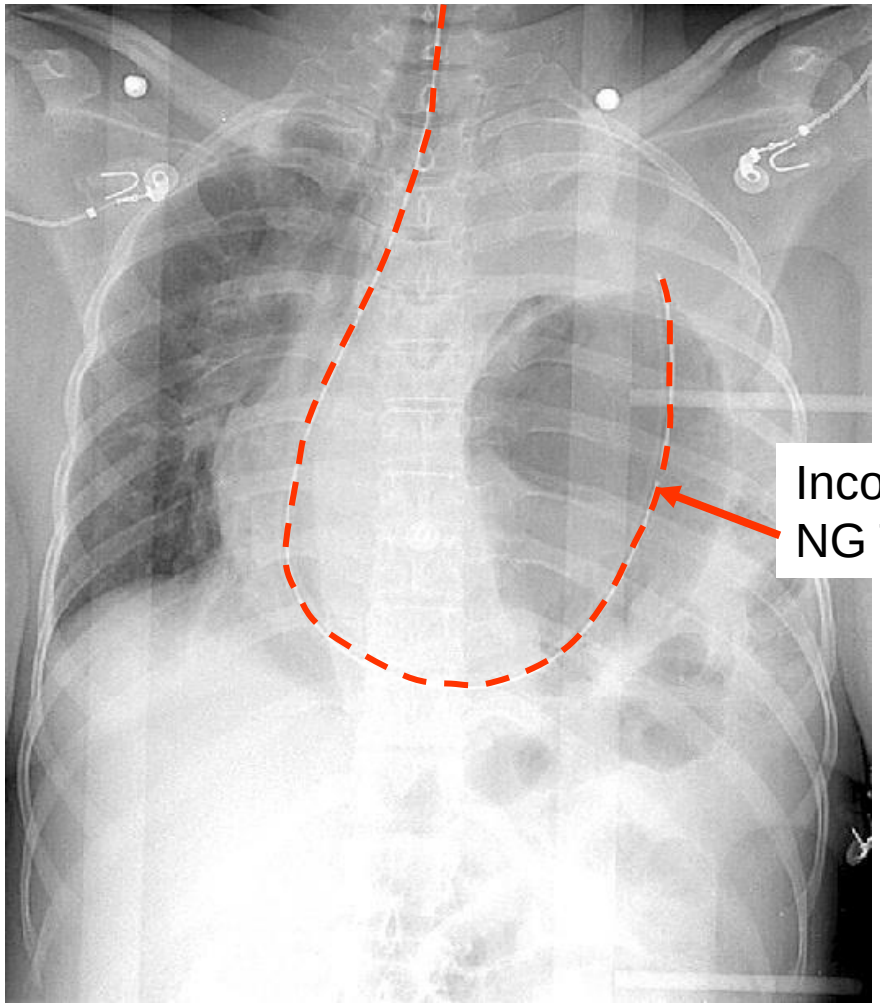
NG Tube In Oesophagus



NG Tube In Right Lung



NG Tube After Trauma



Section 2

The correct procedure of nasogastric tube insertion

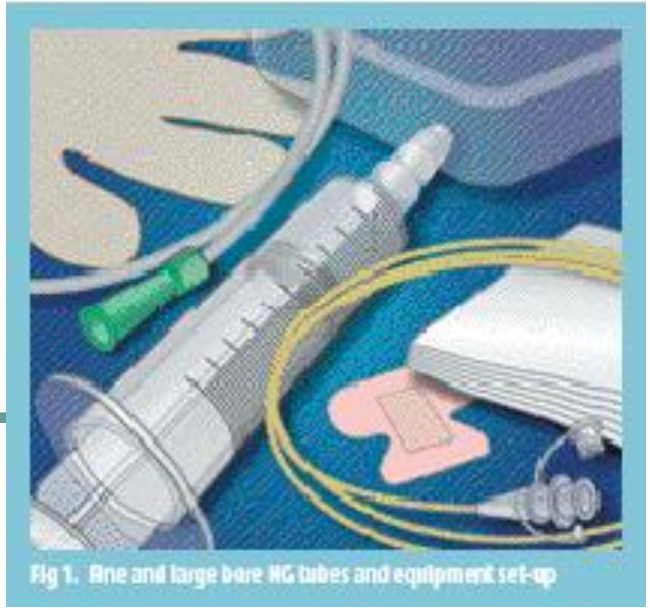


Fig 1. Fine and large bore NG tubes and equipment set-up

Choosing a Nasogastric Tube

- According to:
  - the use for which indicated
    - Age of patient
    - Function of tube
  - the length of time that the patient would be using the tube
  - the material of the tube
    - Read instructions on the back of the packing

Equipment for NGT insertion

1. Clean tray
2. NG tube
3. Gauze swab
4. Lubricating jelly
5. Hypoallergenic tape
6. 50 ml syringe (funnel-tipped)
7. Inch tape
8. pH Indicator strips
9. Receiver
10. Spigot
11. Glass of water
12. Non-Sterile gloves
13. Disposable face mask

Procedure of NG Tube Insertion

Action

1. Explain and discuss the procedure with the patient.

Rationale

To ensure that the patient understands the procedure and gives his/her valid consent.

Procedure of NG Tube Insertion

Action

2. Arrange a signal by which the patient can communicate if s/he wants the nurse to stop.

Rationale

The patient is often less frightened if s/he feels able to have some control over the procedure.

Procedure of NG Tube Insertion

Action

3. Assist the patient to sit in a semi-upright position in the bed / chair. Support his/her head with pillows.

Note: The head of the patient should not be tilted backwards or forwards.

(Rollins, 1997)

Procedure of NG Tube Insertion

Rationale

To allow for easy passage of the tube. This position enables easy swallowing and ensures that the epiglottis is not obstructing the oesophagus.

Procedure of NG Tube Insertion

Action

4. Using hypoallergenic tape, mark the distance which the tube is to be passed by measuring the distance on the tube from the bridge of the patient's nose around the ear lobe and down to the bottom of the xiphisternum. Measure the length of tube in cm that remains out of the nostril.

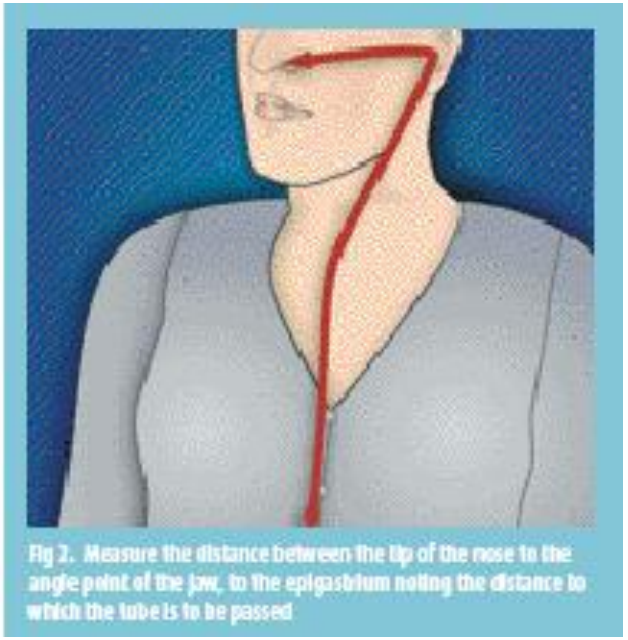


Fig 7. Measure the distance between the tip of the nose to the angle point of the jaw, to the epigastrium noting the distance to which the tube is to be passed

Procedure of NG Tube Insertion

Rationale

To indicate the length of tube required for entry into the stomach and to ensure that the tube remains in the correct position.

Remember:

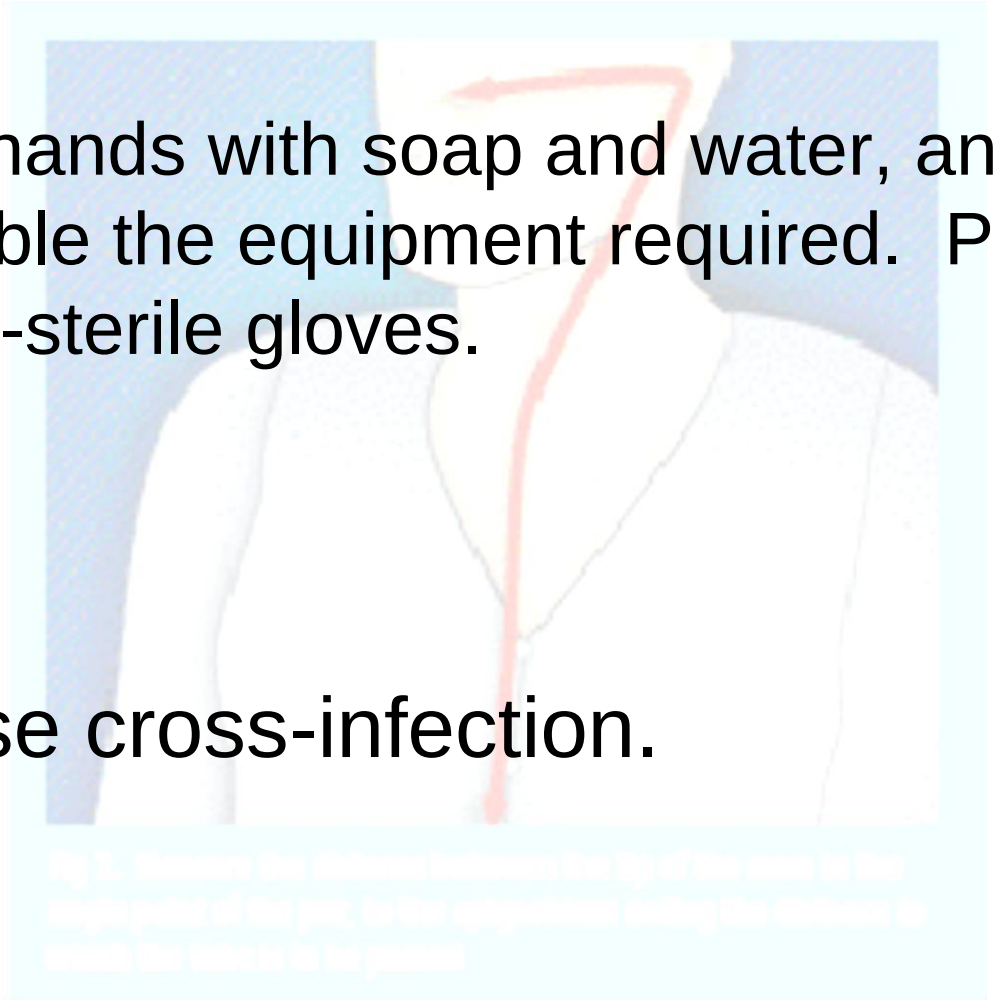
The markings on the NGT:

- Mark 1 – 45cm
- Mark 2 – 55cm
- Mark 3 – 65cm
- Mark 4 – 75cm

Procedure of NG Tube Insertion

Action

5. Wash hands with soap and water, and assemble the equipment required. Put on non-sterile gloves.



Rationale

To minimise cross-infection.

Procedure of NG Tube Insertion

Action

6. Check the patient's nostrils for any visible obstructions. Clear nostrils if necessary.

Rationale

To identify any obstructions liable to prevent intubation.

Procedure of NG Tube Insertion

Action

7. Lubricate about 15-20cm of the tube with a thin coat of lubricating jelly (water-based) that has been placed on a gauze swab.

Rationale

To reduce the friction between the mucous membranes and the tube.

Procedure of NG Tube Insertion

Action

8. Insert the proximal end of the tube into the clearer nostril and slide it backwards and inwards along the floor of the nose to the nasopharynx.

If an obstruction is felt, withdraw the tube and try again in a slightly different direction or use the other nostril.

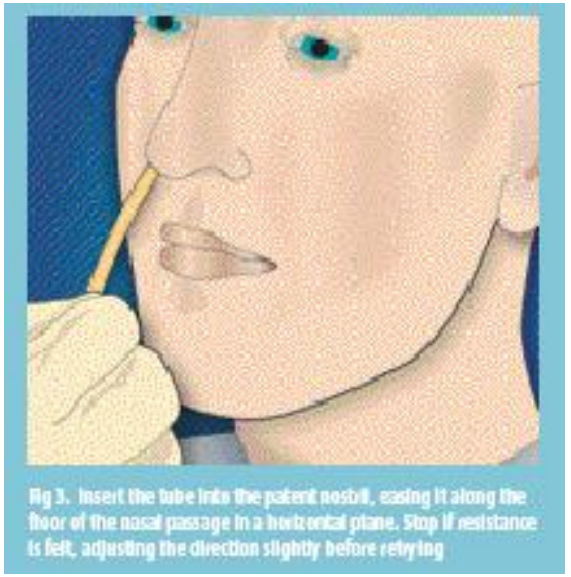
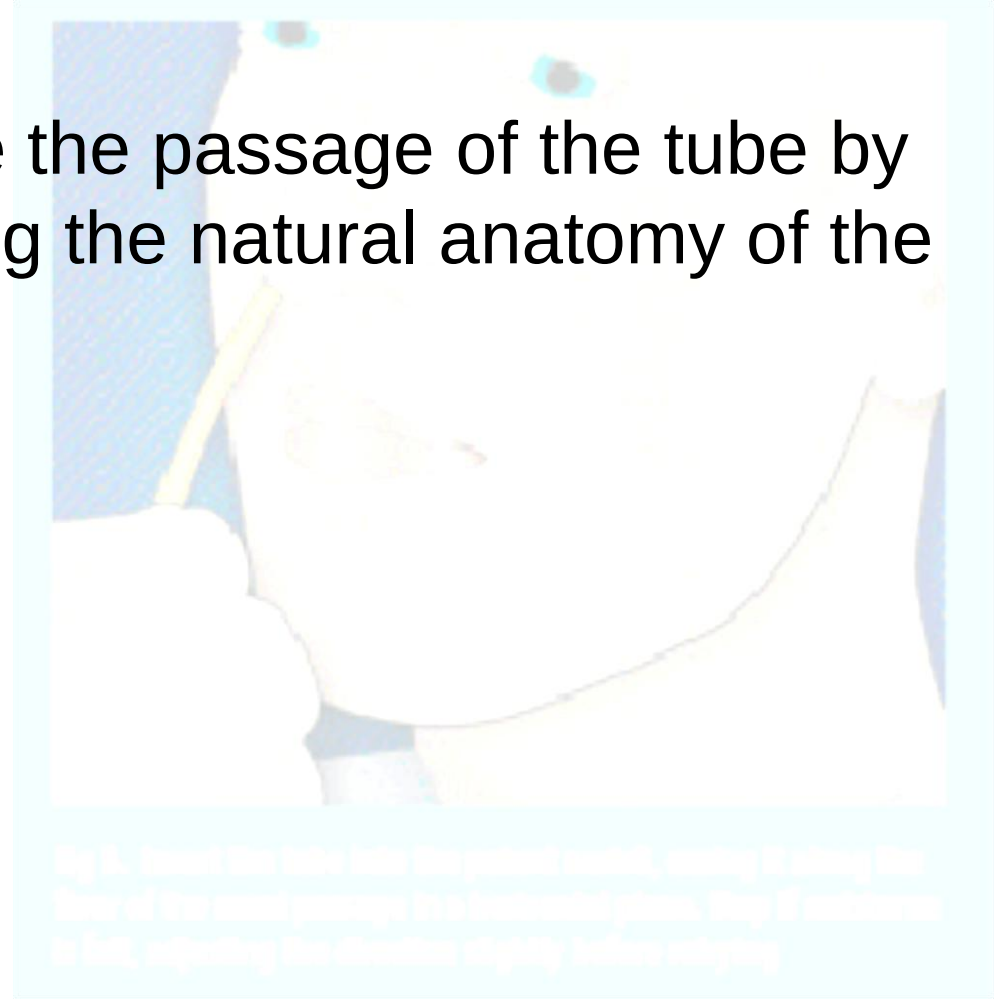


Fig 3. Insert the tube into the patent nostril, easing it along the floor of the nasal passage in a horizontal plane. Stop if resistance is felt, adjusting the direction slightly before retrying

Procedure of NG Tube Insertion

Rationale

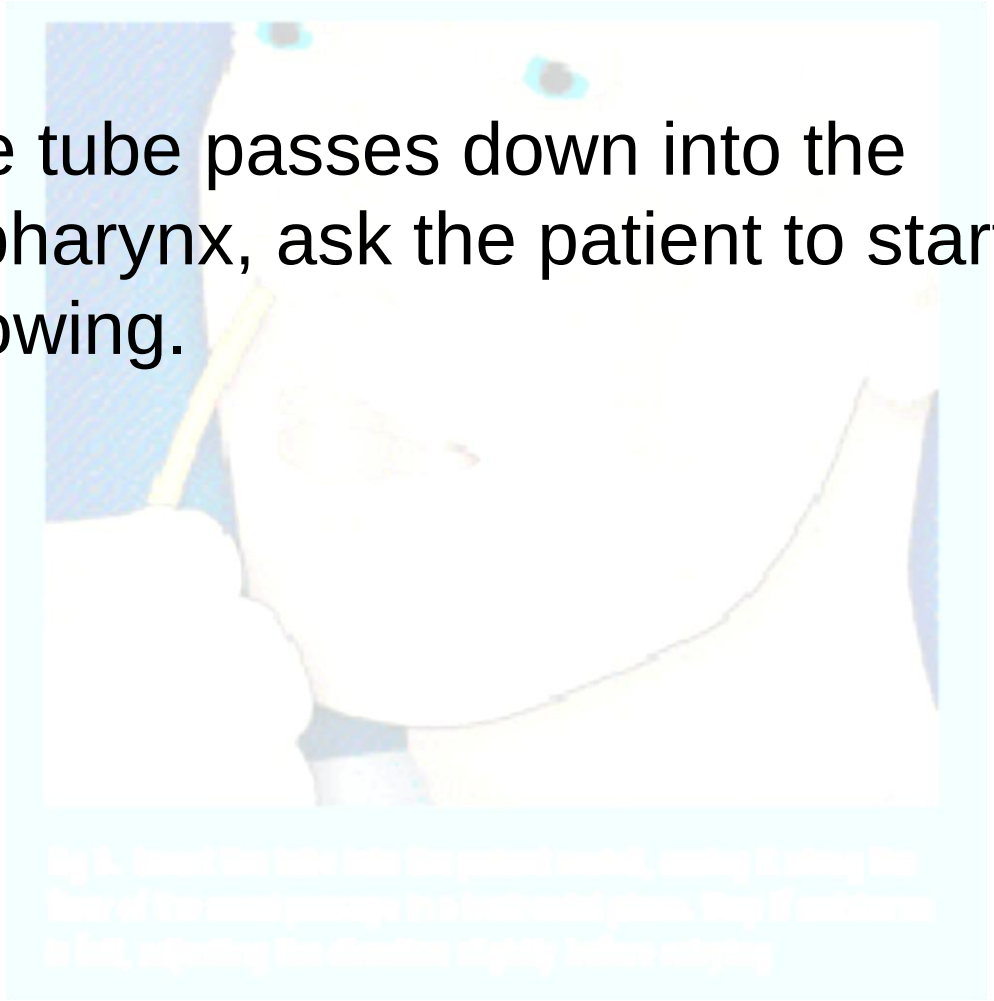
To facilitate the passage of the tube by following the natural anatomy of the nose.



Procedure of NG Tube Insertion

Action

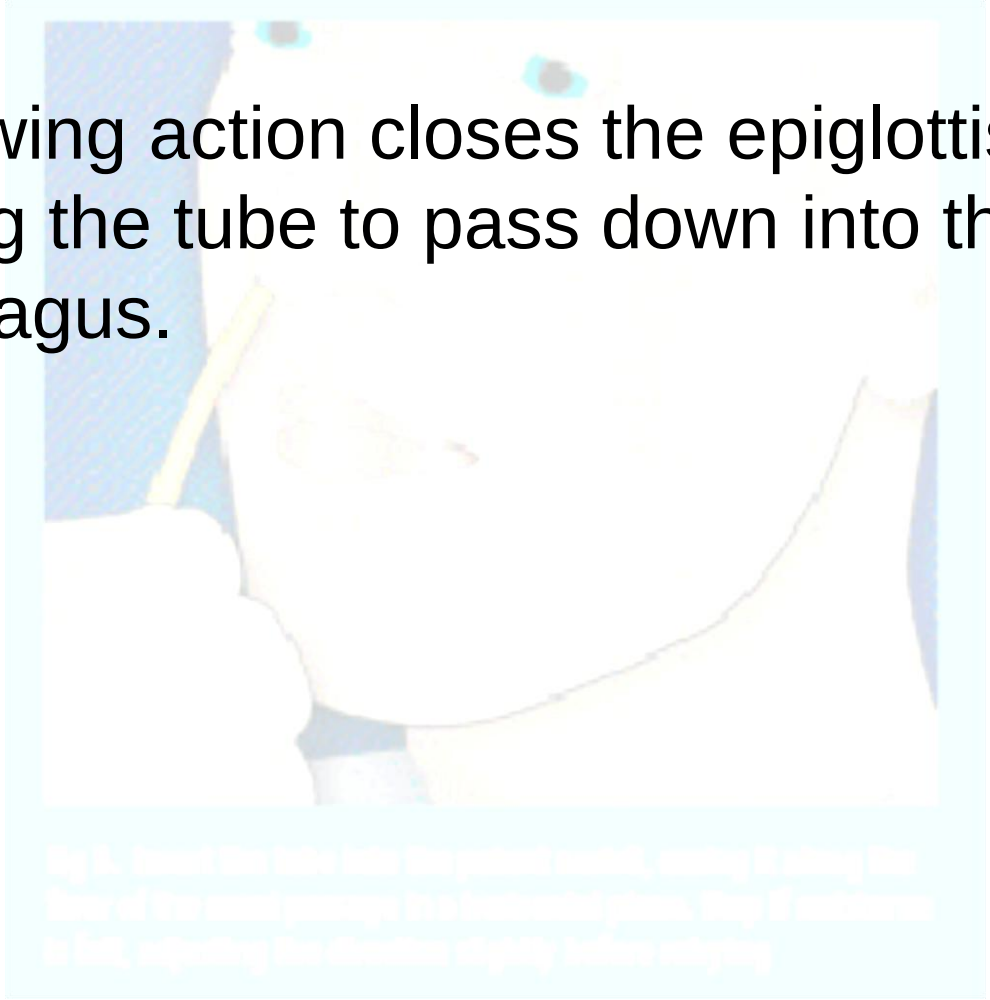
9. As the tube passes down into the nasopharynx, ask the patient to start swallowing.



Procedure of NG Tube Insertion

Rationale

The swallowing action closes the epiglottis, enabling the tube to pass down into the oesophagus.



Procedure of NG Tube Insertion

Action

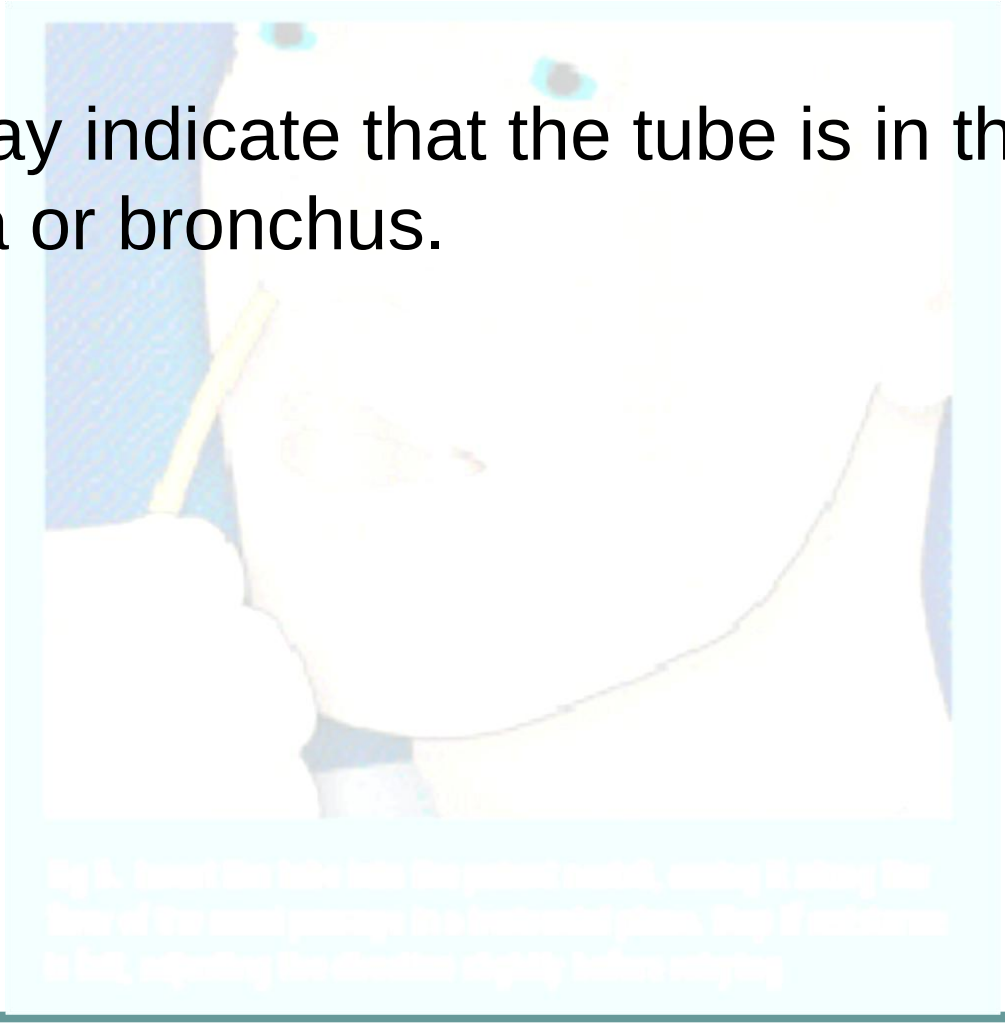
10. Advance the tube through the pharynx as the patient swallows until the tape-marked tube reaches the point of entry into the external nares.

If the patient shows signs of distress, e.g. gasping or cyanosis, remove the tube immediately.

Procedure of NG Tube Insertion

Rationale

Distress may indicate that the tube is in the trachea or bronchus.



Procedure of NG Tube Insertion

Action

11. Check the position of the NG tube as indicated in the Nasogastric Tube Insertion Guidelines – Section 3.

Rationale

To make sure that the NG Tube is in the stomach.

Procedure of NG Tube Insertion

Action

12. Secure the tube to the nostril with adherent dressing tape.

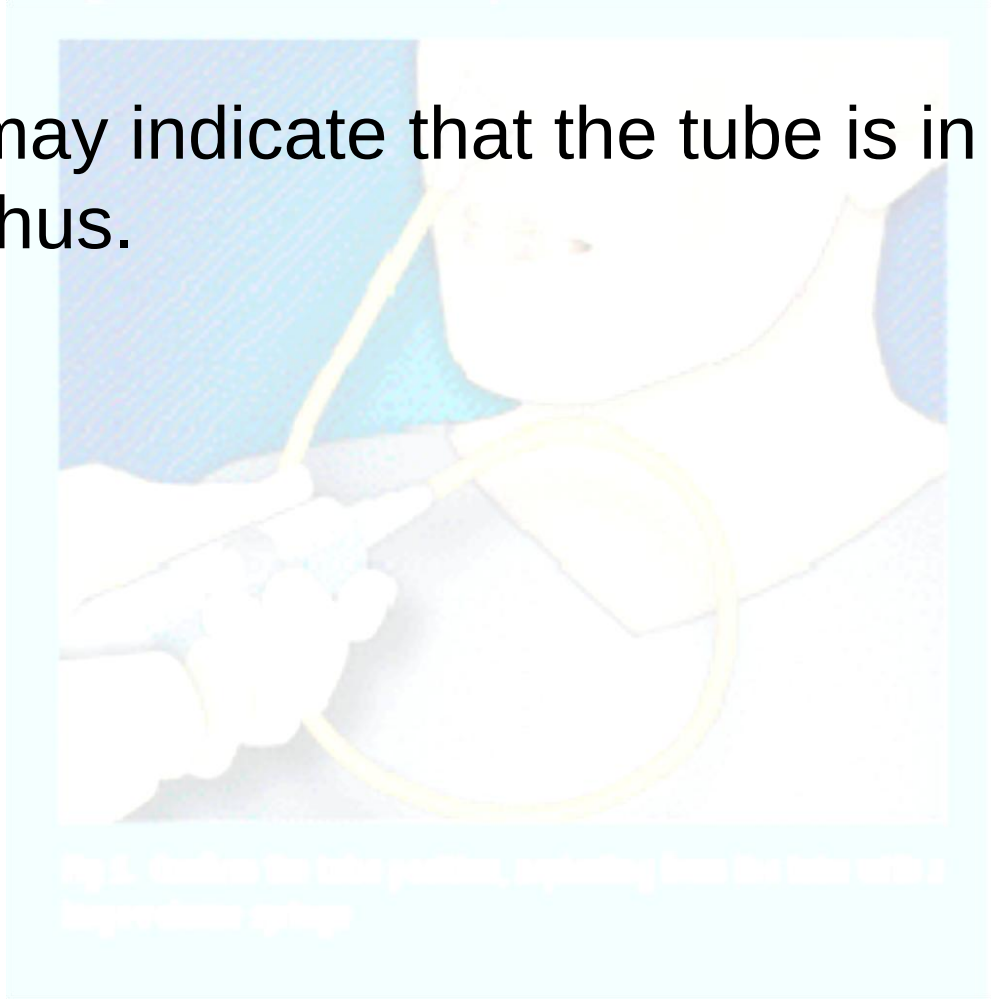
If this is contraindicated, a hypoallergenic tape should be used.

An adhesive patch (if available) will secure the tube to the cheek.

Procedure of NG Tube Insertion

Rationale

Distress may indicate that the tube is in the bronchus.



Section 3

Checking the position of the nasogastric tube after insertion

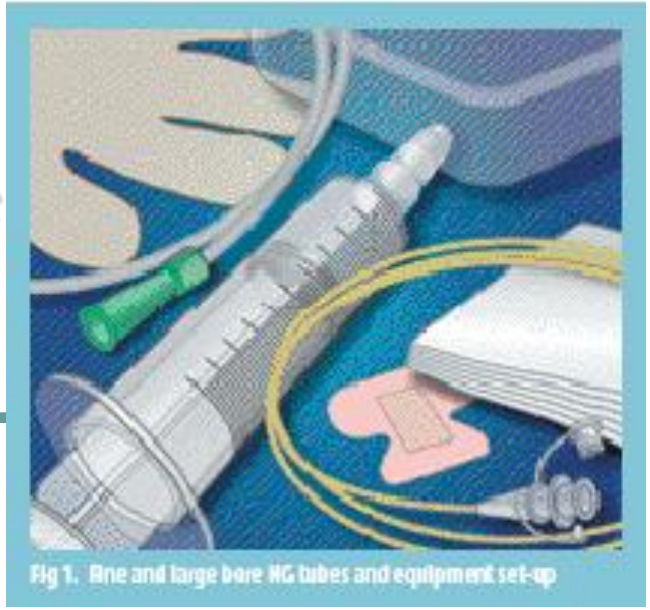
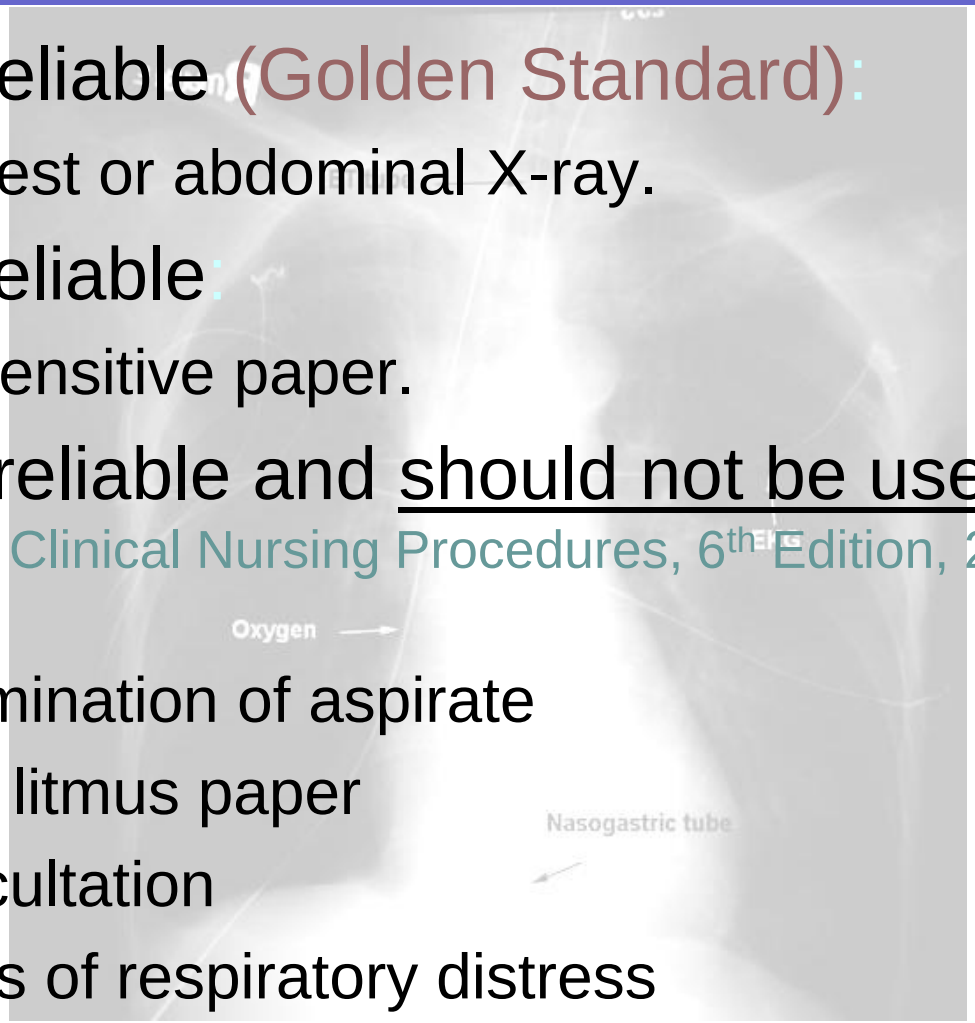


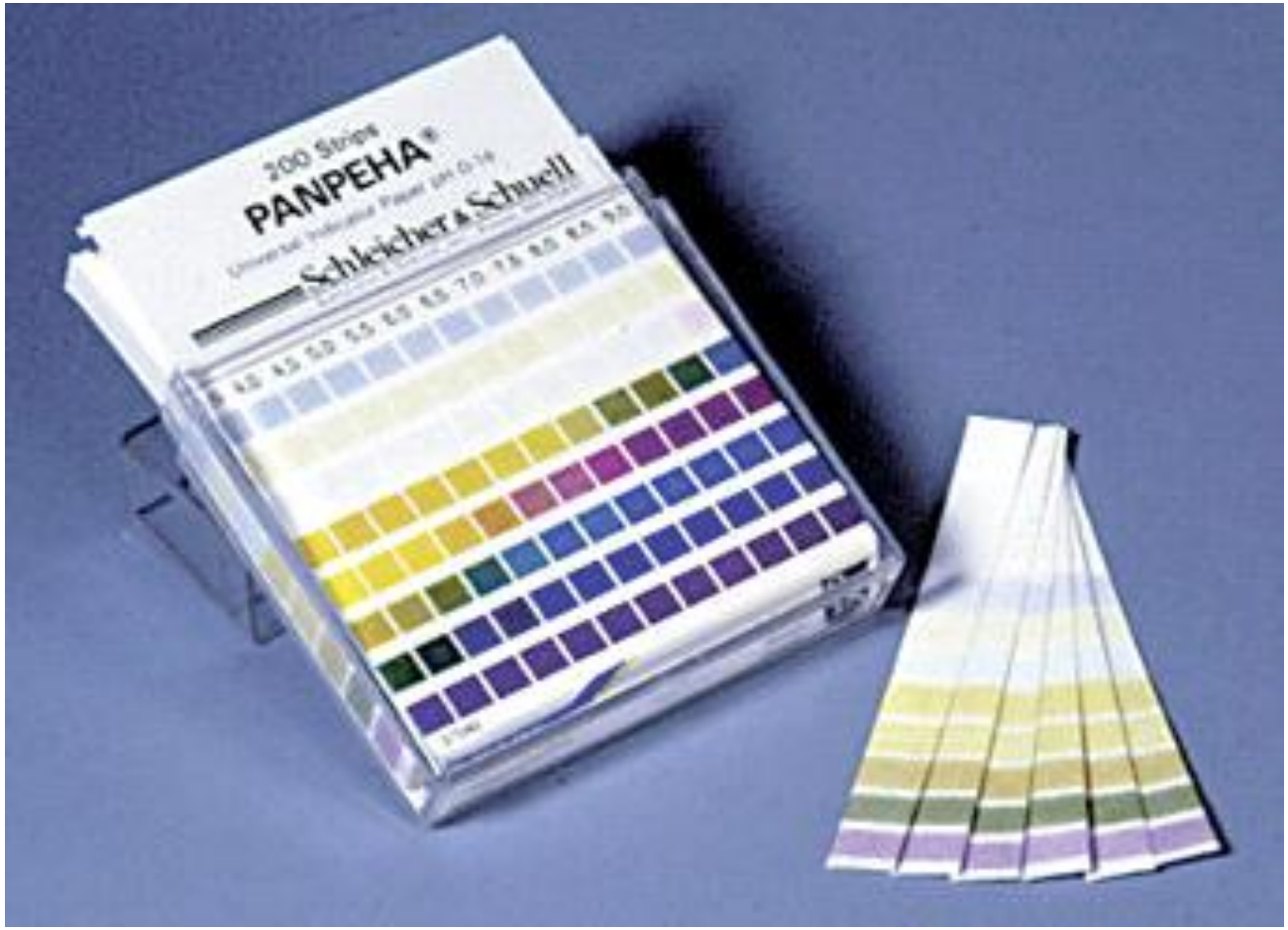
Fig 1. Fine and large bore NG tubes and equipment set-up

Checking The NG Tube Position

- Most reliable (Golden Standard):
  - A chest or abdominal X-ray.
- Less reliable:
  - pH sensitive paper.
- Least reliable and <u>should not be used</u> (The Royal Marsden Clinical Nursing Procedures, 6th Edition, 2005) & N.H.S. (2007):
  - Examination of aspirate
  - Blue litmus paper
  - Auscultation
  - Signs of respiratory distress

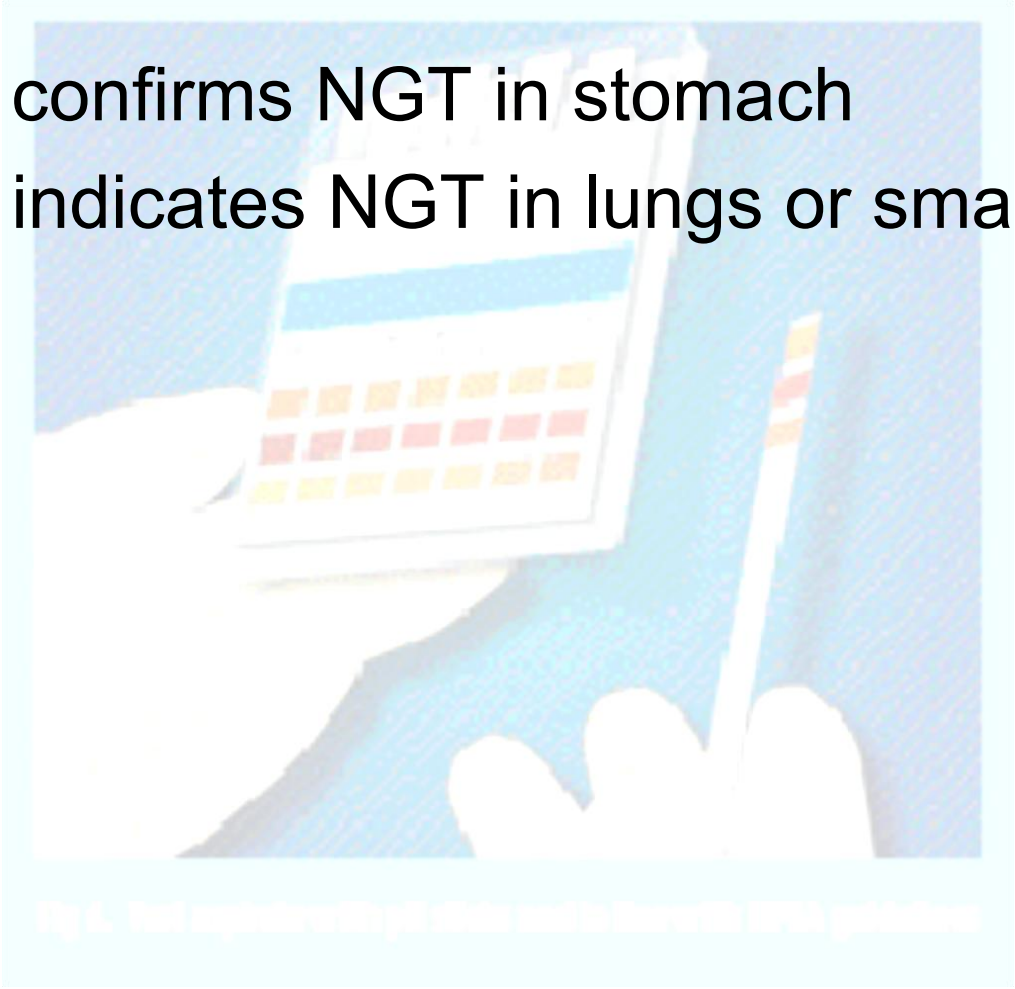


pH Indicator Strips



Checking with pH-indicator strips

- pH ≤ 5 confirms NGT in stomach
- pH ≥ 6 indicates NGT in lungs or small bowel



pH-Raising Drugs

- The following drugs can give a high pH result despite the tube being in the appropriate position:
  - H_2 blockers e.g. Cimetidine (Tagamet), Ranitidine (Zantac).
  - Protein-pump inhibitors (PPI) e.g. Omeprazole, Nexium.
  - Antacids e.g. milk of magnesia, Aludrox.

First-Time Insertion

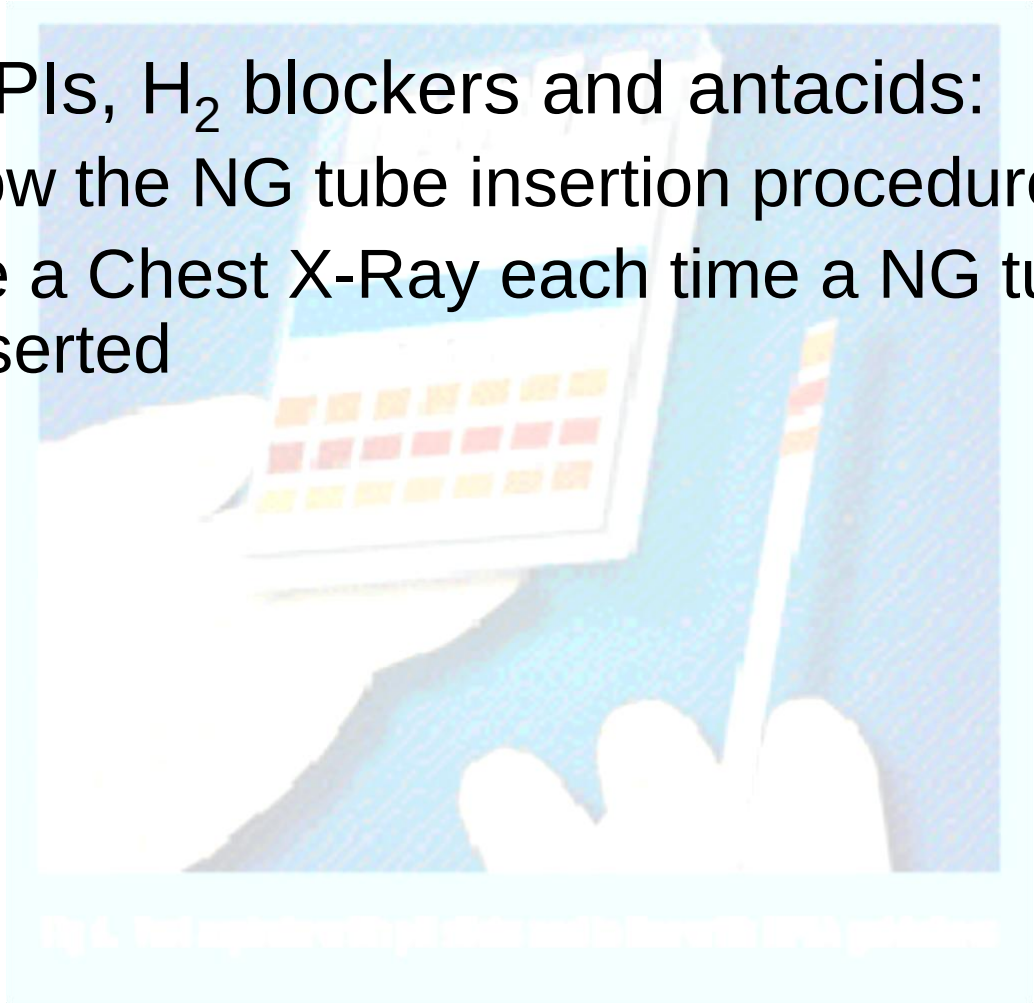
- When a patient has a NG tube inserted for the first time, one must:
  - Check if patient is on PPIs, H_2 blockers or antacids
  - Check position with pH indicator paper for a gastric aspirate with a pH ≤ 5
  - Note and document the length of the tube that remains out of the patient's nostril (on appropriate sheet)
  - Inform Clinical Nutrition Nurses

First-Time Insertion

- Please note:
  - If NG tube insertion is not successful or postponed, the patient should be placed on some alternative kind of hydration, such as intravenous hydration.

NGT Insertion for Patients on PPIs...

- If on PPIs, H_2 blockers and antacids:
  - Follow the NG tube insertion procedure
  - Take a Chest X-Ray each time a NG tube is inserted



When To Check Tube Position

1. Following initial insertion
2. Before administering each bolus feed
3. Before giving medication
4. At least once daily during continuous feeds
5. Following episodes of vomiting, retching or coughing (absent coughing does not rule out displacement)
6. Following evidence of displacement (e.g. loose tape or tube visibly longer)

While Inserting a NG Tube

- If no aspirate is obtained:
  - Try changing the patient's position
  - If still unsuccessful, inject 1ml (neonates), 5mls (children) or 30mls (adults) of air down the NG tube.
  - Wait 15-30 minutes and try to aspirate again.
  - If unsuccessful, advance tube by 1-2cm /10-20cm and try aspirating again.
  - If no gastric juice is aspirated, then Clinical Nutrition Nurse and/or Medical Officer are to consider a Chest X-Ray.

During Reinsertion of a NGT

- If on PPIs, H_2 blockers and antacids then:
  - Follow the NG tube insertion procedure
  - Take a Chest X-Ray each time a NG tube is inserted
  - If position is confirmed start feeding

During Reinsertion of a NGT

- If:

1. On no PPIs, H_2 blockers and antacids
2. Length of tube is known
3. Gastric aspirate has a pH ≤ 5

   then:

   - Follow the NG tube insertion procedure
   - Document details and methods of confirming placement of NGT
   - No need for Chest X-Ray
   - Start feeding

If...

1. pH of gastric juice for a particular patient is repeatedly higher than 5, &
2. Chest X-ray taken on insertion has shown NG tube is in place, &
3. The length of the tube out of the nostril has remained constant,

then tube can be used for feeding and one can assume a normal pH for the patient.

If...

- Patient has a short/medium-term NG tube in situ, and
- Patient does not dislodge NG tube frequently, or
- Patient needs a NG tube for long-term use, then:
  - Consider insertion of a fine-bore polyurethane NG tube or P.E.G.
  - Consult Clinical Nutrition Nurses

If...

- Patient has been on NG tube feeding for a long time, and
- Patient starts to show signs of swallowing, then:
  - Consult Speech Language Therapists
    - To assess swallowing reflex
  - Consult Clinical Nutrition Nurses
    - To consider stopping NG feeding

Flowchart For Confirming NG Tube Position

1. Check if on acid-inhibiting medication
2. Check for tube displacement and measure tube length
3. Reposition or repass tube if required
4. Aspirate using a 50ml syringe

Aspirate obtained (0.5 – 1ml)

Aspirate not obtained

DO NOT FEED

1. If possible turn patient onto side
2. Inject 1ml/5ml/30ml air into tube with syringe
3. Wait for 15 – 30 minutes
4. Try aspirating again

Aspirate obtained (0.5 – 1ml)

Aspirate not obtained

DO NOT FEED

1. Advance tube by 1-2cm/10 – 20cm
2. Try aspirating again

Aspirate obtained (0.5 – 1ml)

Test on pH strip

pH ≥ 6

pH ≤ 5

DO NOT FEED

1. Leave for up to 1 hour
2. Try aspirating again

pH ≥ 6

pH ≤ 5

DO NOT FEED

1. Call for advice
2. Consider replacement or repassing of tube and/or checking position by x-ray

PROCEED TO FEED

Clinical Nutrition Nurses - Contact Details

- S.L.H. Extension: 1761
- Direct Line: 2595 1761
- Pagers:
  - Geoffrey Axiak: 356 2141
  - Jesmond Seychell: 356 5318
- Email addresses:
  - Geoffrey Axiak: geoffrey.axiak@gov.mt
  - Jesmond Seychell: jesmond.seychel@gov.mt

Finally…

Thank you

And keep in mind…

THE PATIENT'S SAFETY COMES FIRST!