Nasogastric Tube Insertion and Feed Administration for Neonates on Maternity

Contents

Purpose of guideline

- To establish appropriate criteria for neonates requiring nasogastric tube (NGT) feeds on maternity ward
- To ensure staff caring for neonates on maternity ward understand the safe practice of NGT insertion and feed administration.
- To embed a consistent approach to the care of neonates who are fed via NGT.
- To help promote whānau remaining together and pēpi/baby not admitted to NICU doing this interim feeding transition period protecting establishment of this important relationship.

Applicability

This guideline will be relevant for staff on maternity ward:

- Midwives (RM)
- Nurses (RN)
- Infant Feeding Service
- Student midwives under supervision
- Medical personnel of the maternity ward

Criteria for NGT feeds on maternity ward

- Gestation ≥ 35 weeks and birthweight ≥ 2300g.
- Short-term NGT (12-24 hours) to avoid admission to the Neonatal Unit.
- Neonates requiring supplementary feeding where other methods (eg. cup, supplementary tube) are not successful. For example, 2 feeds of code A-D where previously able to latch and suck.

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- To ensure adequate nutrition/hydration/blood glucose levels when neonate is too sleepy to feed or dysregulated with feeding ('tired and wired'), ie. to rest and re-establish oral feeding while maintaining rooming-in.
- For neonates requiring NGT feeds in addition to other complex care needs (eg. IV antibiotics, phototherapy) admission to NICU is recommended.
- Any RM/RN or neonatal registrar/NNP/CNS (ANP) may refer a neonate for NGT.
- Decision for NGT by neonatal team.

Process

1. Neonate identified as meeting criteria and referred for NGT feed.
2. Neonatal team review.
3. Parental consent obtained.
4. Feeding plan completed, in conjunction with infant feeding team, for frequency, volume and duration of NGT feeds.
5. At each feed, prioritise rest and minimise energy expenditure for neonate.
6. Daily review by neonatal team or if at any point 3 NGT feeds are required in 12 hours.
7. If NGT feeds still required at 24 hours refer for admission to Neonatal Unit
8. If neonate is robust and ready to feed orally following 3 NGT, support skin-to-skin and oral feeds.
9. All neonates receiving NGT feeds are recommended to stay at Christchurch Women's Hospital for at least 24 hours after last NGT feed.

Education and training

Prior to inserting an NGT and/or administering a feed via NGT, all midwives and maternity nurses must complete the NGT HealthLearn online course AND complete a practical worksheet with a midwife educator, clinical coach, lactation consultant or NGT champion.

Equipment list

Equipment list: insertion of NGT

- NGT – size FG 6
- Transparent hydrocolloid dressing (Comfeel®) for base tape
- Adhesive non-woven dressing (Hypafix®) for anchoring tape
- Scissors
- Lubricating gel
- 5 mLs enteral syringe for aspirate
- pH indicator strip
- Sucrose 0.5 mLs for pre-procedure analgesia (refer to Neonatal Clinical Resource: Maternity. Drug Protocols). (NOTE: colostrum may be used instead of sucrose after discussion with parents)

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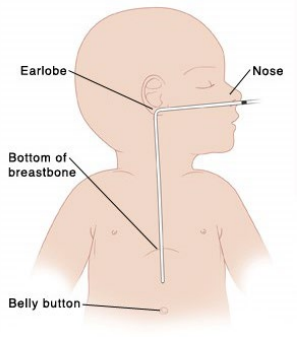
- Sucrose prescription completed (sticker on neonatal drug chart)
- 1 mLs enteral syringe for sucrose
- Sheet to swaddle neonate during insertion
- Gloves (non-sterile, latex-free)

Equipment list: administration of feed

- 5 mLs enteral syringe for aspirate
- pH indicator strip
- Sheet to secure infant during insertion
- Supplementary feed: appropriate volume, warmed
- Enteral feeding syringe, appropriate size for feed volume
- Syringe cap
- Infant feed chart with documented length of insertion for NGT

Nasogastric tube insertion

STEP	ACTION
1.	Allow 1-2 hours between last feed and insertion of NGT to allow for some digestion and ensure stomach is empty.
2.	Use appropriate **hand hygiene** at each step. Insertion of NGT is a clean procedure only.
3.	**Prepare sucrose (0.5 mLs) or colostrum** If sucrose required, midwives can prescribe (sticker available to assist with prescription). Do not administer until all equipment is ready (Step 8).
4.	**Cut tape** Base tape (Comfeel®): a wide arrow-shaped piece to fit to cheek with point of arrow under one nostril. Shape base tape to avoid lip and eye. Anchoring tape (Hypafix®): a similar shaped piece to fit over base tape
5.	**Place base tape** on side of the cheek/chin where the tube is to be anchored. Point of arrow can sit just below one nostril. Avoid placing tape too close to lip or eye (refer to the pictures below showing the correct technique of securing the tube.)
6.	**Measure the length of insertion** Hold tip of tube at one nostril, extend to the base of the ear and then to midway between the xiphisternum and umbilicus. Ensure tubing is not stretched. Take note of the measurement in cms and note in clinical records later. **Measure for a second time to ensure accuracy.** If measurements on tape are hard to read, mark the insertion length with small piece of Hypafix® This is the number that will be seen at the nostril once the tube is inserted. 
7.	**Attach 5 mLs syringe to the tube** ready for aspiration once the tube is placed.
8.	**Swaddle** neonate or consider breastfeed during procedure.
9.	**Administer** 0.5 mLs **sucrose** (or colostrum) prior to procedure.
10.	Apply neonate's **saliva or lubricating jelly** or to end of tube.

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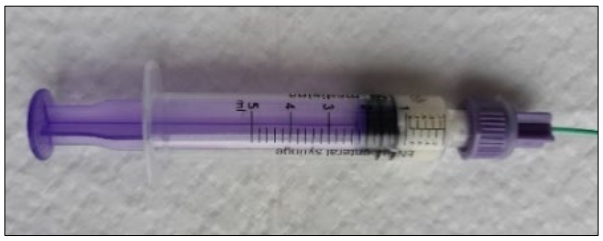
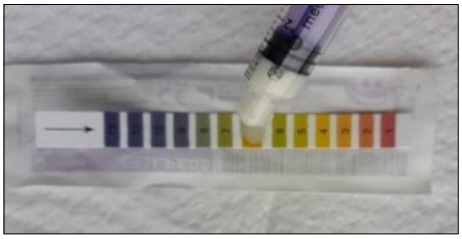
STEP	ACTION
11.	**Encourage suck/swallow** during insertion. Consider breastfeed or a parent's clean finger or a staff member's clean gloved finger.
12.	Support the head with one hand and with the other gently **insert the tube** into the nostril with a back and downward motion using a gentle, steady pressure. **Advance the tube to the desired length.** You may find it useful initially to have a helper. Inserting the NGT may cause the neonate to sneeze, cry or gag. **If the tube is difficult to pass do not force it.** Continuously check for colour and breathing during insertion. If neonate shows signs of respiratory distress, becomes blue, chokes or coughs excessively remove the tube. Tube may exit via mouth. If so, remove tube and re-insert, encourage sucking/swallowing.
13.	**Check placement** of the NGT by gently drawing back with the attached syringe & **aspirating** 0.2-1mL stomach contents. **If no aspirate can be obtained position baby onto their side** to move NGT into an area of stomach where fluid has accumulated**.** If ongoing attempts do not produce aspirate, inject 1-2 mLs air into NGT to dislodge from mucosa. As a last resort to obtain aspirate, advance or retract tube by 1-2cm. Stop if resistance noted. After each of these methods check aspirate on pH strip. **Refer to flowchart below for techniques for obtaining aspirate.**
14.	In order to determine that tube is in the stomach and not in the lung, place the aspirate on the blank middle square of the pH strip, between the numbered squares. **A result of pH 5 or below (**red, orange, yellow, pale green**) indicates acidic aspirate and the tube is likely to be correctly placed**.

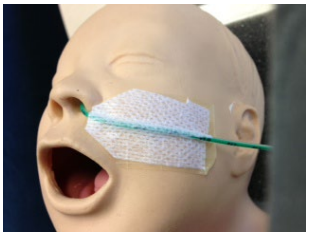




"5 or below, good to go"

If milk is aspirated with stomach acid, pH may be slightly higher than 5 (more alkaline). If pH is 6, attempt to aspirate a volume of 2mls or more. **If 2mls or more of milky aspirate is obtained the NGT is correctly placed and safe to use.**
In the event of pH 7 or above (dark green, blue or purple), or if no aspirate after following flowchart, do not administer feed and remove tube.

15.	**Anchor the tube** to the base tape with the Hypafix® tape. Ensure the tube measurement is visible at the nostril.



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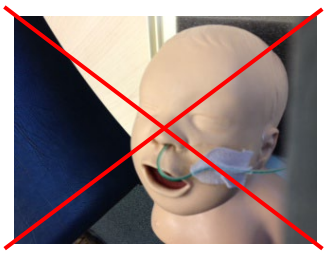

INCORRECT

INCORRECT

16.	The NGT is now ready for use but aspirate ***must be re-tested prior to any feed*** being administered.
17.	**Document** the date/time of insertion plus tube length on feeding chart and clinical records.

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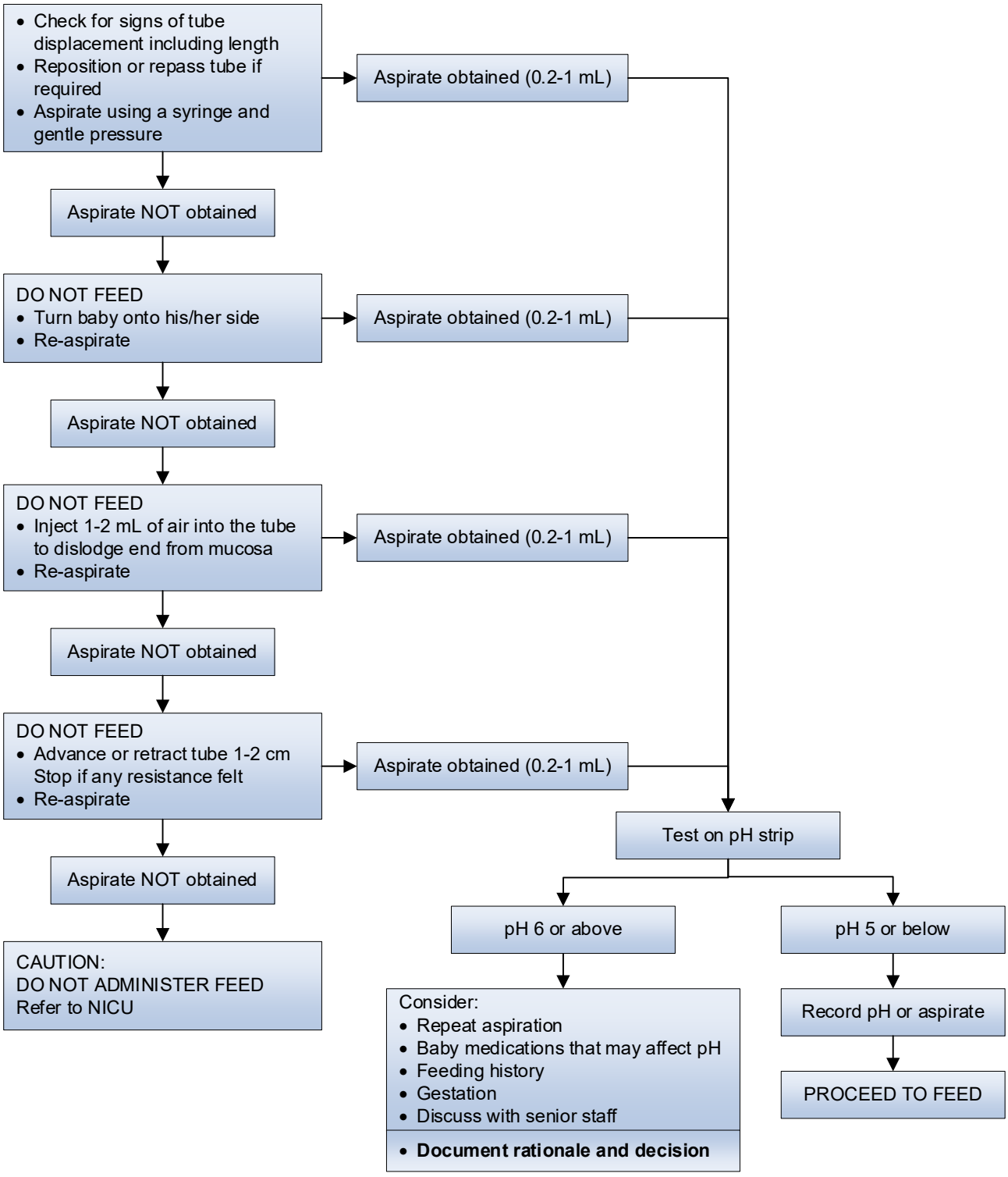
Troubleshooting to determine correct NGT placement

(adapted from NPSA 2005)



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Nasogastric feed administration

Procedure

STEP ACTION

1. **Preparing feed**
Draw up appropriate supplementary feeding volume in an enteral feeding syringe (purple):

AGE IN HOURS	PER FEED AT TERM *(37 weeks and over and over 3rd centile)*	PER FEED LATE PRETERM/SGA *(less than 37 weeks and/or less than 3rd centile)*
0-24	2-10 mL	5-10 mL
24-48	5-15 mL	10-30 mL
48-72	15-30 mL	30-50 mL
72-96	30-60 mL	50-60 mL
96-120	Over 60-80 mL	Over 60-80 mL

Refer to 'Neonatal Clinical Resource: Maternity' for guidance on alternatives to own expressed breastmilk.

- Double check with second staff member and/or parent:
- Right neonate
- Right milk (expressed breastmilk from māmā, pasteurised donor breastmilk, unpasteurised donor breastmilk or infant formula)
- Right volume
- Right time
- Right route
- Right reason
- Right documentation

2. **Warming feed**
Place cap on syringe and place syringe in warm water. Feeds do not need to be at body temp but should not be used straight from the fridge.
Refer also to Safe Defrosting and Warming of Breastmilk policy (PPN62).

3. **Confirmation of tube placement**
To ensure NGT is located in the stomach and not the lung:

- **Check documentation for NGT insertion length**.
- **Check number visible on the NGT at nostril** and compare to initial measurement. If the number has changed may need new NGT inserted.
- Ensure secure taping of NGT.
- **Attach 5 mL syringe and aspirate 0.2-1 mLs** If no aspirate turn neonate onto his/her side. Refer to flowchart for further techniques for obtaining aspirate.
- **Test the aspirate** on the pH indictor. **A result of pH 5 or below** (red, orange, yellow, pale green) indicates acidic aspirate and the tube is likely to be correctly placed. **"Five or below, good to go".**
- If milk is aspirated with stomach acid, pH may be slightly higher than 5 (more alkaline). If pH is 6, attempt to aspirate a volume of 2mls or more. **If 2 mLs or more of milky aspirate is obtained the NGT is correctly placed and safe to use.**
In the event of pH 7 or above (dark green, blue or purple), or if no aspirate after following flowchart, do not administer feed and remove tube.
- Take note of colour of aspirate. Neonates with bilious aspirates need investigation for gastrointestinal pathology. **If noted green, refer to neonatal team:**

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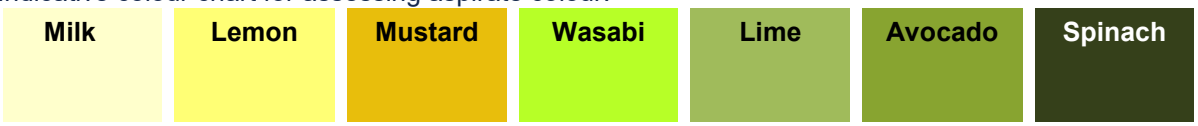
STEP	ACTION

Indicative colour chart for assessing aspirate colour:



4. **Administering feeds**

- At each feed, prioritise rest and minimise energy expenditure for neonate. Consider skin-to-skin contact.
- Once confirmed correct placement of NGT, draw up pre-warmed milk.
- Pull plunger to end of syringe before attaching to NGT as this makes it easier to remove the plunger once attached to the NGT.
- Attach syringe to NGT
- Push plunger gently to start gravity feed then remove plunger
- Hold syringe above neonate until feed is complete. Higher levels will speed up feed, lower levels will slow feed.
- If feed slows or stops, use plunger to gently restart the feed.
- Limit movement of neonate during NGT feed and up to 15mins post-feed to avoid risk of vomiting.
- Neonate must be observed by midwifery/nursing staff from commencement to the end of the feed to ensure NGT does not become dislodged.
- Depending on volume, feeds may take up to 20-30 minutes.
- If neonate is not tolerating feeds or any other concerns, seek advice from Lactation Consultant/CMM and/or Neonatal team.

5. **Recording feed**

To ensure accurate description of the type of milk and feed volume:

- Document on the Baby Pathway on clinical record and feed chart that the NGT is at the correct length before each feed.
- Record date/time/fluid type code/volume and method code (NG) on feeding chart.

Nasogastric tube removal

Once oral feeding is established remove NGT by removing base tape then pulling NGT from nostril in one swift, gentle movement. To reduce risk of vomiting, do not remove NGT immediately post-feed.

References and resources

Neonatal Clinical Resources. Maternity (Ref.2403289)
Neonatal Handbook – Nutrition and TPN section (Ref.2402528)
Safe Defrosting and Warming of Breastmilk policy (PPN62)
Infant Feeding Record (Ref.2400431)
Video: How to insert a nasogastric tube (NGT) on a baby (NICU guide for parents)
Video: Nasogastric Tube Feeding (NICU guide for parents)

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Appendix A – practical worksheet: nasogastric tube

Nasogastric Tube Practical Worksheet (Ref.2411864)

Practical Worksheet: Nasogastric Tube (NGT)

Health New Zealand
Te Whatu Ora

MATERNITY WARD

Resources: Nasogastric Insertion and Feeding on Maternity (GLM0073)

HealthLearn theory course completed:	Date: / /

INSERTION

	YES	NEEDS REVIEW	
Checks that neonate meets criteria for NGT. (see Guideline)	☐	☐	
Assembles appropriate equipment (see list overleaf). Cut tape.	☐	☐	
Performs hand hygiene.	☐	☐	
Measures correct depth for insertion (measure twice for accuracy). *(from nostril to tragus (lobe of ear) to midway point between xiphisternum and umbilicus)*	☐	☐	
Places 'Comfeel' cushioned tape near nostril.	☐	☐	
Prepares infant: assistance, swaddling, sucrose, encourage suck.	☐	☐	
Inserts NGT to measured point with neonate in neutral position.	☐	☐	
Observes response during placement (colour, cough, sneeze, gag, cry).	☐	☐	
Aspirates and tests to confirm correct placement of NGT.	☐	☐	
Secures NGT into place with Hypafix tape.	☐	☐	
Completes appropriate documentation.	☐	☐	

SAFE FEEDING VIA NGT

	YES	NEEDS REVIEW	
Performs hand hygiene.	☐	☐	
Prepares equipment (see overleaf) and checks supplementary feed volume and type.	☐	☐	
Checks insertion to appropriate length, checked with documentation.	☐	☐	
Checks dressing clean and intact, replaces as required.	☐	☐	
Aspirates and tests to confirm correct placement of NGT.	☐	☐	
Administers feed via gravity.	☐	☐	
Observes neonate during feed administration.	☐	☐	
Neonate swaddled or at breast/skin to skin. Avoid moving during feed.	☐	☐	
Completes appropriate documentation.	☐	☐	

Practical worksheet completed by _____ (RM/RN)

assessed by _____ (RM/RN)

on _____/_____/_____ (Date)

Comments _____

SIGN OFF ON HEALTHLEARN WHEN COMPLETED

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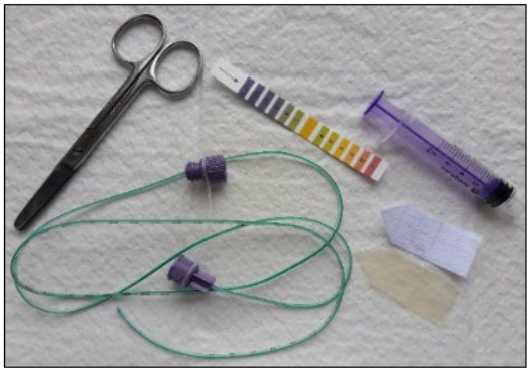

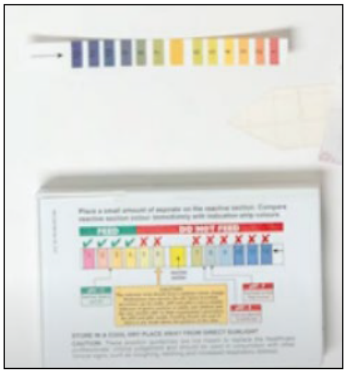

EQUIPMENT LIST: INSERTION OF NGT

- NGT – Size FG 6
- Transparent hydrocolloid dressing (Comfeel®) for base tape
- Adhesive non-woven dressing (Hypafix®) for anchoring tape
- Scissors
- Lubricating gel
- 5ml enteral syringe for aspirate
- pH indicator strip
- Sucrose 0.5mls for pre-procedure analgesia (refer to Neonatal Clinical Resource: Maternity. Drug Protocols).
- Sucrose prescription completed (sticker on neonatal drug chart)
- 1ml enteral syringe for sucrose
  (Note: colostrum may be used instead of sucrose after discussion with parents)
- Sheet to swaddle neonate during insertion
- Gloves (non-sterile, latex-free)

EQUIPMENT LIST: ADMINISTRATION OF FEED

- 5ml enteral syringe for aspirate
- pH indicator strip
- Sheet to secure infant during insertion
- Supplementary feed: appropriate volume, warmed
- Enteral feeding syringe, appropriate size for feed volume
- Syringe cap
- Infant feed chart with documented length of insertion for NGT