

Nasogastric feeding tubes

Information and Training booklet for
parents and carers



Leeds children's
hospital

caring about children



Name of parent / carer:

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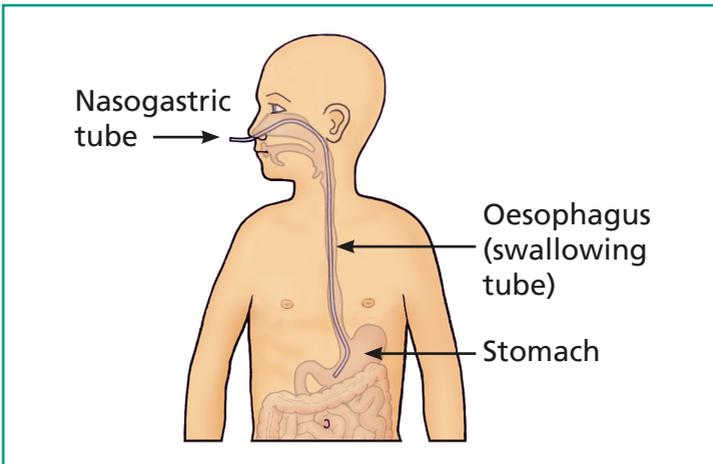
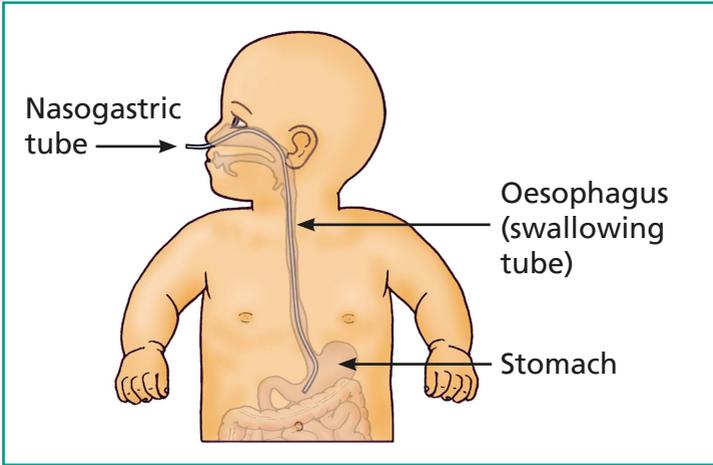
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What is nasogastric tube feeding?

A nasogastric (NG) tube is a small tube that is inserted through the nose, down the back of the throat and into the stomach (as shown here in the picture).



The NG tube can be used to give food, medicine and / or fluid to children who have difficulty taking them by mouth.

Why does my baby / child need a NG tube?

There are many reasons why babies and children may have difficulties feeding, including neurological (nervous system) disorders and gastrointestinal (digestive system) disorders.

Some children have difficulties swallowing and they are at risk of choking during feeding (aspirate), which can cause chest problems. Other children who eat and drink normally require extra nutrition because of a chronic medical condition like cystic fibrosis or kidney failure. Your doctor or nurse will explain the specific reason why your child needs a NG tube.

What are the risks of having a NG tube?

There is a very small risk of the NG tube going down the wrong way and into your child's lungs when the tube is inserted.

The tube may also move out of the stomach if it is pulled accidentally, or if your baby / child vomits or coughs excessively.

This is why it is always important to check the position of your child's NG tube before you give anything via the feeding tube, or after a coughing fit or vomiting episode. You must always ensure that the feed is going directly to your child's stomach.

These risks may make you very anxious - please feel free to discuss any worries or concerns that you have.

How is the NG tube inserted in babies?

A healthcare professional will insert the tube.

They will position your baby in a cot, wrapped up in a blanket or towel so that they are comfortable.

They will pass the thin tube into your baby's nostril and down into their stomach.



If your baby has a dummy, they will encourage them to suck on their dummy during this time as this will help the tube to be passed.

When the tube has been passed, the doctor or nurse will secure it to your baby's face with tape.

How is the NG tube inserted in children?

A healthcare professional will insert the tube. They will position your child in a sitting position on a bed or chair so that they are comfortable.

They will pass the thin tube into your child's nostril and down into their stomach.

If your child is able, they will be asked to swallow some water / juice through a straw during this time as this will help the tube to be passed.



When the tube has been passed, the doctor or nurse will secure it to your child's face with tape.

How to start tube feeding

It is important that you always test that the tube is in the stomach before you start to feed your child.

Testing the NG tube before feeding

To begin with, gather all the necessary equipment:

- 60 ml enteral syringe;
- pH strips;
- tape measure; and
- Sterile or cooled, boiled water.

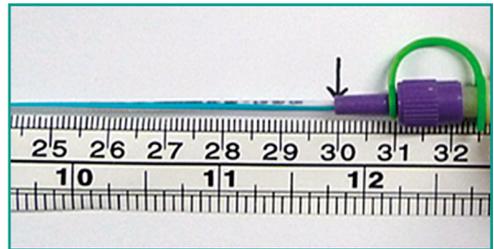
pH strips of coloured paper used to test the acidity of stomach contents (see diagram on the next page). The strips of paper have numbers that correspond to the colours to indicate the pH. It will test pH reactions from pH 1 (acid) to pH 12 (alkaline).

Remember: it is important to keep pH strips clean and dry. They should be stored in the container they came in.

Directions for testing the tube

1. Wash your hands before and after this procedure. Careful handling of feeds and equipment will reduce the spread of bacteria.
2. Explain what you are going to do.
3. Remove the cap from the end of the NG tube, attach a 60 ml syringe and draw back.

4. The first fluid drawn back may be water or feed in the tube. Discard the first 1 ml.
5. Then draw back at least 1 ml of stomach contents into the syringe.
6. Take a piece of pH paper and place a few drops of the stomach contents onto it. Ensure that you are using pH strips that you have been trained to use.
7. Match the colour change to identify the pH of the stomach contents.
8. pH of **5 or less** indicates an acid reaction which means the tube is in the stomach. Safe to feed if pH is 5 or less, **DO NOT FEED IF ABOVE 5**.
9. Once you have tested the pH of the aspirate, you must measure the external length of the NG tube and check it is the correct length.



External Length of NGT should be measured from exit at nose to the tip of the tube, not including the cap.

Once you are happy that the tube is in the correct position you can then start to give your child their feed. The nurses will show you how.

Safety precautions prior to using a NG tube

You need to be sure that feed is going directly into the stomach and not their lungs as this can cause **serious chest infection or death**.

- Never give the feed unless you are sure that the tube is in the stomach.
- Always check the tube is in the correct position before each bolus feed.
- Always check the tube position before giving any medication down the tube.
- Check the external length of the tube.
- Make sure that the tape is secure.
- Check there is no tube coiled up in the back of your baby / child's mouth.
- Check the pH of the gastric aspirate - if it is not 5 or less, seek advice.
- If your child does vomit or have a coughing fit, check the tube is in the correct position before using it again.
- If you suspect the tube is displaced, stop the feed.
- If your child is on a continuous feed, pH and external length should be checked a minimum of 12 hourly (4 hourly in children under 1 year).

For future admissions in Leeds Children's Hospital with an NG tube

- In Leeds Children's Hospital if pH is pH5 - this MUST be double checked by a nurse.
- At home, you may be provided with a different brand of pH strips. Your children's community nurse will help you with using these.
- Future admissions to Leeds Children's Hospital - you must NOT use your own pH strips. You can only use Leeds Children's Hospital pH strips during admission.

Problem solving advice

What to do	Action
If you get an aspirate with a pH reading of more than pH 5	<p>This may mean the tube has moved out of the stomach - DO NOT FEED YOUR CHILD.</p> <ul style="list-style-type: none">• Re-aspirate tube as there may be aspirated water in the tube.• For continuous feeds, stop the feed and test again after 15 minutes.• For bolus feeds, do not feed. Re-test in 15 minutes.• For further advice, contact your Children's Community Nurse.• If your child is on medicines which reduce the acid in the stomach such as Ranitidine, Omeprazole, Gaviscon or Sodium Bicarbonate, you may get a higher pH reading. Discuss with your doctor or nurse to find out if this is normal for your child.

What to do	Action
<p>If length of external tube is incorrect</p>	<ul style="list-style-type: none"> • Adjust to the correct length and re-aspirate the tube. • Remove the tube and replace with a new tube.
<p>If your baby / child's stomach is swollen and hard after feeding</p>	<ul style="list-style-type: none"> • 'Vent' the tube to remove wind from your child's stomach. • Remove plunger from 60 ml syringe, attach to tube and hold it level with stomach to allow wind to escape. If stomach contents flow back, hold syringe higher to allow it to flow back in. Flush the tube with water.

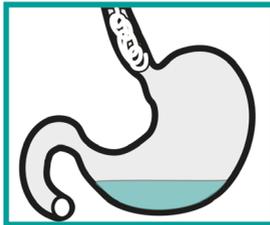
What to do	Action
<p>If you cannot get any aspirate back from your baby / child's tube</p>	<p>It could be that your child's stomach is empty or the tube is resting against the stomach wall.</p> <ul style="list-style-type: none"> • Turn your baby / child onto their left-hand side and try to draw back fluid. • If this does not work, gently inject 1 ml - 2 ml of air down the tube. This may blow the tube away from the stomach wall. Try to draw back fluid. • If this does not work and it is safe to do so, give your baby / child a small drink by mouth. Wait 15 minutes, then try to draw back fluid. • If this does not work, try advancing the tube by 1 cm to 2 cm. It may be that the tube is too high and has not yet reached the stomach. • If you have tried all these techniques and you still cannot obtain any fluid to test, then the tube may need to be changed. Change the tube if you have been taught how to.
<p>If your baby / child feels sick and has stomach cramps and / or if they are vomiting and / or has diarrhoea</p>	<ul style="list-style-type: none"> • Check the rate of feeding, you may need to slow it down. • Ensure the feed is at room temperature before giving it to your baby / child. • If, despite these measures your child is still vomiting, draw off some stomach contents and contact your Children's Community Nurse or GP. • If diarrhoea continues, contact your Children's Community Nurse or GP.

What to do	Action
<p>If the tube is blocked</p>	<ul style="list-style-type: none"> • Flush 15 ml - 10 ml of warm water, push plunger backwards and forwards, and squeeze the tube. • Leave for 15 minutes. • Flush with water. • If the tube is still blocked, remove and insert a new tube.

Why you may not be able to draw stomach contents back with the syringe



The tube is above fluid level



The tube is in the oesophagus



The tube is blocked in the stomach lining



There is no fluid in the stomach



The tube has gone into the small bowel



The tube is blocked

Flushing the feeding tube

Why do you need to flush your baby / child's tube?

- To prevent the tube from blocking.
- To prevent medicines and feed mixing together.

When to flush the tube

- Before and after giving the feed and medicines.
- At least every 12 hours.

How to flush the tube

1. Wash your hands.
2. Explain what you are doing.
3. Draw up 5 ml (2 ml for babies) of sterile water (in hospital) or cooled, boiled water (at home). Your doctor, nurse or dietitian may recommend a different amount.
4. Attach the syringe of water to the end of the NG tube and gently push plunger using a stop-start technique (e.g. give 1 ml - 2 ml water, then stop and then give another 1 ml - 2 ml after each ml). This cleans the tube more effectively.

Do not use force

What kind of water should I flush the tube with?

- At home, use cooled, boiled tap water.
- In hospital, use sterile water.

How do I make and store cooled, boiled water?

1. Fill your kettle with fresh tap water and boil.
2. Pour the boiled water into a clean bottle / container with a screw top lid and leave to cool for at least 1 hour.
3. Put lid on bottle / container and store at room temperature out of direct sunlight.
4. This water can be used for 24 hours. After 24 hours, throw away any excess.
5. Clean the bottle / container with hot, soapy water. Rinse with clean water and allow to air dry before reusing or clean in a dishwasher.

You may find it helpful to make up your total daily amount of cooled, boiled water at the same time each day.

How do I use and look after syringes?

- Syringes are used for giving medication, water flushes and bolus feeds through the feeding tube.
- Enteral EN Fit syringes (see picture opposite) are suitable to use with a feeding tube.



How often should I change the syringe?

- Use a separate syringe for giving water, medicines and bolus feeds; therefore, you will need three separate syringes.
- If reusing syringes, then you must clean the syringes between uses.
- Change ALL syringes at least once per week and more often if the numbers have worn off, or there are deposits building up on the syringe.

How do I clean and re-use syringes?



1. Clean after each use by washing in warm, soapy water.



2. Pull plunger up and down several times until all traces of feed / medicine are removed.



3. Separate barrel and plunger and wash both thoroughly in warm, soapy water.



4. Rinse under cold tap and shake off excess water.



5. Air dry or dry using disposable kitchen roll.



6. Store in a clean, dry, airtight container or re-sealable polythene bag.

If you live outside Leeds, the local healthcare policy on syringe use may be different. Ask your dietitian or Children's Community Nurse for more information.

What do I do if my child is under 1 year of age?

Clean syringes as in steps 1 to 4 above and then immerse them in cold water sterilising solution (e.g. Milton - made up as per the manufacturer's instructions) for 1 hour. Do not use a steam or microwave steriliser as syringes may melt.

Setting up the feed

- It is important that you wash your hands thoroughly before preparing any feed or setting up any feeding system.
- Some feeds come in a ready to hang pack or bottle which can be attached directly onto the giving set of the feeding pump.
- If you need to make up a special feed, your dietitian will show you how and give you a written copy of the feed recipe.
- Feeds must be thrown away after 24 hours.
- Your dietitian will advise you on your specific feeding instructions and storage.

How to make a powder-based feed?

There is an increased risk of germs getting into feeds when they are made up at home. Extra care is needed to reduce these risks.

1. Wash your hands and dry on a clean towel or paper towel.
2. Prepare a clean area to make up the feeds.
3. Use a sterilised, plastic jug and utensils to make up the feed. If not possible to sterilise, fill the jug containing utensils with boiling water and wait for 2 minutes before use.
4. Make up with cooled, boiled or sterile water.
5. Follow the dietitian's feed recipe and advice on how long it can be stored for.
6. Store the feed in a sterile, covered container, e.g. infant feed bottle or bottle containing sterile water in the fridge. NEVER store feeds for more than 24 hours.

Avoid touching the inside of the bag giving set and cap when filling.

How to set up a pump feed



1. Wash your hands.



2. Gather equipment.



3. Check feed bag is intact and in date.



4. Measure external length.



5. Check pH of aspirate.



6. If pH is 5 or less, flush with sterile water.



7. Attach giving set to feed bag and prime using pump.



8. Connect giving set.



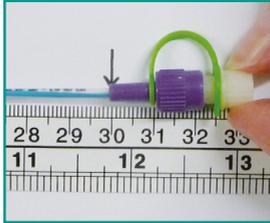
9. Programme pump and start the feed.

In a situation where no aspirate can be obtained despite trying all techniques, the tube must be replaced.

How to give a bolus feed using gravity technique



1. Wash hands and gather equipment. Check correct feed and expiry date.



2. Measure external length of tube.



3. Check pH of aspirate.



4. If pH is 5 or less, flush with sterile water.



5. Remove plunger from syringe and attach syringe barrel to tube.



6. Pour feed into syringe and allow it to run by gravity. If flow too fast, lower syringe.



7. If no flow, hold syringe higher or use plunger to start flow.



8. Adjust height of syringe above the stomach to control flow rate.



9. At end of feed, flush tube with the advised amount of water and replace stopper.

For thickened feeds, you may need to use the plunger to help the milk flow or use a pump. Remember to give feed slowly.

When do I need to change the pump giving set?

Sterile pre-packed feeds

The giving set can be used for up to 24 hours. Feed packs can be changed but take care not to touch the spike when changing the bag.

Powder-based feeds or supplements added to ready-made feed

For daytime feeds, change the feed and bag set every 4 hours. For overnight, feeds and bag set can be used for up to 12 hours.

Giving medicines

Give medicines as prescribed using an enteral Enfit syringe attached to the end of the NG tube or to the medicine port on feed giving set.

Why you need to know how to give your baby / child's medicines

- To ensure that they get the correct dose of medicine for their age and condition.
- To avoid medicines and feed reacting with each other.
- Giving medicines correctly will avoid the feeding tube becoming blocked.

How to give medicines correctly

- Request medicines from the GP in a liquid or dispersible tablet and sugar-free form.
- If medicine is only available in tablet form, seek advice from the pharmacist or nurse on how to make a solution with crushed tablets.

- Wash your hands.
- Explain what you are doing.
- Stop the feed, if it is running.
- Flush the tube with 1 ml - 2 ml of cooled, boiled or sterile water.
- Give medicines as prescribed down the feeding port, giving set or end of feeding tube using a syringe.
- After giving each medicine, flush the tube again with 1 ml - 2 ml of cooled, boiled or sterile water.
- At the end, flush the tube again with 5 ml cooled, boiled or sterile water.

Changing the tapes

- Prepare new tape and cut to size before removing the current tapes.
- Gently pull the tape clear from the side of your baby / child's face when it is dirty or loose.
- Ensure you hold the tube at the nostril to prevent it from displacing / coming out.
- Clean the cheek with soapy water, rinse and pat dry.
- Place the hydrocolloid dressing (duoderm) on the cheek and then lie the tube on top of the hydrocolloid dressing. Then place the adhesive tape (tegarderm or hyperfix) on top of the tube. Ensure the tube is secured with the tape up to the nostril.
- Aspirate and check pH is less than pH5 and remeasure external length to ensure length has not moved.

How do I get further supplies of feed and equipment?

Once you are home, the dietitian will arrange for the feeding company to deliver further supplies of feed and feeding equipment (giving sets, syringes, extension sets, spare feeding tubes etc.) to your home. You will also receive a 'Welcome Pack' from the feeding company, which should explain everything you need to know about the service they will provide to you.

In some areas of Yorkshire, the Children's Community Nurses or Health Visitor will supply your syringes. Your dietitian will tell you if this applies to you.

The feeding company will phone you to arrange a suitable delivery date and time.

Where should I store my feed?

Store unopened sterile packs of feed and equipment in a clean, cool environment. You do not need to store it in a refrigerator (ideal storage temperature is between 8° C and 25° C). Avoid storing feed next to radiators. In the winter months when it is likely to freeze, do not put feed and equipment in garden sheds or garages. Always rotate the stock using up 'old' stock first before using from a new delivery.

If you have feed / equipment which is no longer being used, contact the feeding company. They will arrange to take these items away.

How do I throw away used feed and equipment?

All feed and plastic feeding equipment (e.g. giving sets, syringes used for bolus feeding and water etc.) can be thrown away with your normal household rubbish.

Most plastic feeding equipment and some syringes can be recycled. Check the packaging for the recycling symbol. Ask your district nurse for advice on how to dispose of syringes used for medicines.



Inserting the NG tube

You should only insert your child's NG tube if you have been deemed competent to do so by a Health Professional. It takes time to learn how to insert the NG tube and start tube feeding, so be patient with yourself.

To begin with, gather together all the necessary equipment:

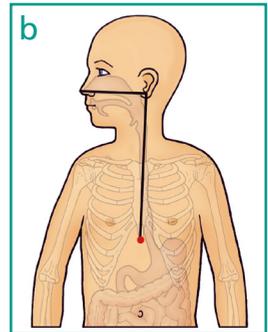
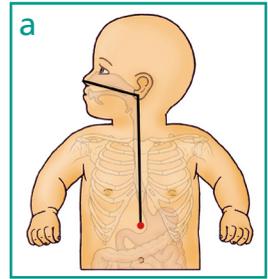
- nasogastric tube;
- scissors;
- enteral syringes: 60 ml;
- cooled, boiled or sterile water;
- pH strips;
- tape (Duoderm, Tegaderm or Hyperfix); and
- tape measure.

Directions for insertion

1. Wash your hands.
2. Explain what you are doing.
3. Measure the length of tube to be inserted using a tape measure (see diagrams)

(a) For infants: measure from the tip of your baby's nose to their earlobe, then down to the midpoint between the tip of their sternum and their navel (belly button).

(b) For children: measure from the tip of your child's nose to their earlobe, then down to the bottom of their sternum.



4. Record the 'insertion' length of the tube. It is important that the length of tubing is correct. If you insert too much, the tube may kink. If the tube is too short, it will not reach the stomach.
5. Dip the end of the tube in cooled, boiled or sterile water to lubricate it.
6. Pass the tube slowly into your baby / child's nose, allow the tip to seek its own passage. As your child swallows, advance the tube down the food pipe (oesophagus) into the stomach gently.
7. Hold the tube in place. If the tube has a guidewire, this can be removed.

8. Draw back 1 ml - 2 ml of stomach contents using a 60 ml syringe.
9. Test the stomach contents on pH paper, if the pH is **5 or less**, secure the tube to your child's face.
10. Flush the tube with 5 ml - 10 ml of sterile water.

Remember

- If you see the tube coming out of your child's mouth, or if your child coughs excessively or turns blue when the tube is in place, remove it immediately.
- Never use force to pass the tube. If you meet resistance, gently withdraw the tube and try again.
- If you have problems passing your child's tube, please discuss this with your Children's Community Nurse.

It is natural that you may feel anxious about NG feeding, especially passing the tube but you will receive lots of training and support from the nursing staff until you become confident.

Some parents / carers do not want to learn how to insert the NG tube. Your ward nurse can arrange for your baby / child's NG tube to be reinserted by your Children's Community Nurse or your local Children's Assessment and Treatment Unit.

How to pass a NG tube in a baby



1. Gather equipment.



2. Wash your hands.



3. Give baby sucrose.



4. Measure the insertion length.



5. Swaddle baby.



6. Lubricate end of tube with baby's saliva.



7. Insert the tube.



8. Tape tube securely to baby's face.



9. Test for acid pH.



10. Record pH, insertion and external length.



11. Feed baby.

How to pass a NG tube in a child



1. Gather equipment.



2. Measure the insertion length.



3. Insert the tube.



4. Remove the guidewire.



5. Aspirate using gentle suction.



6. Test pH of the aspirate.



7. Measure external length.



8. Tape the tube securely to child's face.



9. Document in the NGT care plan.

Useful contact details

Professional	Name	Telephone no.
Ward		
Consultant		
Dietitian		
Nurse Specialist		
Community Nurse		
Local Hospital		
Community Dietitian		
Local Paediatrician		
General Practitioner		
Health Visitor		
School		
School Nurse		
Home Care Company		

Teaching plan for tube feeding

Skill	Demo	Parent / Carer 1 Practices (please initial and date)				
Hygiene						
Preparation of equipment						
Check tube for displacement <ul style="list-style-type: none"> • Tape secure • External measurement • Coiling 	<i>Must be completed before progressing to practise session</i>					
Trouble shooting <ul style="list-style-type: none"> • pH more than 5 • Unable to obtain aspirate • Change in external length 						
Safety issues						
Winding / Gastro-oesophageal reflux*						
Preparation and storage of feed						
Giving bolus feeds by gravity						
Using a feeding pump*						
Flushing tube with air / water						
Care of nostril and cheek						
Inserting a NG tube*						
Problem solving <ul style="list-style-type: none"> • Blocked tube • Tube falls out • Coughing, choking or respiratory distress 	<i>Must be completed before progressing to practise session</i>					
Daily living activities <ul style="list-style-type: none"> • Bathing • Swimming / sport 						



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