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West of Scotland Paediatric Gastroenterology, Hepatology and Nutrition Managed Clinical Network

West of Scotland Paediatric, Gastroenterology, Hepatology and Nutrition Managed Clinical Network

Enteral Tube Feeding Information Pack For Healthcare Professionals

Authors:	Managed Clinical Network for the West of Scotland Paediatric Gastroenterology, Hepatology and Nutrition (MCN WoSPGHaN) Enteral Feeding Information Group
Approved by:	MCN WoSPGHaN Enteral Feeding Strategy Group MCN WoSPGHaN Education Group MCN WoSPGHaN Steering Group
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GLOSSARY

Aspiration	**Taking a sample of stomach (gastric) contents for pH testing**
Balloon	**A balloon is filled with water, which sits inside the stomach and stops the gastrostomy tube from falling out**
Balloon Port	**Valve in gastrostomy tube to insert water into the balloon**
Bolus Feeding	**A volume of feed delivered using a syringe over a short period of time**
Clinical Waste	**Used medical equipment for disposal**
Continuous Feeding	**A volume of feed delivered by a feeding pump at a constant rate over a period of time**
Decanting	**Pouring feed from original container into another container**
External Fixator	**A devise that holds the gastrostomy tube against the skin**
Gastric Contents	**Stomach contents**
Giving Sets	**Plastic tubing that delivers feed**
pH indicator paper	**Paper or strip that measures the amount of acid in stomach contents**
Single Use	**Use once and then discard**
Buried Bumper	**Stomach lining grows around internal disc**
Single Patient Use	**Can be used more than once on one patient only**

Stoma	**Tract created surgically, into the body from outside**

Section 1

INTRODUCTION

The purpose of this pack is to provide information to all health care professionals across the West of Scotland that will enable them to provide safe care and delivery of enteral tube feeding to neonates, children and young people. Adopting a consistent approach across the region will promote continuity of care for these neonates, children and young people, wherever they are cared for and reduce the potential risks associated with enteral tube feeding. Most of the information provided is relevant for all age groups.

However there are a few differences in best practice for neonates compared to those for children and young people and these are highlighted in Appendix 5 on page 37.

OBJECTIVES

- To provide information on enteral tube feeding that reflects current thinking and evidence based practice to healthcare professionals in the West of Scotland.
- To promote a consistent approach to enteral tube feeding for neonates, children and young people across the West of Scotland.
- To promote safe delivery and reduce potential risks of enteral tube feeding in neonates, children and young people.
- To outline best practice for procedures relating to enteral tube feeding.

ENTERAL TUBE FEEDING

The number of children and young people receiving enteral tube feeding continues to grow annually (Ardill et al, 2010 and Paxton et al, 2012). Good nutrition is necessary to sustain body functions, promote growth and encourage tissue repair and provide energy for physical activity. If a child or young person has difficulty swallowing they will be unable to achieve an adequate oral intake and feeding via a tube may be necessary. Research has found that almost all parents report a significant improvement in their child or young person's health and growth as a result of tube feeding (Sullivan et al, 2005). In 2007, Quality Improvement Scotland outlined best practice for children receiving enteral feeding in the community (QIS, 2007).

Recently reports have highlighted the risks associated with enteral tube feeding however, these complications are rare and can be minimised by

adhering to evidence based best practice (National Patient Safety Agency, 2005a, 2011, 2012a, 2012b).

Indications for Enteral Feeding

Difficulty achieving adequate nutrition associated with or due to any of the following may require tube feeding

1. Faltering growth
2. Inability to swallow / Unsafe swallow
3. Severe Oesophageal Reflux / Vomiting
4. Distress during feeding
5. Prolonged feeding times / Unable to complete feeds due to underlying disease
6. Recurrent aspiration
7. Neurological dysfunction
8. Special diets
9. Critical Illness

This list is not exhaustive and there may be other reasons why enteral tube feeding is required.

Enteral tube feeding is most likely to be administered via nasogastric or gastrostomy tubes. These can vary in type, size and fittings.

Types of Enteral Feeding Tubes

Nasogastric Tubes

Nasogastric tubes are fine bore tubes with a small internal diameter and are commonly used for short to medium term enteral feeding. These tubes are passed via the nose into the stomach and are available in two main types:

Short-Term Tubes

These tubes have historically been manufactured from polyvinylchloride (PVC) and can remain in place for between 7-10 days, dependant on manufacturer's guidelines. More recently polyurethane tubes without guide wires have been available and can be left in place for up to 30 days. All these tubes are single use and should the tube become dislodged it should be discarded and replaced with a new tube.

Long-Term Tubes

These tubes are made of polyurethane and have a guide-wire to aid the passing of the tube. Once the tube has been passed, the guide-wire is removed and should be kept in a clean safe place as it will be required should the tube become dislodged. This tube can normally remain in situ for approximately eight weeks dependent on manufacturer's guidance. Within this time, the tube can be cleaned and re passed if necessary. Cleaning of the tube should also be in accordance with manufacturer's guidance and local policy.

Gastrostomy Tubes

A gastrostomy is a surgical opening (stoma) between the skin and stomach, which can be used for long term feeding via a gastrostomy tube.
There are different types of gastrostomy tubes, the most common ones are described and shown on the pages that follow:

Percutaneous Endoscopic Gastrostomy (PEG)

A PEG tube is inserted during a simple surgical procedure. The tube is passed down the throat into the stomach using an endoscope. The tube is then brought out through a surgically created tract between the stomach and abdominal

wall. A small disc at one end of the tube secures the tube inside the stomach. Once placed, an external fixator device, a clamp and a feeding connector are then fitted to the external part of the tube.

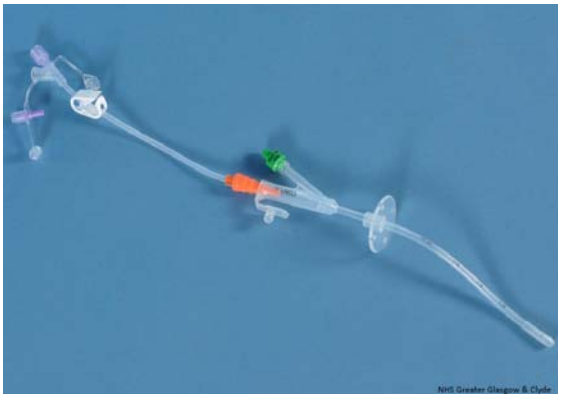
These tubes generally last around 18 months or as recommended by the manufacturer.

Balloon Inflated Gastrostomy Tube

There are two types of balloon devices. These are usually placed in a formed surgical tract and are shown below:

Balloon Gastrostomy Tube

This tube is held in place in the stomach by a balloon filled with water and an external fixation plate. All tubes will have a reverse luer lock feeding connector and a valve for inflating the balloon.



Low profile device (Button)

This is a small device that is held in place in the stomach by a balloon filled with water. It requires an extension set for the administration of medications or feeds. Nothing should be inserted directly into the button device except for the appropriate extension set, as anything else will damage the valve.

Both balloon and low profile gastrostomy devices will require the water in the balloon to be changed on a weekly basis. These devices will require to be replaced every 3-6 months depending on manufacturer's guidance and the individual patient.

These devices can be replaced without a surgical procedure, by simply removing the water from the balloon, removing the tube/button then replacing it with a new tube/button and inflating the balloon with cooled boiled water.

Balloon inflated gastrostomy devices should only be changed by someone who has been fully trained and is competent in this procedure.

Jejunal Tubes

These feeding tubes are used when there is a medical requirement to deliver feeds directly into the small intestine (jejunum) totally by-passing the stomach.

Nasojejunal tube

This is similar to a long-term nasogastric tube, but longer. It is usually passed via the nose and through the stomach into the jejunum under fluoroscopic guidance in the radiology department.

Gastrojejunostomy

This looks similar to a low profile button gastrostomy tube but it has a longer tube, which extends into the jejunum through a pre existing tract. It has 2 lumens one for feeding and the other for gastric decompression.

Transgastric–Jejunal Double Lumen Feeding Tube

These can be placed surgically, endoscopically or radiologically. They have double lumens, one for feeding and the other for gastric decompression.

Surgical Jejunostomy

These tubes are surgically inserted through the abdominal wall and directly into the small bowel.

Enteral Feeding Syringes

Syringes used for enteral feeding are colour coded purple in line with the European Standard EN1615 for enteral devices. They have a female luer lock to prevent accidental connections to intravenous devices. These syringes come in a range of sizes from 1ml to 60ml and can be for single use only or suitable for multiple use as recommended by manufacturers.

Syringes supplied for use in the community should have home oral/enteral written on them and have a dark purple plunger. These can be used repeatedly over a maximum of seven days. After each use they should be washed in hot soapy water, dried and stored in a clean container. They can also be placed in a cold sterilising solution if used for immunocompromised patients or those under a year old.

In contrast, hospital syringes have oral/enteral syringe written on them and have a light purple plunger.

They also have the single use logo on them ② and should be disposed of after use.

METHODS OF FEEDING

Gastrostomy and nasogastric feeds can be given in the form of bolus, continuous feeding or a combination of both. The method chosen will be the one that best meets the needs of the child/young person. **Appendix 5 on page 37 describes the methods used to feed neonates**.

Jejunal feeding is always administered by continuous pump feeding over several hour's as the stomach reservoir is not used.

Gravity Bolus Feeding

This is normally a pre-determined volume of feed given via an open syringe. The feed should take around 15-30 minutes, depending on the feed type and volume being given and the individual child/young person.

Plunge Bolus Feeding

This is the method most often used in neonates where very small volumes (1-5mls) of feed are given hourly by using the plunger and syringe to push the feed down the nasogastric tube into the neonate's stomach

Pump Bolus Feeding

This is also a pre-determined volume of feed given over a short period of time but at a controlled and steady rate via a feeding pump. The period of feeding will be planned for each individual.

Continuous Pump Feeding

This is where a feed is administered at a controlled rate over a longer period of time via a feeding pump.

ENTERAL EQUIPMENT AND PATIENT SAFETY

The National Patient Safety Agency (NPSA, 2005a, 2005b, 2007, 2011, 2012a and 2012b) has issued a number of patient safety alerts regarding patient safety and enteral tube feeding. This guidance requires the universal adoption of dedicated 'enteral systems', which are incompatible with intravenous connections, thereby reducing the potential risk of enteral medicines/feeds being administered intravenously, which can prove fatal. The NPSA recommendations also state that pH indicator strips used for checking enteral tube position must be CE marked for the testing of human gastric aspirate.

Further guidance from the NPSA (2011) highlighted that confirmation of tube position using pH testing and observed length of tube is fundamental but also that if x-ray confirmation is required the individuals interpreting those x-rays must be competent. Local guidance regarding this should be followed.

Home enteral tube feeding also poses a risk of entanglement in lines and potential strangulation (NPSA, 2012b). This must be highlighted to parents prior to discharge and the steps that should be taken in order to minimise risk i.e. tubes being positioned out of the leg of a babygro etc.

Appendix 4 provides some guidance on risk reduction measures that aim to promote patient safety for those receiving enteral feeding overnight.

Section 2

NASOGASTRIC FEEDING

Introduction

Nasogastric feeding is generally used for infants, children and young people who require short-term nutritional support.
The following guidance outlines the procedure required to pass a nasogastric tube. **Appendix 5 on page 37 provides further advice on the procedure and equipment to be used for passing a nasogastric tube on neonates**.

Procedure for Passing a Nasogastric Feeding Tube

Equipment Required

- Clean tray/trolley/surface
- Naso-gastric feeding tube (correct type, size and length)
- 60ml enteral ('purple') syringe (smaller for neonates)
- pH indicator paper (CE marked for human gastric aspirate use)
- Cooled boiled water/sterile water
- Tape to secure tube to face*****
- Scissors
- Non-sterile gloves and apron (paid carers and nursing staff)
- Cup of water and straw, sick bowl and tissues (if age appropriate)

*****There are different tapes that can be used to secure the tube to the side of the face. Check if the child is allergic to tapes prior to making a decision about which tape to use.

The Procedure

1. Ensure there is no contraindication to nasal tube insertion.
2. Ensure everything you need has been collected and is near to hand.
3. Explain the procedure to parents/child/young person and gain consent.
4. Check the nostrils to see if either is clearer and choose the clearest.
   (Alternate nostrils each time you change the tube).
5. Ensure that the child/young person is comfortable

a) Babies can be wrapped in a blanket or towel to help keep them secure and placed in a cot.

b) Older children may prefer to sit up with their head tilted slightly forward.

6. Wash and dry hands thoroughly and put on apron and gloves.
7. Measure the length that the tube needs to be inserted to by holding the tip of the tube at the tip of the nose, to the child's ear lobe and then to the base of the breastbone (xisphisternum).

   This measurement is referred to as the NEX measurement (Nose-Ear-Xisiphisternum). **See Appendix 5 on page 37 for the method to be used with neonates**.

   Mark this on the tube or keep your fingers on the point where you measured and make a note of the number marker.

8. Wet the tip of the tube, if required, with some cooled boiled/sterile water.
9. Pass the tube using the steps below:
   a) Insert the tip of the tube into the chosen nostril.
   b) Slide backwards along the floor of the nose.
   c) If you feel any obstruction, pull the tube back, turn it slightly and advance tube again.
   d) If obstruction is felt again try the other nostril.
   e) As the tube passes to the back of the nose, ask the child/young person to take sips of water if able, this will help tube go down.
   f) If the tube is being passed on a baby give them a dummy, if they have one.
   g) Advance the tube until you reach the point you measure.
10. Secure the tube to the child's face using the supplied tape. An

11. Check position of the tube following procedure on page 17.
12. If using a long-term tube follow the above procedure before removing the guide wire (you may need to lubricate the guide wire first by flushing with sterile/cooled boiled water, please follow manufacturers guidance). The tube can only be flushed with water if gastric position has been confirmed (NPSA, 2012a). The wire is then removed once the tube is passed but must be kept in case the tube has to be re-passed.
13. Attach the barrel of an enteral 60ml syringe to the end of the tube and flush with the recommended amount of cooled boiled water /sterile, when position has been confirmed.
14. Dispose of waste in line with local policy (at home this would be in domestic household waste).
15. Wash and dry hands.
16. Ensure documentation is completed (including; make, size and length of tube used, pH reading, observed length of tube at the nose).
17. In hospital if x-ray confirmation is required due to a pH greater than 5.5 or failure to obtain an aspirate this should be clearly documented and the tube labelled ('DO NOT USE') until a radiographer has reported and documented x-ray findings.

Potential Problems when Passing a Nasogastric Feeding Tube

- Vomiting during the passing of the tube.

  This can happen occasionally, if it does, stop procedure, remove the tube and place child or young person on their side. Allow them to settle and re-attempt procedure or seek advice.

- Blood staining

  This can happen if the tube scrapes the inside of the nose when passing the tube. When you first see this it can be upsetting but it is usually not a problem. Reassure the child or young person.

- Nose-bleeds

  These can happen and if becomes more severe stop the procedure. Wait until the nosebleed settles before re-passing the tube. It is advisable to retry using the other nostril but if it persists seek medical advice. **See appendix 5 page 37 for advice on nose bleeds in neonates.**

- Coughing or choking

  If the child coughs or appears to have difficulty breathing during the procedure – STOP. Withdraw tube and seek medical help if you are concerned.

Checking the Position of a Nasogastric Feeding Tube

Introduction

The tube position must always be checked before use, using indicator pH paper. NG tubes can often become dislodged and therefore it is important that the position of the tube is always checked in the following circumstances:

1. Prior to each bolus feed
2. Prior to commencing continuous feeds
3. Prior to administration of medicines out with feeding times
4. After coughing / retching / vomiting episode
5. If the tube appears to have changed in length (this should be regularly checked and recorded)
6. If child develops signs of breathing difficulties such as breathlessness, stridor, cyanosis or wheezing

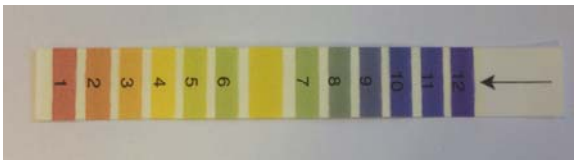
Equipment Required

- Clean tray/trolley/surface
- 60ml enteral ('purple') syringe (smaller in neonates)
- pH indicator paper (CE marked for human gastric aspirate use)
- Cooled boiled water/sterile water
- Non-sterile gloves and apron (paid carers and nursing staff)

The Procedure

1. Ensure everything you need has been collected and is near to hand.
2. Explain the procedure to parents/child.
3. In older children it is best to do the procedure sitting up, with their head facing you. If this is not possible, lie them down on their back with their face looking upwards.
4. Wash and dry our hands thoroughly and put on apron and gloves.
5. Attach an enteral 60ml syringe to the end of the NG tube and gently withdraw a small amount of stomach contents (this is called an aspirate).

6. Syringe **a drop** of the contents onto the pH indicator paper, ensuring that all the test' area is covered. Wait 10-60secs (or as instructed by the manufacturer). Hold the pH indicator paper and check against the colour chart on the container.



7. A pH reading of between 1 and 5.5 means that the aspirate is acidic and the tube is in the correct position.
8. If the pH indicator paper available, measures in whole increments (pH 1 to pH12) rather than in 0.5 increments, then a pH of 5 should be considered the upper limit. If staff using this indicator paper experience difficulty differentiating between the colour of pH readings 5 and 6, then it is recommended that it should be verified by another competent person prior to use (NPSA, 2011).
9. **The tube position should always be checked before every use and should not be used if the aspirate pH measures more than 5.5.**

Potential Problems when Checking Position of Nasogastric Feeding Tube

Unable to aspirate

If you are unable to aspirate, try again after attempting the following: -

- Check the length of the tube at nose is the same as it has been previously recorded. If the tube has just been placed try advancing by a further few centimetres and try again. Remember to document the observed length of the repositioned tube and tape it securely.

- Using an enteral syringe plunge a small amount of air into the nasogastric tube as the end of the tube may be lying against the stomach wall. However, do not use air auscultation to determine position of nasogastric tube.

- Provide the child with a drink of water (orally) (unless there are medical reasons why they shouldn't have this) and wait approximately 30 minutes.

- Gently rock smaller children side to side if the child will tolerate.

- Lay the child on their left hand side for approximately 30mins.

- Check the length of the tube at nose is the same as it has been previously recorded. If the tube has just been placed try advancing by a further few centimetres and try again. Remember to document the observed length of the repositioned tube and tape it securely.

pH reading is greater than 5.5

This may be due to certain medications that the patient is receiving

- Check if the tube appears dislodged. It may be necessary to repass the tube if this is the case.

- If the child or young person has recently had a feed, large quantities of milk will register a high pH. Leave checking the pH for a further 30minutes.

- If the child can drink orally then give them a drink of water and wait for approximately 30 minutes before re-testing.

Documentation of pH testing in Hospital

A chart should be kept by the child's bedside, which documents the following:

1. Observed length of tube
2. Time aspirate was obtained
3. The pH of the aspirate
4. Who checked the aspirate
5. Action taken if pH 5.5 or above
6. The amount and type of feed given

Whilst the child/ young person is in hospital and it is either difficult to obtain an aspirate or the pH reading is greater than 5.5, an x- ray may have to be taken to confirm the position of the nasogastric tube. This x-ray will be interpreted by a healthcare professional competent to do so and must be documented prior to use. Please follow local guidance.

Bolus Feeding via a Nasogastric Feeding Tube

Introduction

Bolus feeding via a nasogastric tube delivers a prescribed volume of feed over a short period of time using a syringe at regular intervals. The tube position should always be checked prior to each bolus feed following the procedure described on page 17. **Refer to appendix 5 page 37 for feeding procedures used in relation to nasogastric feeding and neonates.**

Equipment Required

- Clean tray/trolley/surface
- 60ml enteral ('purple') syringe (smaller in neonates)
- pH indicator paper (CE marked for human gastric aspirate use)
- Cooled boiled water/sterile water
- Non-sterile gloves and apron (paid carers and nursing staff)
- The feed. Check the feed including feed type and expiry date. (If the feed is curdled don't use. Opened containers of feed should be stored in a fridge and discarded after 24 hours)
- Any extension set or additional feeding equipment

The Procedure

1. Ensure that everything has been collected and is near to hand.
2. Inform the child/ young person the feed is about to start.
3. Position the child/young person in a sitting position. If this is not possible their head should be elevated by at least one pillow. For babies, place the pillow underneath the top of the mattress.
4. Wash and dry your hands thoroughly, put on apron and gloves.
5. Test the position of the tube (Please see page 17).
6. To flush the tube, remove any stoppers and attach the barrel of an enteral 60ml syringe to the tube.
7. Pour prescribed amount of cooled boiled water / sterile water into syringe barrel.
8. After the water has been administered, pour feed into the syringe.

9. Continue pouring feed into syringe barrel at rate tolerated by child/ young person.

10. Do not use the plunger to push the water or feed. If the feed is going too fast lower the syringe, if it is too slow then raise the syringe. The average time it should take for the feed to run through is 15-30mins.
11. Once the feed is completed flush the tube with the prescribed volume of cooled boiled / sterile water as per individual child's care plan.
12. Remove syringe and replace stopper.
13. If a reusable syringe is used, wash and store as per manufacturers instructions.
14. Dispose of used equipment appropriately.
15. Wash and dry hands thoroughly.
16. Remember to complete bedside documentation if child in hospital.

If the child or young person starts coughing or vomiting during the feed, then stop the feed. Once they have settled, retest the position of the tube again following procedure on page 17 before recommencing feed.

Pump Feeding via a Nasogastric Feeding Tube

Introduction

Pump feeding via a nasogastric tube delivers a prescribed volume of feed over a long period of time using an enteral feeding pump. The tube position should always be checked prior to commencing the feed following the procedure described on page 17.

Equipment Required

- Clean tray/trolley/surface
- 60ml enteral ('purple') syringe (smaller in neonates)
- pH indicator paper (CE marked for human gastric aspirate use)
- Cooled boiled water/sterile water
- Non-sterile gloves and apron (paid carers and nursing staff)
- The feed. Check the feed including feed type and expiry date. (If the feed is curdled don't use. Opened containers of feed should be stored in a fridge and discarded after 24 hours)
- Enteral feeding pump and giving set

The Procedure

1. Ensure that everything you need has been collected and is near to hand.
2. Inform the child/ young person you are now going to start the feed.
3. Position the child/young person in a sitting position. If this is not possible their head should be elevated by at least one pillow. For babies, place the pillow underneath the top of the mattress.
4. Wash and dry your hands thoroughly and put on an apron and gloves.
5. Decant feed if applicable into container or pierce carton/pack with giving set and insert set into the pump. Prime the feeding set as instructed by manufacturer.
6. Set rate and volume as prescribed by the Dietitian

7. Test the position of the tube (please see page17).
8. Remove any stoppers and attach the barrel of an enteral 60ml syringe to the end of the tube. Flush the tube with cooled boiled / sterile water as prescribed.
9. Once flush complete, remove the syringe.
10. Attach feeding set to tube, open any clamps on feeding set and commence feed.

11. Once feed is complete close all clamps and detach the feeding set.
12. Attach barrel of an enteral 60ml syringe to tube and flush the tube with prescribed amount of cooled boiled /sterile water.
13. Remove syringe and close stopper.
14. Reuse or dispose of feeding set as advised.
15. If a reusable syringe has been used, wash and store as per manufacturers instructions.
16. Dispose of used equipment appropriately.
17. Wash and dry hands thoroughly.
18. Remember to complete bedside documentation if child in hospital.

Section 3

GASTROSTOMY FEEDING

Introduction

Gastrostomy feeding is commonly used for children who require longer term nutritional support and are unable to take sufficient food and fluids orally. They may have previously had a period of nasogastric feeding. Feeds can be given either by a bolus and/or via an enteral feeding pump.

Bolus Feeding via a Gastrostomy Tube

Equipment Required

- Clean tray/trolley/surface
- 60ml enteral ('purple') syringe
- Cooled boiled water/sterile water
- Non-sterile gloves and apron (paid carers and nursing staff)
- The feed. Check the feed including feed type and expiry date. (If the feed is curdled don't use. Opened containers of feed should be stored in a fridge and discarded after 24 hours)
- Extension set (if required)

The Procedure

1. Ensure that everything has been collected and is near to hand.
2. Inform the child/ young person the feed is about to start.
3. Position the child/young person in a sitting position. If this is not possible their head should be elevated by at least one pillow. For babies, place the pillow underneath the top of the mattress.
4. Wash and dry your hands thoroughly, put on apron and gloves.
5. To flush the tube, remove any clamps and attach the barrel of an enteral 60ml syringe to the tube.
6. Pour prescribed amount of cooled boiled water / sterile water into syringe barrel.
7. After the water has been administered, pour feed into the syringe.
8. Continue pouring feed into syringe barrel at rate tolerated by child/ young person.

9. Do not use the plunger to push the water or feed. If the feed is going too fast lower the syringe, if it is too slow then raise the syringe. The average time it should take for the feed to run through is 15-30mins.
10. Once the feed is completed, flush the tube with the recommended amount of cooled boiled / sterile water.
11. Clamp the gastrostomy tube, remove the syringe and remove the extension set if used.
12. If a reusable syringe or extension set is used, wash and store as per manufacturers instructions.
13. Dispose of used equipment appropriately.
14. Wash and dry hands thoroughly.
15. Remember to complete bedside documentation if child in hospital.

Pump Feeding via a Gastrostomy Tube

Equipment Required

- Clean tray/trolley/surface
- 60ml enteral ('purple') syringe
- Cooled boiled water/sterile water
- Non-sterile gloves and apron (paid carers and nursing staff)
- The feed. Check the feed (including feed type and expiry date, if the feed is curdled don't use. Opened containers of feed should be stored in a fridge and discarded after 24 hours)
- Extension set (if required)
- Enteral feeding pump and giving set

The Procedure

1. Ensure that everything you need has been collected and is near to hand.
2. Inform the child/ young person you are now going to start the feed.
3. Position the child/young person in a sitting position. If this is not possible their head should be elevated by at least one pillow. For babies, place the pillow underneath the top of the mattress.
4. Wash and dry your hands thoroughly and put on an apron and gloves
5. Decant feed if applicable into container or pierce carton/pack with giving set and insert set into the pump. Prime the feeding set as instructed by manufacturer.

6. Set rate and volume as prescribed by the Dietitian
7. Attach an extension set if required, attach the barrel of an enteral 60ml syringe to the end of the gastrostomy tube and remove the clamp.
8. Flush the tube with cooled boiled / sterile water as prescribed.
9. Once flush complete, clamp the tube and remove the syringe.
10. Attach feeding set to gastrostomy, open any clamps on feeding set and commence feed.
11. Once feed is complete close all clamps and detach the feeding set
12. Attach barrel of an enteral 60ml syringe to tube and flush the tube with prescribed amount of cooled boiled /sterile water.
13. Clamp the gastrostomy tube and remove syringe and extension set
14. If a reusable syringe or extension set has been used, wash and store as per manufacturers instructions.
15. Dispose of used equipment appropriately.
16. Wash and dry hands thoroughly.
17. Remember to complete bedside documentation if child in hospital.

Section 4

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Andrew Barclay	Consultant Paediatric Gastroenterologist, Royal Hospital for Sick Children, NHS Greater Glasgow and Clyde
Carolyn Baxter	Community Children's Nurse, NHS Lanarkshire
Elaine Buchanan	Paediatric Gastroenterology Dietitian, Royal Hospital for Sick Children, NHS Greater Glasgow and Clyde
Caroline Cooper	Paediatric Dietitian, Inverclyde, NHS Greater Glasgow and Clyde
Ellen Cowie	Parent representative, NHS Forth Valley
Karen Fraser	Data Manager, Royal Hospital for Sick Children, NHS Greater Glasgow and Clyde
Janice Fry	Paediatric Dietitian NHS Forth Valley
Marianne Hayward	Head of MCN, Queen Mother's Hospital
Elizabeth Gillespie	Community Children's Nurse, NHS Greater Glasgow and Clyde
Michelle Lewis	Paediatric Dietitian, NHS Ayrshire and Arran
Isobel Macleod	Paediatric Nutrition Nurse, Royal Hospital for Sick Children, NHS Greater Glasgow and Clyde
Laura Morrison	Clinical Nurse Specialist, NHS Dumfries and Galloway
Mel Robertson	Community Children's Nurse, NHS Forth Valley
Lynsey Shanks	Clinical Nurse Specialist, NHS Ayrshire and Arran

Karen Sinclair	Clinical Nurse Educator, Royal Hospital for Sick Children, NHS Greater Glasgow and Clyde
Avril Smith	Paediatric Gastrostomy Nurse, Royal Hospital for Sick Children, NHS Greater Glasgow and Clyde

Section 5

APPENDIX 1
ADMINISTERING MEDICATION VIA ENTERAL FEEDING TUBES

Discussion should take place with a pharmacist concerning the medication requirements for any child or young person who will have to receive medication via a nasogastric, gastrostomy or jejunal tube.

- Liquid Medications should always be used wherever possible. If medication is only available in tablet form, then it should be checked with a pharmacist that it is suitable to be crushed and administered via a nasogastric, gastrostomy or jejunal tube.

- Some medications may require the feed to be stopped for a period of time prior to administration and /or afterwards in order for the medication to be absorbed fully.

- If using an NG tube the tube position should always be checked before use (pH less than or equal to 5.5) following the procedure on page17.

- Before and after each drug the tube should be flushed with a small amount of cooled boiled / sterile water. **See appendix 5 page 37 for advice for neonates.**

- Some medicines cannot be given via a jejunal feeding tube and all medicines should be discussed with a doctor to ensure they can be administered directly into the small bowel.

- Some medicines may alter the pH of the gastric aspirate making it more alkali and these should be considered when pH levels of 5 or 5.5 are obtained.

APPENDIX 2
FEED HYGIENE

- Carry out hand hygiene in accordance with local infection control guidelines prior to carrying out any administration of feeds or handling of enteral feeding tubes.

- Avoid touching any internal part of the feed container or giving set such as the spike with your hands (non-touch technique).

- Pre-packed liquid feeds are sterile until opened so they can be used for up to 24 hours, if good hand hygiene is employed.

- Powdered feeds and feeds that have extra ingredients added should not be hanging for more than 4 hours in hospital.

- Giving sets must be changed every 24 hours in hospital (12 hours for neonates) or more frequently if advised by the Dietitian.

- Pump assisted bolus feeds require a new giving set and container for each feed.

- Feed containers should not be topped up with feed once feeding has started. Instead the total volume required should be decanted at the start of any feed.

- Any unused feed should be discarded after the above time periods following infection control policy.

- Rotate stock so that it does not go out of date.

- Store equipment and powdered feed in a dry place as per manufacturer's instructions.

- Avoid stacking feed next to radiators or in direct sunlight.

- Powdered feeds once made up should be stored in the refrigerator on the ward for a maximum of 24 hours.

- Opened bottles of ready made feed should be stored in the refrigerator on the ward for a maximum of 24 hours.

- If powdered feeds are being made on the ward this should be done in a clean area and in adherence with local infection control guidelines.

- Parents should be advised not to store feeds or equipment in garden sheds or garages once discharged.

APPENDIX 3
SUPPORTING INFORMATION

Oral Care

Despite children receiving feeds via feeding tubes regular brushing of teeth is essential to prevent dental decay. Current recommendations state that a toothbrush and toothpaste containing 1000ppm fluoride should be used twice a day (www.child-smile.org.uk).

Single Use Equipment

Items marked 'single use' or ② should not be reused.

Colour Blindness

In those with red-green colour blindness, the pH test result must be confirmed by another individual.

APPENDIX 4
GUIDANCE FOR STAFF TO REDUCE RISK OF STRANGULATION CAUSED BY ENTERAL FEEDING LINES

The National Patient Safety Agency (Signals, 2011) has highlighted the risk of strangulation from enteral feeding lines and this has been assessed as highest overnight or when a child is left unattended.

To reduce the risk of strangulation, please adhere to the following guidance:

- Remove unnecessary tubing/ cables /cord from the child's cot/ bedside and regularly review the necessity of overnight equipment.
- Reposition necessary tubing/ cables/cords (for example secure through clothing, coil excess tubing.
- Feeding regimes should be reviewed regularly as the child grows and develops, especially at the stage where movement during the night is likely to change.
- Reduce the length of tubing in the cot/bed.
- If gastrostomy feed, the feeding pump should be positioned at the bottom end of the cot/bed with the giving set thread through the bars rather than dangling over the top of the cot.
- If gastrostomy fed, the child should wear appropriate nightwear that allows the giving set to be thread through the leg of the clothing to the gastrostomy site.
- If nasogastric or nasojejunal fed, the feeding pump should be positioned at the top of the cot/bed with the giving set thread through the bars rather than dangling over the top of the cot.
- All the pumps/ equipment should be positioned closest to the point of entry into the body.
- Staff should check the safety of the tubing during any overnight interaction with the child.

Adopted from the Aneurin Bevan Health Board protocol for assessing the risk of overnight tube feeding in children (2010)

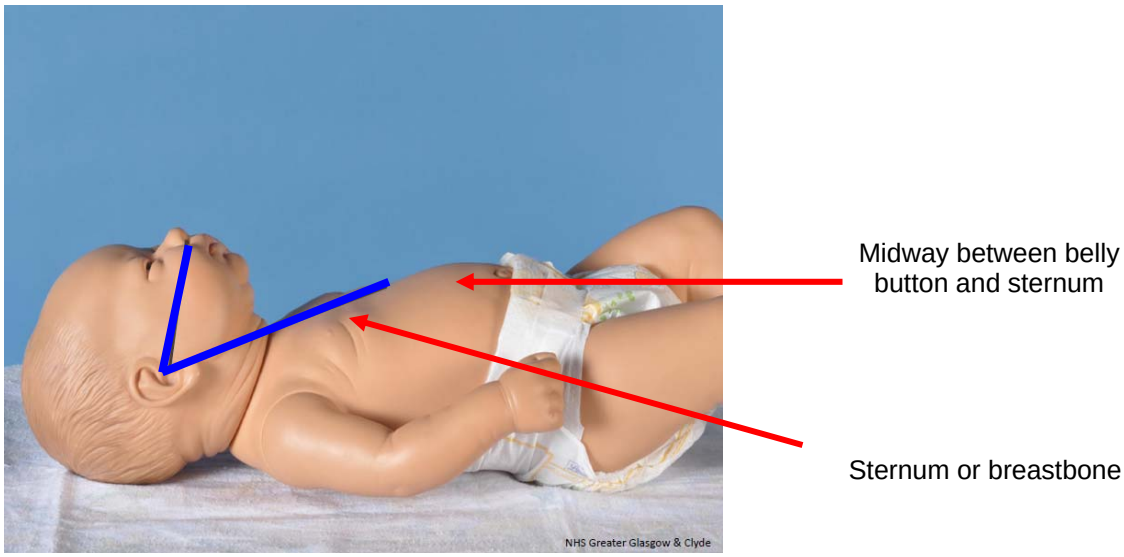
APPENDIX 5
KEY POINTS FOR NEONATAL STAFF ON ENTERAL TUBE FEEDING FOR NEONATES (Preterm and Infants Less than One Month)

The majority of babies in neonatal units require short term nasogastric tubes due to delay in establishing oral feeding as a result of prematurity or illness at birth. Long term feeding on discharge is rare and those that do require long term enteral feeding management are generally older infants who can be transferred to a paediatric ward.

This information pack provides evidence based information on all types of enteral feeding for babies and children and is an excellent learning resource for neonatal nursing staff. However the procedures for nasogastric tube placement and administering feeds in neonates differs slightly from that of babies and children and the following are recommended practice in neonates:

Placement of Nasogastric Tubes

The NEMU method (Nose-Ear-Mid-Umbilical) is the recommended practice for placement of nasogastric / orogastric tubes in neonates. (**Ellett.C et al, 2011)**



Nose bleeds would be a serious complication in neonates –Do not repass the tube, refer to medical staff immediately.

Long-term Nasogastric Tubes

Not routinely used in neonates, if required the guide wire should be removed prior to insertion.

Gravity / Plunge Feeding

There is limited evidence to suggest that the gravity method causes any less adverse effects on babies compared to the plunge method (shown in picture below). It is acceptable and often necessary to plunge feeds if the tube is small bore (4 or 5Fr), the feeds are thickened or small in volume. The gravity method is most often used in neonatal units when administering larger volumes of feed.

Flushing Feeding Tubes

Nasogastric tubes are not routinely flushed with cool boiled or sterile water after feeds as this could result in neonates receiving more fluid than they require and could be harmful to them. A small amount of air (0.5ml–1ml) can be instilled to flush the tube after administering oral medication if necessary.

Administration of Feeds

If unable to obtain gastric aspirate when checking the position of a nasogastric tube and the length and position has been correctly identified, reposition the baby onto the opposite side and try again to aspirate the tube. Offering water orally would not be recommended.

Smaller syringes either 5ml or 10 ml are generally used to aspirate stomach contents and no larger than a 20ml syringe should be used to administer feeds to neonates to prevent the feed being delivered to quickly by gravity flow.

Enteral Tube Feeding Information Pack for Healthcare Professionals was developed by the WoSPGHaN.

For more information, please check our website: www.wospghan.scot.nhs.uk

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