

**NASOGASTRIC AND GASTROSTOMY TUBE FEEDING**  
for children being cared for in the community  
best practice statement

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## **Introduction**

The Nursing and Midwifery Practice Development Unit (NMPDU) was established in January 2000 to support the identification, dissemination and implementation of best practice across Scotland.

The NMPDU has a responsibility for “ensuring that role and practice development in Nursing, Midwifery and Health Visiting is taken forward across Scotland in a planned and cohesive manner; that benefits gained from excellent practice in any area – clinical or geographical - might be extended systematically across Scotland to the benefit of patients, staff and the NHS as a whole” (Scottish Office 1997).

One of the key aims of the NMPDU is to identify areas of nursing and midwifery practice amenable to the development of ‘best practice statements’.

From January 2003 the NMPDU is part of NHS Quality Improvement Scotland.

## **Background to best practice statements**

While many examples of clinical guidelines exist there is a lack of reliable statements focusing specifically on nursing and midwifery practice.

The development of best practice statements reflects the current emphasis on delivering care that is patient centred, cost-effective and fair, and will attempt to reduce existing variations in practice. The common practice that should follow their implementation will allow comparable standards of care for patients wherever they access services.

## **What is a best practice statement?**

A best practice statement is a statement to describe best and achievable practice in a specific area of care. The term ‘best practice’ reflects the NMPDU’s commitment to sharing local excellence at national level. Best practice statements are underpinned by a number of shared principles (pii).

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### **Key principles of best practice statements**

- best practice statements are intended to guide practice and promote a consistent and cohesive approach to care
- best practice statements are primarily intended for use by registered nurses, midwives and the staff who support them, but they may contribute to multidisciplinary working and other members of the health care team may find them helpful
- statements are derived from the best available evidence at the time they are produced, recognising that levels and types of evidence vary
- information is gathered from a broad range of sources in order to identify existing or previous initiatives at local and national level, incorporate work of a qualitative and quantitative nature and establish consensus
- statements are targeted at practitioners, using language that is accessible and meaningful
- consultation with relevant organisations and individuals is undertaken
- statements will be nationally reviewed and updated every 3 years
- responsibility for implementation of statements will rest at local level
- key sources of evidence and available resources are provided

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### **How can the statement be used?**

The recommended best practice statement is primarily intended to serve as a guide to good practice and promote a consistent and cohesive approach to care. The statement is intended to be realistic but challenging and can be used:

- as a basis for developing and improving care
- to stimulate learning amongst nursing teams
- to promote effective interdisciplinary team working
- to determine whether a quality service is being provided
- to stimulate ideas and priorities for nursing research

### **Who was involved in developing the statement?**

#### **Project co-ordinator:**

Dawn Moss, Community Children's Nurse Co-ordinator, seconded from Dumfries & Galloway Acute NHS Trust

#### **Working group:**

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**Multi-disciplinary reference group:**

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Sheila Downey	Speech & Language Therapist Joint Hospital, Dumbarton
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**CCN and NMPDU network members:**

Individual members of the Community Children's Nurse Network, link nurses / midwives from every Trust in Scotland, representatives from academic departments of nursing and the Nursing Research Initiative for Scotland (NRIS).

**NMPDU support team:**

Bette Baillie	Secretary
Penny Bond	Senior Nurse
Gillian McCracken	Communication and Information Officer

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## **Best Practice Statement - Children Receiving Nasogastric and Gastrostomy Feeding**

### **Introduction**

This best practice statement has been developed by the Community Children's Nursing Network sponsored and supported by the Nursing and Midwifery Practice Development Unit and a multi-disciplinary reference group. The aim of the statement is to offer guidance to nurses, midwives and health visitors on best practice relating to the care of children in the community receiving nasogastric / gastrostomy feeding.

Tube feeding of children being cared for in the community was identified as a priority by the Community Children's Nurse Network in consultation with their colleagues across Scotland. The statement refers to children from birth until transition to adult services (this varies between areas but usually occurs between 14 & 19 years of age) and therefore incorporates neonatal and community childrens nursing services. The statement specifically addresses issues in nasogastric and gastrostomy feeding; it does not address jejunostomy or orogastric feeding. The importance of communication and sharing of information between services is key to ensuring best practice for these children and this is reflected throughout the statement. Involving and informing parents/carers in all aspects of care is highlighted in the statement. Children themselves are central to the statement and information provided to them should be appropriate to their age and level of understanding.

### **Background information**

Gastrostomy and nasogastric feeds can be given as bolus feeds, continuous feeding, or a combination of both. The method chosen will be the one that best meets the needs of the child (Sidey & Torbet, 1995). Research undertaken by Townsley & Robinson (2000) highlighted the problems experienced by children living in the community who require home enteral tube feeding. These included:

- the lack of information for families about the effect of tube feeding on their child and the rest of the family
- the supply of feeds and equipment after discharge from hospital
- the lack of support for families to deal with problems arising from the care of the child
- the poor co-ordination of support services

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These research findings echo the inconsistencies and problems in practice raised by members of the Community Children's Nursing Network across Scotland.

### **Format of statement**

The statement is divided into 8 sections covering:

1. Assessment and Support of Child and Parents / Carers
2. Planning and Co-ordination of Care Prior to Discharge from Hospital
3. Equipment and Supplies
4. Care of the Gastrostomy Tube and Site
5. Oral Hygiene
6. Nasogastric / Gastrostomy Feeding at School
7. Holistic Development of the Child Receiving Nasogastric / Gastrostomy Feeding
8. Follow up Care for the Child Receiving Nasogastric / Gastrostomy Feeding

Each section contains a table corresponding to the what, why and how of best practice i.e. summarising the statement, the reason for the statement and how to achieve the statement or to demonstrate it is being achieved. Key issues and challenges are highlighted in each section.

## Section 1. Assessment and Support of Child and Parents / carers

### Key Issues:

1. Ongoing assessment of the child and parents'/carers' ability to cope with nasogastric / gastrostomy feeding in the home setting is a key aspect of the child's care.
2. A key worker should be identified in the community to co-ordinate care and to be the first point of contact for families (Townesley & Robinson, 2000).
3. Risk assessment is integral to the care of the child receiving nasogastric/gastrostomy feeding and should continue for the duration of feeding.

Statement	Reason for Statement	How to demonstrate statement is being achieved
<p>Prior to enteral feeding being started, the child receives a full nutritional, physical and psychological assessment.</p>	<p>Assessment helps to establish that nasogastric / gastrostomy feeding is an appropriate treatment, and identifies the most beneficial method of administration for the child.</p>	<p>There is evidence of multi disciplinary involvement in the assessment process and providing information and support to the child/parents/ carers in making the decision to commence nasogastric / gastrostomy feeding. This involves the child's paediatrician and dietitian and includes:</p> <ul style="list-style-type: none"> <li>• speech &amp; language therapist</li> <li>• psychologist (where possible)</li> <li>• pharmacist</li> <li>• nursing team</li> <li>• community health professionals</li> </ul>
<p>The child / parents /carers are involved in discussion relating to the child's care</p> <p>The child/parents/carers are given ongoing support to help maintain and improve dietary intake by oral feeding. Commencing enteral feeding should be a supplement to oral feeding as far as possible.</p>	<p>Information and discussion promote understanding of reasons for commencing nasogastric / gastrostomy feeding and facilitates informed participation in decision making.</p> <p>Encouraging parents to continue to help their child enjoy the taste and feel of food can enable families to maintain the social and psychological bonds that mealtimes allow (Townesley &amp; Robertson, 1997).</p>	<p>Information given to parents/carers includes all aspects of the practical, social and emotional management of nasogastric / gastrostomy feeding.</p> <p>There is evidence of multi disciplinary involvement in the ongoing assessment process and provision of information and practical support to the child/parents/carers to encourage and promote oral feeding. This is extended to all carers and health professionals involved in the child's care.</p>

### Key Challenges:

1. Ensuring a multidisciplinary approach to the care and assessment of the child as recommended by the British Association of Parental and Enteral Nutrition (Elia 2001)
2. Providing effective communication strategies between Tertiary Centres, District General Hospitals and Community Staff.

## Section 2: Planning and Co-ordination of Care Prior to Discharge from Hospital

### Key Issues:

1. Nasogastric/gastrostomy feeding will usually be commenced in hospital
2. The child and family are active partners in decisions related to care and treatment choices (Sidey & Torbet, 1995)
3. The child's key worker in hospital co-ordinates support for families in hospital and discharge arrangements

Statement	Reason for Statement	How to demonstrate statement is being achieved
<p>The child / parents / carers understand the need for nasogastric/gastrostomy feeding and are confident and competent to undertake the procedures taught to them.</p>	<p>To promote safety for the child and the family</p> <p>To ensure that the child/parents/carers can demonstrate safe tube feeding techniques and can recognise problems if they arise and know what action to take.</p>	<p>The education of parents/carers begins on the ward as an integral part of the discharge planning process.</p> <p>The child's named / allocated nurse in hospital is responsible for co-ordinating the appropriate education of parents/carers. This may include the following procedures (depending on route of feeding):</p> <ul style="list-style-type: none"> <li>• passing and caring for their child's nasogastric tube (Appendix 1)</li> <li>• administering nasogastric/gastrostomy feeds (Appendix 2)</li> <li>• caring for their child's gastrostomy tube (Appendix 3)</li> <li>• preparation and storage of feed</li> <li>• cleaning of equipment</li> </ul>

## Section 2: Planning and Co-ordination of Care Prior to Discharge from Hospital Continued

Statement	Reason for Statement	How to demonstrate statement is being achieved
		<p>A home visit by community staff (e.g. Health Visitor, Community Children's Nurse) takes place to support parent / carer in providing a suitable environment for nasogastric/gastrostomy feeding (e.g. storage space, infection control issues).</p> <p>Parents/carers carry out procedures under the supervision of nursing staff initially* and have their "confidence to practice" recorded as appropriate (Appendix 4).</p> <p>Verbal information is always supported by written guidelines (e.g. Appendices 1-3). Parents/ carers are aware of what to do if the tube falls out.</p> <p>The child's named / allocated nurse in hospital is responsible for informing all community staff involved with the family of the details of the child's discharge.</p>

### Key Challenges:

1. Ensuring that the discharge planning process is ongoing from the date of admission until discharge if children are admitted to hospital.
  2. Developing a mechanism to allow feedback between the hospital and community to facilitate smoother transfer between services, e.g. involving the key community worker in the educational process.
  3. Providing a care plan for use by all community professionals which includes the child's feeding regime and individual requirements (Townsend & Robinson 2000).
  4. Ensuring that parents / carers are notified immediately of any changes to care plan.
  5. Ensuring that information is available for families whose first language is not English or for individuals who may have difficulty with written information.
- \* Individuals will vary in the amount of time and supervision required before they can demonstrate safe practice. It is not possible to specify the number of times an individual should observe or practice techniques. A supportive relationship that allows parents / carers to learn the skills needed to care for their child and to seek practical advice is key to building confidence.

### Section 3: Equipment and Supplies

#### Key Issues:

1. Equipment is chosen that is suited to the child's lifestyle, allows mobility and reflects the preference of the child and family.
2. Dietitians are key to the process of sharing information and liaising with the child's GP and feed / equipment suppliers.

Statement	Reason for Statement	How to demonstrate statement is being achieved
<p>The child requiring nasogastric / gastrostomy feeding at home receives all the necessary equipment and supplies.</p>	<p>Difficulties in obtaining necessary supplies in the community have been highlighted (Townnsley &amp; Robinson 2000)</p>	<p>Parents/carers know how, when and where to obtain supplies.</p> <p>The individual responsible for ordering supplies for the child in the community is identified and a referral made before discharge (this may be Community Children's Nurse, Health Visitor, Dietitian, District Nurse).</p> <p>Information is shared between the multi-disciplinary team caring for the child in the community i.e. Community Children's Nurse, Health Visitor, GP, Community Paediatrician, School Nurse.</p> <p>The child's key worker and/or dietitian in hospital provide community staff with information on the feed type, amount, method of administration, feeding regime and equipment required including the type of container. There is evidence that this information is documented for future reference.</p> <p>The GP is contacted prior to discharge to prescribe the appropriate feed.</p>

**Section 3: Equipment and Supplies Continued**

Statement	Reason for Statement	How to demonstrate statement is being achieved
		<p>Supplies are ordered via the enteral tube feeding supplier.</p> <p>On discharge from hospital the child is provided with an initial 7-day supply by the hospital to last until the first home delivery.</p> <p>Parents / carers are aware of the systems in place for home delivery or collection of supplies. They are provided with a contact telephone number for use in case of equipment failure.</p> <p>Parents/carers are aware that items marked "single use" and "single patient use" should not be reused (Medical Devices Agency, 2000)</p> <p>Parents/carers have written information on how to dispose of clinical waste safely. This will depend on local policy.</p>

**Key Challenges:**

1. Developing and implementing national guidance regarding the introduction of reusable syringes for enteral tube feeding supported by a process of risk assessment.
2. Utilising standardised proforma to facilitate sharing of information relating to equipment and supplies between the centre inserting the tube and staff caring for the child in the community.

## Section 4. Care of the Gastrostomy Site and Tube

### Key issues:

The goal of maintenance of skin care around the gastrostomy site is the prevention of infection, excoriation and breakdown. This is best achieved by keeping the area clean and dry (Hagelans & Janusz 1994).

Statement	Reason for Statement	How to demonstrate statement is being achieved
<p>The child receives hygiene to the area surrounding the gastrostomy tube.</p> <p>Any potential problems (appendix 3) with the gastrostomy tube and surrounding area are recognised enabling relevant and appropriate action to be taken.</p>	<p>To maintain healthy skin surrounding the gastrostomy tube in order to prevent infection.</p> <p>To maintain patency of gastrostomy tube.</p>	<p>Each child /family is provided with guidelines to follow relating to infection (appendix 5). This includes information on:</p> <ul style="list-style-type: none"> <li>• how to prevent an infection</li> <li>• how to identify signs of infection</li> <li>• appropriate action to take in response to signs of infection</li> </ul> <p>There is documented evidence that parents/carers have received guidance related to the procedure for maintaining healthy skin (appendix 3).</p> <p>Parents/carers are aware of the problems that may occur with their child's gastrostomy tube and know what action to take if problems do arise (appendix 3).</p>

## Section 5. Oral Hygiene

### Key Issues:

1. Maintaining a moist and healthy mouth is important in the care and comfort of children receiving nasogastric/gastrostomy feeding

Statement	Reason for Statement	How to demonstrate statement is being achieved
<p>Children receiving nasogastric /gastrostomy feeding receive oral hygiene.</p>	<p>Children who receive reduced or no oral feeds require moisture to prevent their mouth becoming dry (Heywood Jones, 1994).</p> <p>Tooth brushing is important to remove plaque. Dental caries cause pain and discomfort as well as loss of teeth (Scottish Office, 1995).</p>	<p>There is evidence that parents/carers have been instructed on the most efficient way of providing oral hygiene depending on the child's individual needs.</p> <p>The child has adequate equipment to carry out oral hygiene, i.e. toothbrush, toothpaste, mouthwash (if appropriate).</p> <p>Children are registered with and attend the dentist 6-monthly for regular check-ups and treatment (Scottish Office 1995).</p>

## Section 6. Nasogastric/ Gastrostomy Feeding at School

### Key Issues:

The school health services are involved in discussion with teachers, parents/carers and the child regarding the child's needs at school.

Statement	Reason for Statement	How to demonstrate statement is being achieved
<p>The child receives nasogastric /gastrostomy feeds at school if needed.</p>	<p>To promote inclusion of the child within the school environment and avoid disruption to the child's routine (Scottish Executive 2001).</p>	<p>The child has a School Health Care Plan (Scottish Executive, 2001), which includes guidelines for administering the feeds.</p> <p>School staff receive appropriate assessment and training before undertaking any procedures (the person providing the training may vary between areas). Training includes information on:</p> <ul style="list-style-type: none"> <li>• storage of feed</li> <li>• cleaning of equipment</li> <li>• infection control</li> <li>• risk assessment</li> </ul> <p>Guidelines are provided regarding what to do if the child's nasogastric/gastrostomy tube falls out and needs to be replaced.</p> <p>Systems are established for the delivery of supplies and equipment necessary for feeding to the child's school.</p>

### Key challenges:

1. Local guidelines address the issue of who provides training to school staff; this will vary between areas.
2. Ensuring that training extends to staff in wider social care settings, emphasising interagency and cross-boundary working in care of children with complex needs.

## Section 7. Holistic Development of the Child Receiving Nasogastric/Gastrostomy Feeding

### Key Issues:

Nasogastric/gastrostomy feeding can be planned to fit in with a normal lifestyle and not to dictate it (Sidey & Torbet, 1995)

Statement	Reason for Statement	How to demonstrate statement is being achieved
<p>All aspects of the child's physical, social and emotional development are promoted.</p>	<p>Nasogastric/gastrostomy feeding should not limit the child's social and emotional development.</p> <p>It is important to promote social inclusion and minimise the disruption nasogastric/gastrostomy feeding can cause to the child's lifestyle.</p>	<p>Nasogastric/gastrostomy feeding does not limit the child's social and emotional development.</p> <p>A positive outlook on the child's physical appearance (e.g. the way a nasogastric tube is secured) is encouraged through discussion to establish the preferences of the child /parent / carers.</p> <p>The child is encouraged (where age appropriate) to suck on a pacifier* during administration of the feed thereby encouraging an association of sucking with the sensation of feeding.</p> <p>Children are fed at the meal table and encouraged to play with feeding utensils thereby encouraging normal socialisation associated with feeding /mealtimes.</p> <p>Children are encouraged to eat something if they are able to take some oral diet.</p> <p>The child is encouraged (where age appropriate) to use their mouth in play – blowing, kissing, touching their mouth and putting fingers into mouth (Hubband &amp; Trigg, 2000). **</p>

\* The use of a pacifier should be limited in accordance with local breast-feeding guidelines or parent/carer preference.

\*\*The Speech and Language Therapist can provide further advice about oral stimulation.

## Section 8. Follow-up Care for the Child Receiving Nasogastric/Gastrostomy Feeding

### Key Issues:

1. Children receiving nasogastric/gastrostomy feeding should be followed-up on a regular basis by the multidisciplinary team (including paediatrician, dietician, nursing staff).
2. Professionals should monitor the practical, social and emotional impact of the child's nasogastric/gastrostomy feeding on the family as a whole (Townnsley & Robinson 2000).

Statement	Reason for Statement	How to demonstrate statement is being achieved
Children need regular (i.e. a minimum of 6 monthly) review of their care by the Community Children's Nurse, Dietitian, Speech and Language Therapist and Paediatrician.	The child's needs vary depending on their stage of physical, social and emotional development and underlying medical needs.	Follow-up includes assessment of the child's weight, height/length, head circumference (babies), route of feeding, oral intake, feed type, feeding regime, equipment and supplies. Growth measures are recorded in the child's growth chart. There is evidence of a long-term plan for children receiving tube feeding.  The child is weighed and weight is documented on a regular basis.*  Parents/carers are aware of who to contact with feeding-related problems.

### Key challenges:

1. Ensuring the smooth transition of care to adult services for children at the age of transition.

\* Intervals at which the child is weighed will depend on the age and condition of the child. This may be as frequently as weekly for young babies to, 3-6 monthly for older children.

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## Glossary of Terms

TERM	DEFINITION
Aspiration	Removing a sample of gastric contents for testing
Auscultation of air	Inserting air into a nasogastric tube via a syringe, whilst at the same time listening for the air being inserted by using a stethoscope
Balloon	The gastrostomy tube is held in place in the stomach by a water filled balloon
Bolus feeding	Feeds are given at specific times throughout the day
Clinical waste	Used medical equipment for disposal
Continuous feeding	Feed given over a continuous period of time
Decanting	Pouring feed from the original container into the giving set container
External fixator	A device that holds the gastrostomy tube in place
Fundoplication	A surgical operation for treatment of gastro-oesophageal reflux
Gastric contents	Stomach contents
Gastro-oesophageal reflux	The backward flow of stomach contents from the stomach into the oesophagus (food pipe)
Gastrostomy	A direct opening through the abdominal wall into the stomach
Gastrostomy tube	A tube that goes into the stomach, which allows liquid feed to be delivered directly into the stomach

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Giving set	Plastic tubing that delivers the feed
Inflation valve	Valve on gastrostomy tube to insert water into balloon
Named nurse	Nurse responsible for child's care
Nasogastric tube	A narrow tube that is passed into the nose and down the oesophagus (food pipe) into the stomach, which allows liquid feed to be delivered directly into the stomach
Oral feeding	Food and drink taken by mouth
Overgranulation	Abnormal skin growth
PEG	(Percutaneous Endoscopic Gastrostomy) A procedure performed under anaesthetic to insert gastrostomy tube into the mouth and feed it down the oesophagus (food pipe) into the stomach and out through a small incision in the abdominal wall
pH indicator paper	Paper that measures the amount of acid in gastric contents
Single use	Use once only and then discard
Single patient use	Can be used more than once on one patient only
Skin level gastrostomy tube	Tube that lies flush against the skin; an inflatable balloon at one end of the tube keeps the tube in place in the stomach
Stoma site	The gastrostomy hole

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## **Appendices**

It is recognised that many good examples of information relating to nasogastric and gastrostomy feeding in children have been developed at local level.

The following appendices provide guidelines that could be adapted for use by the child/parent/carers and by professionals.

The information contained in the appendices incorporates knowledge gained from written evidence and from the consensus of the working group.

Guidelines from Health Board areas across Scotland were reviewed by the working party. A significant amount of information from Nutricia Clinical Care (2000) and from guidelines produced by the Royal Hospital for Sick Children, Edinburgh is included within the appendices.

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## **APPENDIX 1. Passing and caring for the child's nasogastric tube**

**Short-term tubes** are made of polyvinylchloride (PVC). The length of time the tube can remain in place depends on the manufacturer's guidance; this also applies to cleaning and storage of the tube.

**Long-term tubes** are made of polyurethane and usually have a guide wire to help with passing the tube. The wire is removed when the tube has been passed but should be kept in case the tube has to be repassed. The length of time the tube can remain in place again depends on the manufacturer's guidance; this also applies to cleaning and storage of the tube.

### **Passing nasogastric tube**

- collect necessary items (nasogastric tube, 50ml syringe, pH indicator paper, water to flush, tape to secure, glass of water/juice if appropriate)
- wash and dry hands
- explain to the child that you are going to pass the nasogastric tube
- babies can be wrapped in a blanket or towel to help keep them secure and laid flat on their back (unless another adult is available to assist holding the child); older children may prefer to sit up with their head tilted slightly forward
- determine length of tube to be inserted by measuring the tip of the tube from nose to ear and then measure from ear to stomach, aiming for the space in the middle below the ribs (Huband & Trigg, 2000); note the mark on the tube or keep your fingers on the point measured
- ensure end cap is firmly in place on the end of the tube, to prevent leakage of gastric contents
- select nostril that is clear
- lubricate tip of the tube using a water based solution and/or follow manufacturer's guidelines
- insert tip of tube into nostril and slide tube backwards along the floor of the nose
- if there is any obstruction, pull tube back and turn it slightly and advance again. If obstruction is felt again try the other nostril
- as the tube passes to the back of the nose, advise child to take sips of water (if appropriate) to help the tube go down or in the case of a baby offer them a dummy if they have one
- advance the tube until you reach the point where the tube was measured

**IF AT ANY TIME THE CHILD STARTS COUGHING OR THEIR COLOUR CHANGES STOP THE PROCEDURE AND REMOVE THE TUBE**

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## **Skin Care**

- most children benefit from using a barrier product such as hydrocolloid dressings and transparent films to protect the skin under strong adhesive tapes
- replace the tape only if dirty or peeling off
- when tape is removed, cleanse face and dry thoroughly
- where possible alternate nostrils should be used when the tube is re-passed

## **Checking nasogastric tube position**

The position should be checked prior to administering anything via the feeding tube, or after the child has a bout of coughing or vomiting.

- wash and dry hands
- explain to the child that you are going to check their tube
- remove the end cap from the tube
- attach a 50ml syringe to the end of the tube (the bigger the syringe the lower the suction pressure), unless contraindicated by manufacturer's instructions (Huband & Trigg, 2000)
- aspirate gastric contents from the child's stomach by gently pulling back on the plunger until a small amount of fluid appears in the syringe
- detach the syringe from the tube remembering to replace the end cap of the tube
- test the pH of the fluid by using pH indicator paper (reading should be less than 4)
- flush the tube prior to feed/medication/fluid

Note: Determining the position of nasogastric feeding tubes by auscultation of air into the stomach is an unreliable method of checking nasogastric tube position (Mehteny et al, 1990). The most reliable bedside method available to confirm nasogastric feeding tube placement is aspiration of gastric contents and the use of pH indicator paper (Tait, 2001; Colagiovanni, 1999). Litmus paper may not differentiate between gastric contents, which may have a pH of between 1 and 6, and bronchial secretions, which can have a pH of between 5.5 and 7. Care should be taken if the patient is receiving antacids as these can elevate the pH of gastric contents (Lothian Enteral Tube Feeding Recommendations, 2002).

### **If there is difficulty in obtaining aspirate:**

- to attempt to push the tube's port away from the stomach wall insert 3-5ml of air via syringe down the nasogastric tube and then try again to aspirate tube and test with pH indicator paper
- lie the child on their left side and then try again and/or encourage the child to take a small amount of oral fluid (if allowed) and then try to aspirate the tube
- try advancing or retracting the tube slightly
- if unsure if tube is correctly positioned then seek further advice from community or hospital professionals

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## **APPENDIX 2. Administering nasogastric/gastrostomy feeds**

### **Positioning during feeding**

- where possible the child should be positioned with their head above the level of their stomach, preferably sitting or supported at an angle of approximately 30°
- babies may be fed in baby seats offering firm support, such as car seats, in preference to bouncy chairs which can induce vomiting
- if the child shows any signs of shortness of breath (more than usual), sudden pallor, vomiting or coughing stop the feed immediately and seek medical attention

### **Bolus feeding**

- prepare feed and equipment in a clean area
- check feed (including feed type and expiry date; if the feed is curdled do not use)
- wash hands before and after the procedure
- explain to the child that they are going to have their feed
- check feeding tube position (if nasogastric tube in situ)
- ensure the child is positioned correctly for feeding
- flush the feeding tube
- attach syringe without the plunger to the feeding tube
- slowly pour the amount of feed required into the syringe
- if the feed is running too quickly or slowly alter the height of the syringe slightly, a feed should take between 15-30 minutes
- when feed finished, remove the syringe
- flush the feeding tube at least 10mls of cool boiled water (unless otherwise indicated); replace the end cap

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## **Pump feeding**

- check pump is at correct height based on manufacturers guidelines
- check feed type and expiry date
- wash hands before and after the procedure
- prepare feed and equipment in a clean area
- explain to the child that they are going to have their feed
- check feeding tube position (if nasogastric tube in situ)
- ensure the child is positioned correctly for feeding
- flush the feeding tube
- set up feed, ensuring that air is expelled from the giving set and programme feeding pump as per manufacturers instructions
- where necessary decant the required volume of sterile feeds (i.e. pre packed feeds) at the beginning of a pump feed and do not top up feed containers once feeding is in progress
- ensure that the child and pump are within earshot at all times, particularly at night, this may be via a baby monitor
- when the feed is completed flush the feeding tube, replace the end cap

## **Infection control**

- avoid touching any internal part of the feed container and giving set with your hands (non-touch technique)
- sterile feeds (i.e. pre packed) can be hung for a maximum of 24 hours provided they are handled using a clean technique. Non-sterile feeds or modified feeds should have a hanging time of no longer than 4 hours (Vines et al, 1992; Anderton, 1999).
- feed containers should not be topped up with sterile feed once feeding has started. Instead, the total volume should be decanted at the start of any 24-hour period of feeding.
- any unused feed should be discarded after the above time periods.
- giving sets should be changed after 24 hours and not reused

## **Flushing nasogastric/gastrostomy tube**

- wash and dry hands
- explain to the child what you are going to do
- flush the tube with cool, boiled water (at least 10mls) before and after the administration of feed and medication, or every 4 hours if feeding is not in progress (except during the night due to practicalities) with at least 10ml of cooled boiled tap water (bottled water also needs to be boiled first)  
Note: The amount of water to flush the tube should be recorded in the child's care plan and this therefore ensure that consideration is given to children who are on restricted fluids and/or premature babies.
- open feeds should be stored in the fridge and removed prior to feeding to allow to return to room temperature

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### **Storing feed and equipment**

- store unopened feed and equipment in a cool, dry place (as per manufacturer's instructions)
- avoid stacking 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
- rotate stock so that it doesn't go out of date
- opened packages of feed can be kept in the fridge for 24 hours

### **Giving medication via nasogastric/gastrostomy tube**

- discuss with a pharmacist the medication requirements for any child who will have to receive regular medication via nasogastric /gastrostomy tube
- the prescription should state the route by which the medication is to be given; the absorption of some medicines can be adversely affected by the presence of enteral feeds
- use liquid medications wherever possible
- flush tube with water before administering medications, between each medication (at least 5ml) and after all medications have been given (Estoup, 1994)
- if medication is only available in tablet form check this can be crushed as the efficacy of some formulations can be impaired or lost by crushing (Estoup, 1994)
- if unsure of any potential problems about administering medication contact pharmacist for advice

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### **APPENDIX 3. Caring for gastrostomy tube**

#### **Skin Care**

##### **For the first 10 days post gastrostomy tube insertion:**

- leave external fixation device in situ
- clean skin around stoma site and under retention device with sterile water using gauze and ensure the skin is then dried thoroughly
- avoid using creams and talcum powder as they can irritate the skin and cause infection; creams can reduce the effectiveness of the retention device and effect the tube material itself
- avoid occlusive dressings as they can encourage and trap moisture
- immersion baths should be avoided to allow the tract to form

##### **After 10 days:**

- loosen the external fixator device as advised by the manufacturer's guidelines in order that the skin around the stoma site can be cleaned thoroughly; note the original position so it can be returned to the same point on the tube after cleaning
- clean site with a mild solution of soap and water, rinse and dry thoroughly
- retighten the external fixator so that it lies approximately 2mm from the skin surface, this may need to be loosened or tightened as the child loses or gains weight
- loosen the external fixator and push the tube in a little way and turn tube 360° on a daily basis and then pull tube back to original place (this depends on tube manufacturer's guidelines)
- inspect the skin for signs of redness, swelling, irritation, skin breakdown and leakage
- the use of a dressing will depend on the child's skin condition and will require individual assessment of the child's needs

#### **Checking balloon inflation**

This should be done on a weekly basis.

- wash hands before and after the procedure
- attach a syringe onto the inflation valve of the balloon gastrostomy
- it is advisable to hold on to the tube, ensuring it remains in the child's stomach
- gently draw back the plunger on the syringe until no more water comes out of the internal balloon
- check the recommended volume of the balloon as stated on the inflation valve
- using cool boiled water, reinsert recommended volume through the inflation valve to re-inflate balloon

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### **Gastrostomy tube blockages**

- use a 50ml syringe to attempt to gently flush (push/pull to instill) the tube using warm water or soda water (at least 10mls)
- gently squeeze the tube between fingers and along its length (i.e. milking the tube)
- if the blockage persists, very gently draw back on the syringe and then attempt to flush as before
- if still unable to unblock tube, if nasogastric tube or balloon retainer gastrostomy consider changing tube, if PEG seek medical attention (sodium bicarbonate or instillation of a pancreatic enzyme may also unblock the tube)
- establish reason for the tube blocking and check parents/carers information about flushing the tube

### **Replacing gastrostomy tube**

- if the child has a PEG tube that falls out medical attention must be sought as soon as possible
- if a gastrostomy tube falls out then it should be replaced as soon as possible, preferably within 1-2 hours, or the stoma will start to close
- the procedure for changing the gastrostomy tube will depend on individual manufacturer's guidelines
- guidelines for the frequency of changing tubes should be provided by the manufacturer
- staff/parents and carers involved in changing gastrostomy tubes should have received appropriate training
- a replacement tube should be kept with the child (e.g. at school)

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### **Treatment of overgranulation of gastrostomy site**

Insufficient rotation of the gastrostomy tube or movement of the tube can cause granulation tissue. The overgranulated site may be constantly wet, bleeds easily on contact and is prone to infection (Rollins, 2000).

A non-traumatic approach to the prevention and treatment of overgranulation tissue should be adopted (Nelson, 1999).

- swab site for bacterial presence
- excessive moisture can be controlled by using an absorptive dressing such as Lyofoam (Rollins, 2000)
- a steroid based, antibiotic, anti-fungal cream may be prescribed to be applied to the gastrostomy site; oral antibiotics may be prescribed if the cream is not effective

### **Other problems:**

- parents/carers should be aware of the need to report problems of vomiting, diarrhoea, constipation, abdominal distension, cramps, nausea or dehydration, weight loss or rapid weight gain; these factors may indicate a need to alter the child's feeding regime or diet (Heywood, 1994)
- leakage of feed/gastric contents around the gastrostomy tube and onto the skin at the gastrostomy site will cause skin redness, excoriation and breakdown as the gastric acid contents burn the skin:
  - check balloon is properly inflated
  - pull gently on the tube until resistance is met and secure external fixator
  - try giving small amounts/more frequent feeds positioning child on their right side with the head of the bed elevated to facilitate gastric emptying (Hagelans & Janusz, 1994)

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**APPENDIX 4. Child /Parent/ Carer "Confidence to Practice"  
Checklists**

- *Parent/carer signs to state that they understand the process and have received instruction*
- *Parent/carer is deemed competent at the time of the assessment*

Suggested statement for parents to sign up to:

"I have received training and consider myself safe and responsible in all the above criteria"

Name.....

Signed.....

Date.....

Assessor.....

Title.....

Date.....

**i. Administration of nasogastric feeds**

Steps of Procedures	Discuss Procedure		Demonstrate Procedure		Performed with supervision		Performed Alone		Confident to Practice	
	carer	prof	carer	prof	carer	prof	carer	prof	carer	prof
Initials & dates Carer/Professional										
1. Collect equipment										
2. Explain procedure										
3. Wash hands										
4. Preparation of child										
5. Check position of tube										
6. Commence feeding										
7. Flushing the tube										
8. Drug administration										
9. Advice on possible problems										
10. Cleaning of equipment										
11. Disposal of clinical waste										
12. How to seek help or advice										

**ii. Passing & looking after a nasogastric tube**

Steps of Procedures	Discuss Procedure		Demonstrate Procedure		Performed with supervision		Performed Alone		Confident to Practice	
	carer	prof	carer	prof	carer	prof	carer	prof	carer	prof
Initials & dates Carer/Professional										
1. Hand washing										
2. Preparation of tube & equipment										
3. Preparation of child										
4. Tube insertion										
5. Confirmation of position										
6. Maintenance of tube										
7. Flushing the tube										
8. Drug administration										
9. Advice on possible problems										
10. Cleaning of equipment										
11. Disposal of clinical waste										
12. How to seek help or advice										

**iii. Care of the child with a balloon inflated gastrostomy tube**

Steps of Procedures	Discuss Procedure		Demonstrate Procedure		Performed with supervision		Performed Alone		Confident to Practice	
	carer	prof	carer	prof	carer	prof	carer	prof	carer	prof
Initials & dates Carer/Professional										
1. Explain procedure										
2. Hand washing										
3. Food hygiene										
4. Preparation of equipment										
5. Preparation of child										
6. Administering feed / medication										
7. Flushing the tube										
8. Daily care of tube										
9. Checking / changing water balloon										
10. Changing / replacing tube										
11. Advice on possible problems										
12. How to seek help or advice										

**iv. Care of the child with a PEG gastrostomy tube**

Steps of Procedures	Discuss Procedure		Demonstrate Procedure		Performed with supervision		Performed Alone		Confident to Practice	
	carer	prof	carer	prof	carer	prof	carer	prof	carer	prof
Initials & dates Carer/Professional										
1. Explain procedure										
2. Hand washing										
3. Food hygiene										
4. Preparation of equipment										
5. Preparation of child										
6. Flushing the tube										
7. Administering feed / medication										
8. Daily care of the tube										
9. Advice on possible problems										
10. How to seek help or advice										

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**Personal notes / Local contacts**

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