

Children's Services

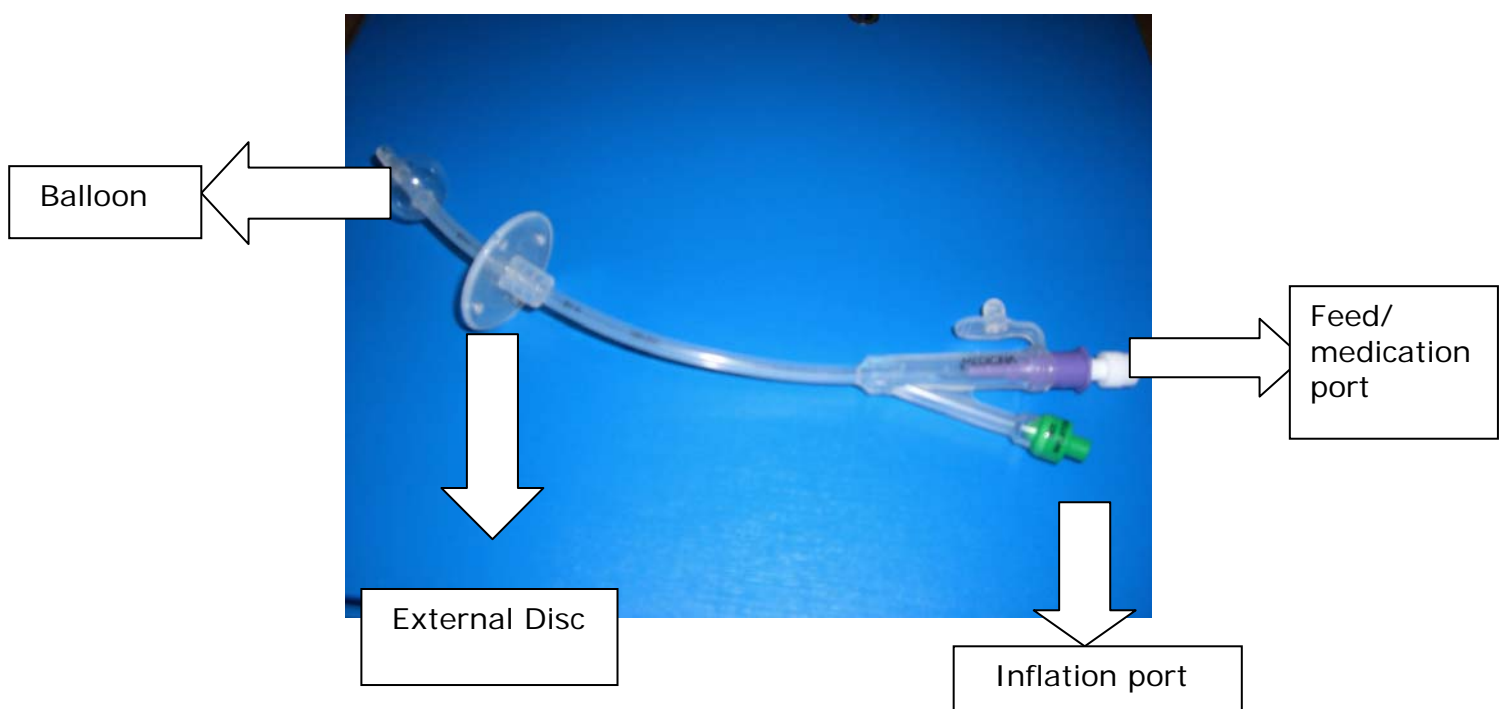
Balloon retained gastrostomy tube (Mic-G) in children

Introduction

This information is designed to help parents or carers look after children who have had surgery to insert a gastrostomy tube into the stomach through a stoma, or hole, from the skin to the stomach. Once in place it enables nourishment, and medication where necessary, to be fed directly into the stomach. It is used in cases where a child cannot eat or cannot eat enough to meet normal nourishment needs. The procedure is also used for adults, though this leaflet has been written with children in mind.

What is a balloon retained gastrostomy tube?

There are different types of balloon retained gastrostomy tubes. This leaflet is about a specific balloon retained gastrostomy known as a Mic-G tube. It is a gastrostomy tube made of silicone with an inflatable balloon at one end (placed inside the body) and an external base at the other end (outside the body). The Mic-G tubes can be inserted as a laparoscopic or open procedure, your surgeon will discuss with you which method is suitable for your child. The tube can be a temporary tube to form a gastrostomy tract or as a regular tube for children requiring gastric decompression.



The silicone retention balloon:

The balloon retained gastrostomy tube is fitted with a small balloon which is inflated inside the stomach to hold the tube in place. It is filled with sterile (cooled, boiled) water which should be changed once a week. This will be carried out by your child's community nurse until you are happy to do it yourself.

The external disc:

The external disc holds the tube in place yet allows air to circulate around the skin. The bottom of the base should rest just above the skin surface. When the tube is placed for the first time there will be sutures (stitches) in place which will be removed by the community nurse after 7 to 10 days.

The inflation port:

The balloon which holds the tube in place is inflated and deflated by inserting syringe into the inflation port. The balloon is filled with sterile, (cooled, boiled) water which should be changed once a week.

The feed/medication port:

The feed/medication port is compliant with enteral feeding syringes and feeding sets.

Advantages of the balloon retained gastrostomy tube


- When used as a temporary device the tube can be replaced after six weeks of placement as a ward attender for a low profile balloon retained tube, therefore no need for any anaesthetic for subsequent tube changes.
- In children that need gastric decompression the tube allows effective decompression to be carried out with ease.
- Should the gastrostomy tube no longer be needed it can be removed without the need for surgery, **but only with medical advice**.

Disadvantages of the balloon retained gastrostomy tube

- Should the retaining balloon perish or burst, the gastrostomy tube will fall out. This is an emergency and requires medical attention within one to two hours, otherwise the stoma ('hole') will close making it difficult or impossible to insert a new tube.
- Requires a general anaesthetic for initial placement.
- Is a foreign object in the body and can therefore be associated with some minor complications, for example, infection around the site.
- Requires careful care/securing as it can be pulled out.
- All carers (for example, parents/baby sitters/school) need to be both competent and confident with tube replacement in case an emergency situation arises whereby the tube has fallen out.
- Serious complications related to gastrostomy tubes are very rare and symptoms are seen usually within a maximum of 72 hours after insertion or change. If your child develops any of the 'red flag' symptoms **within 72 hours**

of gastrostomy tube insertion or change you should contact the Paediatric Surgery Nurse Specialist Team (contact number at the end of this leaflet).

The Nurse Specialist team is available Monday to Friday 08:00 to 18:00 (01223 586973) excluding bank holidays. Outside of these hours you should speak to your GP or local hospital who will contact the Paediatric Surgery Specialist Registrar at Addenbrookes. The 'red flag symptoms' are:

	<p style="text-align: center;">Red Flag Symptoms</p> <ul style="list-style-type: none">▪ Pain or signs of distress▪ Fresh bleeding▪ Leakage of feed around the tubing
---	--

Administering feed/fluids via a balloon retained gastrostomy tube

Administering medication via a gastrostomy tube

Administering medication correctly will avoid the gastrostomy tube becoming blocked.

- Remind anyone prescribing medication for your child that the medication is to be delivered via the gastrostomy tube.
- Request that your child's medication is provided in a liquid form wherever possible.
- Some liquid medications are known to be associated with tube blockages and so need to be further diluted with water (usually a 50:50 dilution – half liquid medication, half water) before being administered via a gastrostomy tube. Ask a member of your gastrostomy care team if you are unsure.

- If medication is only available in tablet form, seek advice from your GP/Pharmacist/Nurse Specialist on whether tablets can be crushed / mixed with water and how to make a solution with crushed tablets. Tablet particles can lead to tube blockages.
- Ensure the gastrostomy tube is flushed before and after administering drugs as well as after giving drugs. (See section 'Flushing')
- Remember to wash your hands before and after handling a gastrostomy tube.

General care

Cleaning/Skin care

- The area where the tube goes through the skin is called the stoma site. You may experience a discharge at the stoma site for the first few days (seven to ten days) until the stoma heals.
- After initial insertion there will be external stitches to help keep the gastrostomy tube in place whilst the tract is healing, these will be removed after 7 to 10 days, this is usually carried out by your child's community nurse.
- Daily care of the gastrostomy site and tube will reduce the possibility of soreness or infections. Older children should be encouraged to care for their gastrostomy sites themselves.
- Always ensure that you wash your hands before and after caring for your child's gastrostomy tube.
- The gastrostomy site should be cleaned daily with warm soapy water.
- Always avoid using cream / powders on the skin around the tube (unless otherwise advised by your care team) as they can damage the tube material and may lead to irritation of the skin and give rise to infection.
- If you notice that the skin is becoming inflamed or there is discharge from the site you should contact a member of your gastrostomy care team.

Flushing

Flushing the tube is essential to maintain patency (i.e. prevent blockages).

- The gastrostomy tube should be flushed with water (sterile / cooled, boiled water if the child is below one year of age).
- Unless otherwise specified by your dietician, a minimum of 20mls of water should be used for flushes after feeds. (See section on 'Administration of medications'). Your dietician may advise that, in addition, you give a flush prior to feeding to ensure your child's fluid requirements are met.
- When giving drugs, it is important to flush between each medicine and after them to prevent precipitation (settling of the drugs) in the tubing.

Replacing feeding sets

- We advise that all gravity (bolus) feeding ('giving') sets are changed every 24 hours. Between each use the tubing should be washed with hot soapy water, rinsed then left to dry. They should be sterilised if the child is under one year of age.
- Continuous ('Pump') feeding sets should be discarded 24 hours after first use.

Infection

- Daily cleaning of the gastrostomy site with soapy water will help to reduce the risk of infection.
- If you notice that the gastrostomy site is inflamed/red/sore/discharging, contact a member of your gastrostomy care team for advice.

Changing water in the balloon

- The water in the retaining balloon must not be changed until week four after the first placement. It should then be changed weekly.
- The purpose of changing the water is to check the condition of the balloon. If the balloon is beginning to perish you will see one or both of two signs. Either you will draw out (aspirate) less water than you expect from the balloon **or** the water will be discoloured. If observe either of these signs you should contact your community nurse within 24 hours. If these signs are ignored the balloon is at risk of bursting and the gastrostomy tube may fall out.

Procedure - To change the water in the retaining balloon:

1. Collect together the equipment required:
 - Two syringes
 - Sterile (cooled boiled) water
2. Wash hands.
3. Draw up 5mls of the water into one of the syringes.
4. Hold the gastrostomy tube still by placing a finger and thumb on either side.
5. Insert the empty syringe into the balloon valve (marked 'Inflation') and remove all water from the balloon.
6. Check the aspirated water in the syringe for volume and colour.
7. Discard old water.
8. Draw more sterile water from the syringe and insert it into the inflation port and let go of the syringe. If the syringe has been inserted fully it will stay connected to the tube when you release it.
9. Gently push the syringe so that the water is injected into the device.
10. Once all the water has been injected, remove the syringe by using a slight twisting motion. It is important to keep your thumb on the end of the syringe whilst removing it to prevent water being drawn back into the syringe spontaneously.

Common questions

Can my child bath/shower?

Once the site is fully healed (usually about seven days after insertion) your child can bath/shower as normal. Always ensure that the tube end is closed. Dry the area thoroughly afterwards.

Can my child go swimming?

Yes. Make sure the tube cap is closed.

Will my child be able to move around freely?

For six weeks after initial placement your child should refrain from P.E at school and any activities where the tube could be pulled out.

After this your child's gastrostomy tube should not affect or restrict his/her normal activities.

Where do I get the equipment and supplies?

We will provide you with initial supplies (usually enough to last for one week) and a spare tube to use in case the gastrostomy tube falls out. You will receive further supplies from your community healthcare team; some areas use a home delivery service. If you have any problems getting supplies at home please ring your nurse specialist who will be able to help you. You should remember to order new supplies in good time before you run out and only use equipment for the length of time specified by the manufacturer.

Will my child be able to go to school?

Your child should be able to go to school as normal. Staff at the school can be taught what to do if the device falls out and spare supplies should also be kept at the school for emergency use.

Can we go on holiday?

- It is fine to travel (with your child) but you should discuss travel plans with your doctor / gastrostomy care team. It may be helpful, particularly if your child has complex needs, to take a letter with you from your care team which can help you if you need to seek medical advice whilst on holiday. In addition, letters from your care team can be useful to prevent any problems with airport security when you are travelling with 'medical equipment'.
- Remember to take extra supplies with you and to pack at least some of these in your hand luggage in case your main luggage goes astray.
- Use a large dressing to avoid getting sand near the stoma site as this can irritate the skin.
- Your home delivery company will also offer practical advice.

If a tube is not being used what care is required?

The tube must be flushed at least once per day with a minimum of 20mls of water (sterile water if your child is aged below one year).

What happens when the gastrostomy tube is removed?

- Before your child is discharged your Nurse Specialist will arrange a date for you to return to the ward for the first change of gastrostomy tube.
- It is advisable that you/your child is not fed for two hours prior to your appointment time as this prevents feed leaking out when the tube is removed.
- We also advise that you give your child some painkillers (for example, paracetamol) prior to leaving home for the appointment.
- On arrival your Nurse Specialist will meet you and discuss the course of events. The Nurse Specialist will remove the Gastrostomy tube on the ward; this is usually uncomfortable rather than painful if paracetamol has been given earlier.
- Once the Gastrostomy tube is removed the Nurse Specialist will measure the length of the gastrostomy tract with a specifically designed device and will then insert an appropriately sized low profile balloon retained gastrostomy tube (mic-key button), or another Mic-G tube.
- Before you go home your Nurse Specialist will teach you how to care for the new tube and will arrange for any changes to your home supplies to be made.

Problem solving

Tube blockage

To prevent tube blockage the tube should be flushed with water after giving feeds/medication (see section 'Flushing'). Always ensure medications are administered in a way that limits the chances of tube blockage (see section on 'administering medication').

If the tube does block you may try the following. If the first step fails, try the next:

- Ensure all clamps are open and the tube is not kinked.
- Try to flush using a pumping action with the plunger on the syringe.
- Connect a 50ml syringe to the end of the tube and try to draw back ('aspirate').
- Massage the tube around the area of blockage if it is obviously visible.
- Mix a solution of sodium bicarbonate (baking soda): -
 - Mix half a teaspoon of sodium bicarbonate (baking soda) with 30mls of boiling water.
 - Leave this to cool to a warm temperature then use a syringe to flush this solution down the tube.
 - Leave the solution in the tubing for at least two hours (can be left overnight) then flush it through with 20mls of water.

- If you do not have any sodium bicarbonate, try soda water or pineapple juice.
- Contact a member of your gastrostomy care team.

Important: Never use excessive force and **never** attempt to unblock the tube by inserting objects down it.

Balloon will not deflate

If you cannot extract water from the balloon with the syringe:

- Ensure that the syringe has been inserted correctly. If the syringe has been pushed in too far or not far enough, water will not be expelled from the balloon.
- Ensure that the recess in the balloon valve is clean. Occasionally this recess can trap spills of feeds or other material. Clean inside the recess with warm water (cotton buds are useful for this) then try to insert the syringe again by pushing it firmly into the valve with a push and twist motion.
- If the balloon will still not deflate you should contact a member of your gastrostomy care team within 24 hours to check the nature of the problem.

Discharge observed from stoma site

It is usual to experience a discharge at the stoma site until the stoma heals (usually 7-10 days after placement). It is important to clean the area carefully during this time. If the discharge is spoiling clothing a small 'key hole' dressing can be applied but this should be changed regularly or removed when no longer needed.

If you notice any discharge or odour from the stoma site after the tubes initial insertion you should contact a member of your gastrostomy care team.

Feed leakage from stoma site around the tube

- If feed is observed coming from the stoma site you should check that the tubing is being held securely next to the skin.
- Leakage from the stoma site can occur because the stomach is too full or contains gas. (See section on 'Venting'). If you notice feed leaking out around the stoma site you should contact your dietician to discuss changing feeding regimes, for example decreasing the flow rate.
- If the problem persists you should contact a member of your gastrostomy care team for advice.

Stomach is swollen and/or feels hard: 'venting' (or 'decompression')

- Mic-G tubes are commonly used in children who need regular gastric decompression as air/wind can be cleared with ease from the stomach with this type of tube.

- Some children suffer from trapped wind. This gas can be released by decompressing the stomach via the gastrostomy tube.
- To decompress the stomach attach an approved extension set to the gastrostomy tube with syringe barrel attached. Hold the syringe 10cms above the height of the child's abdomen and unclamp. If necessary aspirate the gas From the feed/medication port.

Sore skin

- Redness or soreness around stoma and surrounding skin may be the result of gastric leakage.
- Clean and dry the area frequently.
- Call your community nurse if the stoma is persistently red and sore, the stoma emits an odour, the surrounding skin is swollen, you observe pus or there is bleeding from the site.

Overgranulation

Granulation tissue is the result of the body trying to repair itself. You may recognise overgranulation as a clear brownish discharge and occasional bleeding or as a pink raised tissue around the site of the stoma. The tissue may proliferate and require treatment. If bleeding occurs or a large amount of tissue builds up, contact a member of your gastrostomy care team for advice.

When sickness and/or stomach cramps occur:

- See section on 'Venting/Decompression'.
- You may need to slow the rate of feeding. Contact your dietician if this problem continues.
- The feed may be too cold, let the feed reach room temperature before administering it.

When diarrhoea occurs:

- The rate of feeding may need to be slowed down.
- If diarrhoea continues contact your doctor.

When vomiting occurs:

- See section on 'Venting/Decompression'.
- You may need to slow the rate of feeding.
- Always check expiry dates of feed.
- The feed may be too cold. Let the feed reach room temperature before administering it.
- If your child continues to vomit and the steps above have not helped you should contact your doctor.

The balloon retained tube falls out before its planned removal date

If weekly checks are being carried out and any signs of balloon perishing are ignored, a low profile balloon retained gastrostomy tube should not fall out.

However, if a tube does fall out a new tube must be inserted as soon as possible as the stoma ('hole') will start to heal and may completely close within one to two hours. If the stoma closes surgery will be needed.

If the tube has come out after the first change and you have been taught how to replace it:

1. Stay calm.
2. Place a clean tissue, handkerchief or towel over the stoma site (hole) to prevent stomach contents leaking onto clothes/skin.
3. Collect together the equipment which will be needed to place a new tube:
 - o New tube
 - o Sterile (cooled boiled) water
 - o Two syringes
 - o Lubricating jelly (for example, KY jelly) (optional)
4. Wash your hands.
5. Check the expiry date on the packaging prior to opening it.
6. Before inserting the new tube it is important to check that its parts all function.
Draw up 5mls of water into one syringe.
Push the syringe into the balloon port (marked Inflation).
Let go of the syringe and ensure that when you let go the syringe stays attached in the balloon port.
Push the water into the balloon and disconnect the syringe.
Examine the balloon for faults (for example, a hole) and ensure that the shaft of the device is in the centre of the balloon. If the shaft is to one side massage the balloon in your hand until it is centralised and therefore fully symmetrical (leakage may occur if the balloon is not symmetrical when inside the stomach).
Place the syringe back into the balloon port and deflate the balloon fully.
Refill the syringe to 5mls with water (a small amount of water will have been taken up to the T shaped part of the device).
7. If lubricating gel is used apply a small amount to the tip of the tube.
8. Gently push the device into the tract until the top part sits level on your child's skin.
9. Hold the gastrostomy tube still by placing a finger and thumb on either side to support it.
10. Insert the syringe into the balloon port, let go of the syringe and ensure it stays connected.
11. Gently push the syringe so that the water is injected into the device.
12. Once all the water has been injected, remove the syringe by using a slight twisting motion. It is important to keep your thumb on the end of the syringe whilst removing it to prevent water being expelled back into the syringe spontaneously.

13. Aspirate a small amount of gastric content using the extension set and test it on a pH strip (pH 1-5) to ensure correct positioning.
14. Wash hands and dispose of equipment.
15. Telephone your delivery company, community nurse or dietician and order a new gastrostomy tube so that you have a spare one again.

If you have not been trained to insert a new gastrostomy tube, are not happy to carry this out, don't have a spare tube or the tube has fallen out in the first six weeks of initial placement:

1. Stay calm.
2. Place a clean tissue, handkerchief or towel over the stoma site (hole) to prevent stomach contents leaking onto clothes/skin.
3. Collect together the equipment which will be needed to place a new tube:
 - Spare tube provided for emergency use
 - Lubricating jelly (for example, KY jelly) (optional)
4. Wash your hands.
5. Check the expiry date on the packaging prior to opening it.
6. If lubricating gel is used apply a small amount to the tip of the tube.
7. Gently push the device into the tract (push in _____ cms)
8. Hold the gastrostomy tube still by placing a finger and thumb on either side of the external disc to support it.
9. Tape the tube to the child's skin to prevent movement.
10. Wash hands and dispose of equipment.
11. **Do not use this tube again.**
12. Seek urgent advice by using the contact numbers at the end of this leaflet

If you are unable to insert your regular sized tube:

If you are unable to insert your spare tube or can't push the tube which fell out back into the tract the stoma may have started to close. Surgery may be prevented if a smaller sized tube can be inserted in the first instance and the tract can be dilated.

1. Attempt to insert a smaller tube. (This may be a smaller sized gastrostomy tube, a Naso gastric tube or a suction catheter).
2. Tape the tube to the skin.
3. **Do not** use this tube.
4. Contact a member of your gastrostomy care team or Accident and Emergency department immediately and explain what has happened. Provide as much information as you can regarding the type/size of tube your child usually uses.

Details of your/your child's balloon retained gastrostomy tube

Insertion date	
Size of tube	
Elective change to low profile balloon retained 'Mic-key' button	

Contact numbers for your gastrostomy care team

Position	Name	Contact number
Nurse Specialist (Paediatric General surgery) Monday to Friday 08:00 to 18:00		
On-call Paediatric Surgery Registrar (Out of working hours)+		
Nutrition Nurse Specialist		
Dietitian		
Community Paediatric Nurse		
Home delivery company		



We are currently working towards a smoke free site. Smoking is only permitted in the designated smoking areas.

For advice and support in quitting, contact your GP or the free NHS stop smoking helpline on 0800 169 0 169

Help with this leaflet:

If you would like this information in another language, large print or audio format, please ask the department to contact Patient Information: 01223 216032 or

patient.information@addenbrookes.nhs.uk

**Document history**

Authors	Department of Children's Services/Paediatric Surgery
Department	Cambridge University Hospitals NHS Foundation Trust, Hills Road, Cambridge, CB2 0QQ www.cuh.org.uk
Contact number	01223 245151
Publish/Review date	December 2010/December 2013
File name	Balloon_retained_gastrostomy_tube_(Mic-G)_in_children
Version number/Ref	1/PIN2713