



Your appointment for a

Small Bowel Capsule Endoscopy

A dummy capsule (patency capsule) appointment has been made for you on:

Date: _____

Time: _____

The next day, a video capsule appointment has been made for you on:

Date: _____

Time: _____

**Please attend both
appointments:**

The Endoscopy Department
Day Treatment Centre
3rd Floor
Whittington Hospital
Magdala Ave
London N19 5NF

If you have any **queries**, please contact:

Endoscopy Nurse Manager:
020 7288 3811/ 3812

This number is available 9 am – 5 pm Monday to Friday
except Bank Holidays

If no reply, please try the:
Inflammatory Bowel Disease nurse answerphone
service

020 7288 5692
or email whh-tr.gihelpline@nhs.net

There is a three-working day turnaround time



This leaflet is about your forthcoming procedure. It has been prepared for your information and is not intended to replace the discussion between you and your doctor. It is aimed to help you to understand more about the procedure and to inform any future discussion.

Introduction

You have been advised to have a *small bowel capsule endoscopy*.

This leaflet explains:

1. What is a small bowel capsule endoscopy?
2. How should I prepare?
3. What happens on the day of the test?
4. Other Information you may find helpful

It may not answer all your questions, but you will have the opportunity to further discuss the test when you are assessed for the procedure.



Figure 1: Small Bowel Capsule



Checklist

When you receive the appointment date for the capsule test:

Contact us if you are on any medication for diabetes or if you are taking:

Buscopan (hyoscine butylbromide); Colofac (mebeverine); Imodium (loperamide); Lomotil (diphenoxylate); opioids (e.g., morphine, codeine, dihydrocodeine, tramadol).

Seven Days before Test:

Stop iron/ charcoal/ Pepto-Bismol.

Day 1:

Attend PATENCY capsule appointment

Before 8.30 am: Eat a special low residue breakfast only (see information box below).

Between 8.30 am and 10 pm: You must not eat. You may drink, but only consume drinks from the specified list (see information box below).

After 10 pm: Nil by mouth except for sips of water.

Throughout the day: Take any regular medicines as usual (ensure you have clear instructions about any diabetic medications).

Day 2:

Attend VIDEO capsule appointment

- ✗ Nothing to eat or drink for at least two hours before the appointment.
- ! Do not swallow any medicine until after you have swallowed the video capsule.
- ! Do not brush your teeth until after you have swallowed the video capsule.
- ✓ Wear loose **two-piece clothing** e.g., a T-shirt and skirt / trousers with an elasticated waist. Wear a thin loose-fitting underlayer e.g., a **T-shirt**. Bring a **jacket** or **overgarment**.

After the hospital appointment:

- You can drink water two hours after the capsule has entered the small bowel.
- You can have a light snack four hours after the capsule has entered the small bowel.
- You can eat normally eight hours after the capsule has entered the small bowel.
- **Do not take anything off!** You must keep the recording device and belt attached.
- While extremely tempting, **do not play with the recorder** to look at your images: you could lose all or some of the images.
- **After 12 hours has elapsed or if the recorder flashes red consistently, take off the recorder and the belt.** Please be gentle with the device.
 - Unplug the recorder from the belt by squeezing the clip next to the recorder.
 - Then take off the shoulder strap and the recorder.
 - Then undo the Velcro belt.
 - Keep all the equipment together.
- The capsule is disposable and is single use only. The capsule is usually passed in the toilet by 48 – 72 hours. You can then flush the capsule down the toilet safely.



- You must avoid strong magnetic fields such as MRI scanners and radio transmitters until the capsule has passed out of your body as this poses a serious risk to your health.
- If you experience shortness of breath, abdominal pain, vomiting, nausea or fever please call the number on the front of this leaflet for immediate advice. If you are unable to obtain satisfactory advice, please go to Accident and Emergency.

Day 3:

Return the equipment back to the Whittington

- The following day you must return the belt, recorder and **all** the equipment we have given you (except for the capsule) **by hand** back to the Endoscopy Department at the Whittington Hospital. Please be careful with the equipment.
- We will give you instructions at the time as to whom and where the equipment should be delivered. You can get a friend or relative to deliver the equipment.
- That concludes the test.

Notes:



1. What is a small bowel capsule endoscopy?

Capsule endoscopy uses a miniature wireless camera to take pictures of your *small bowel* (also called the *small intestine*).

The small bowel is the middle 4 metres of your *gastrointestinal tract*. (The gastrointestinal tract is 6 metres long and runs from the mouth to the back passage.)

The capsule is the size of a large vitamin tablet and contains a camera, a light source and a radio transmitter.

The capsule is swallowed. The body then propels the capsule naturally through the gastrointestinal tract, just as it would with food. The capsule eventually passes into the toilet. It is painless.

The capsule takes thousands of still images. Each picture is transmitted to a special belt which records each image. You wear the belt for twelve hours, or until the blue light turns red on the recorder (we will explain this later).

If you notice that you have passed the capsule into the toilet, you can then flush the capsule down the toilet safely. The capsule is disposable and is single use only.

The following day you must return the belt and **all** the equipment we have given you (except for the capsule) back to the Endoscopy Department at the Whittington Hospital.

We will then download all the still images and run them together to produce a video. A doctor or specialist nurse will then read the video and produce a report.

We will discuss your report with you at your next consultation and/ or inform you by letter of the findings. The exact timescale of this should be explained to you beforehand.

The day before your test we will ask you to come to hospital to swallow a dissolvable dummy capsule (also called a patency capsule). This is because there is a very small risk that the real capsule becomes stuck in a narrowing in your small bowel. The patency capsule is the same size as the real capsule. If the real capsule were to become stuck, then so should the patency capsule (but the patency capsule will dissolve).

When you return to the Whittington the following day, we will ask if you have seen the patency capsule in the toilet. If you have not, or are unsure, we will take an X-ray or CT scan of your abdomen to make sure that the dummy capsule has passed so that we can then safely give you the real video capsule to swallow.



2. How should I prepare?

You **MUST** tell us if you suspect you are pregnant, have a pacemaker, have problems swallowing, have had surgery to the abdomen for whatever reason or have had any radiotherapy.

Seven days before the test

Stop the Following Medications:	Consult with us if you take the following:
<p><i>Medicines which stain the bowel causing poor views:</i></p> <ul style="list-style-type: none"> × Iron tablets/ liquid (including some multivitamins) × Pepto-Bismol (bismuth) × Charcoal tablets. × Fibre supplements, e.g., Fybogel. <ul style="list-style-type: none"> • Other laxatives are fine • Fibre obscures the view 	<ul style="list-style-type: none"> ! Buscopan (also called hyoscine butylbromide) ! Colofac (also called mebeverine) ! Imodium (also called loperamide) ! Lomotil (also called diphenoxylate) ! Opioid pain killers (e.g., morphine, codeine, dihydrocodeine, tramadol). <ul style="list-style-type: none"> • Paracetamol alone is no problem – you can keep taking this.

Day 1: The Day of the Dummy Capsule (Patency Capsule) Test

There are three things to be aware of:

- I. The dummy capsule appointment (also called *patency capsule*).
- II. Diet.
- III. Your regular medications.

I. Dummy capsule (patency capsule) appointment

Please attend the Whittington's Endoscopy unit for your patency capsule appointment:

- We will sign the consent form with you and go over the procedure with you.
- We will then give you a dummy capsule ("patency capsule") to swallow.
- The appointment should last less than 30 minutes.
- You can then go about your day.
- If possible, take a photograph if you see the patency capsule passed in the toilet.



II. Diet

A clean bowel is essential for good views. Poor views increase the risk that we may miss something.

Before 8.30 am on the day of the patency capsule appointment: Eat a low residue/ low fibre breakfast. An example diet sheet is as follows:

Yes	No
<p>Breakfast (before 8.30 am):</p> <ul style="list-style-type: none"> ✓ Milk and dairy (e.g., cheese & plain yoghurt) ✓ White bread/ toast ✓ Croissant ✓ Butter, margarine ✓ Clear jam/ clear marmalade ✓ Eggs ✓ White crackers, Rice Krispies, Corn Flakes ✓ Tea/ coffee (with milk if you prefer), clear fruit juice (no bits, no red juices) 	<p>Breakfast (before 8.30 am):</p> <ul style="list-style-type: none"> ✗ Any raw fruit, vegetables, nuts, seeds or grains ✗ Brown or wholemeal bread ✗ Bacon, sausages, black/ white pudding, □ baked beans ✗ Cereals with fibre e.g., Fruit and Nut ✗ Fruit juices with bits/ smoothies ✗ Red- or purple-coloured drinks

Between 8.30 am and 10 pm: You must not eat. You may drink, but only consume drinks from the following list:

Yes	No
<ul style="list-style-type: none"> ✓ Water ✓ Soft drinks (not red and not purple) ✓ Green or yellow jelly ✓ Ice lollies (only yellow or green colour) ✓ Black tea ✓ Black coffee ✓ Clear soup or stock - consommé only (✗ not thick soup, creamy soup, or soup with bits in) ✓ Bovril or Marmite 	<ul style="list-style-type: none"> ✗ Milk or dairy (even in tea or coffee) ✗ Drinks or jelly coloured red or purple ✗ Alcohol ✗ Any food after 8.30am the day before the procedure

- ✓ You can brush your teeth as usual until midnight.
- ✓ You can take your medications as usual (see special note below about diabetes medications).

After 10 pm:

- ✗ Do not eat or drink after 10pm (except for small sips of water if you are very thirsty or need to take tablets).
- ✓ You can brush your teeth as usual.



- ✓ You can take your medications as usual (see special note below about diabetes medications).

III. Medications

- ✓ Continue to take your regular medications as usual (e.g., for blood pressure, epilepsy).
- ! **If you are on tablets or injections for diabetes, you must first speak with your doctor to determine if you need to adjust your diabetic medicines to accommodate the altered diet.**

Day 2: The Day of the Video Capsule Test

It is not necessary to have someone with you for this procedure, but you may choose to do so.

Before the hospital appointment

- ✗ Do not take anything by mouth for at least two hours before the appointment.
- ! Do not brush your teeth until after you have swallowed the video capsule.
- ! Do not swallow any medicine until after you have swallowed the video capsule (injections are unaffected). Try to take any morning medications a few hours after you have swallowed the capsule. Speak to your doctor if you have any queries or take diabetes medications.
- ! **Clothes:**
 - ✓ **Please wear a thin underlayer e.g., a T-shirt which is loose fitting.** (So that the receiver can pick-up the signal.)
 - ✓ Please wear loose **two-piece clothing** on the day e.g., a T-shirt and jogging bottoms or skirt/ trousers with an elasticated waist (so you can go to the toilet easily without taking off the equipment).
 - ✗ Please do not wear a one-piece (e.g., jumpsuit).
 - ✓ Please also bring a **jacket or overgarment**. The recording equipment that you wear is strapped to your body and has loose wires – this could attract untoward attention! Consider avoiding public places and public transport while wearing the equipment.

During the hospital appointment

- We will go through the consent form with you and ask if you have any questions.
- We will ask if you have definitely passed the patency capsule.
 - If you have not, or are unsure, we will take an X-ray or a CT scan of the abdomen. We will get the result that morning.
 - Provided that the capsule has either i) passed through the small bowel and into the large bowel or ii) has left the body, we will proceed with the video capsule.
- We will place the recording belt and recorder around your body.
- We may ask you to drink a small amount of Infacol (simethicone). This is a medicine used for infants with colic and helps us get better views.



- We will ask you to swallow the capsule.
- About 30 minutes later we will check your live video images to make sure the capsule has passed through your stomach and into your small bowel:
 - If it has not, we may wait a bit longer and ask you to chew gum (but only if it won't damage your teeth/ dental work)
 - If the capsule is still in your stomach, we may give you an injection of a standard anti-sickness medicine which helps propel the capsule out of the stomach and into the small bowel.
 - If the capsule still remains in your stomach, we may need to perform an endoscopy (also called a *gastroscopy* or *OGD*) to assist the capsule into the small bowel. We would not do this without talking with you about this and gaining your consent.
- Once the capsule has entered the small bowel, you can leave the hospital.

After the hospital appointment

- You can drink water two hours after the capsule has entered the small bowel.
 - You can have a light snack four hours after the capsule has entered the small bowel.
 - You can eat normally eight hours after the capsule has entered the small bowel.
 - **Do not take anything off!** You must keep the recording device and belt attached at all times! If not, we simply will not get images of your bowel.
 - Please keep checking the recorder every 15 minutes (it looks a bit like a man bag) – there is a blue flashing light on the top. If the light flashes red, it means that it is out of contact with the capsule. If it consistently flashes red, it may mean that you have passed the capsule and can remove recorder and belt.
 - While extremely tempting, **do not play with the recorder** to look at your images. At best it will make the battery go flat faster; at worst you could lose all or some of the images. This is a medical test.
 - **After 12 hours has elapsed or if the recorder flashes red consistently, take off the recorder and the belt.** Please be gentle with the device.
 - Unplug the recorder from the belt by squeezing the clip next to the recorder
 - Then take off the shoulder strap and the recorder
 - Then undo the Velcro belt
 - Keep all the equipment together
 - If you notice that you have passed the capsule into the toilet, you can then flush the capsule down the toilet safely. The capsule is disposable and is single use only. The capsule is usually passed in the toilet by 48 – 72 hours.
-
- **You must avoid strong magnetic fields such as MRI scanners and radio transmitters until the capsule has passed out of your body as this poses a serious risk to your health**
 - **If you experience shortness of breath, abdominal pain, vomiting, nausea or fever please call the number on the front of this leaflet for immediate advice. If you are unable to obtain satisfactory advice, please go to Accident and Emergency.**



Day 3: The Day after the Video Capsule Test

- You must return the belt, recorder and **all** the equipment we have given you (except for the capsule) **by hand** back to the Endoscopy Department at the Whittington Hospital. Please be careful with the equipment.
- We will give you instructions at the time as to whom and where the equipment should be delivered. You can get a friend or relative to deliver the equipment.
- That concludes the test.

The Coming Weeks: The Report

- Once we have received the equipment, we will then download the data. A doctor or specialist nurse will then read the video and produce a report.
 - This can take hours and unfortunately sometimes there may be a delay of days or even weeks, owing to constraints on service.
- We will discuss your report with you at your next consultation and/ or inform you by letter of the findings. The exact timescale of this should be explained to you beforehand.

Other information

The information below is to help inform your decision.

Consent form

- Before having this procedure, you will need to sign a consent form. A copy of the consent form will be offered to you for your records.
- **You can withdraw consent at any time, even after you have signed the form.** We really do not mind if you withdraw consent – you must make the decision that's right for you.

What should I know before deciding?

- The doctor or nurse who signs the consent form with you should provide you with enough information about the procedure to enable you to decide. The leaflet that you are reading now hopefully helps inform that decision.
- We encourage you to ask questions and inform us of **any** concerns that you may have. It may be helpful for you to write these down as a reminder.
- For further information about consent we recommend:
<https://www.nhs.uk/conditions/consent-to-treatment/>



What are the main advantages of small bowel capsule endoscopy?

- It is painless – you just swallow the capsule and get on with your day – you can drink clear fluids (water) two hours after you have left the hospital and eat a light diet four hours after you have left the hospital (to give the capsule a “head start”).
- It is able to look at the 4 metres of small bowel.
 - This is difficult with conventional endoscopy (*gastroscopy* or *colonoscopy*)
 - Gastroscopy is excellent at looking at the first metre of your gastrointestinal tract but can only really see the first 10cm of small bowel.
 - Colonoscopy is excellent at looking at the last metre of your gastrointestinal tract but can only really see the last 10 cm of small bowel.

What are the main disadvantages of small bowel capsule endoscopy?

- Like all endoscopies it looks only at the inside lining of the intestine. It cannot look at other organs in the body.
- The camera is not steerable and cannot hover over areas of interest for a better look.
- The video images are made up of still pictures spliced together, i.e., there is a “frame rate” – a bit like a cinema film. This means that areas of interest may only be glimpsed or may even be missed.
- The capsule cannot take biopsies.

What are the risks of small bowel capsule endoscopy?

The risks are low, but no procedure is without any risks. The main risks are:

1. Not finding disease that already exists (also called “missed pathology”)

This can occur because:

- The camera is not steerable and cannot hover over areas of interest for a better look.
- The video images are made up of still pictures spliced together, a bit like a cinema film. An area of interest may not be caught on any frame, may only be glimpsed or may even be missed in a blink by the reporter.
- The capsule moves too slowly through the bowel and the battery runs flat before all the small bowel can be visualised.
- The camera moves too quickly through the small bowel.
- There is food residue in the bowel which blocks the image.
- Technical issues such as:
 - The recorder system does not pick-up the transmission from the capsule – this can be intermittent and there can be segments of small bowel that are missed.
 - Capsule or other hardware/ software malfunction.



2. Capsule retention

- This means that the video capsule does not pass through the gastrointestinal tract and is retained somewhere in the gastrointestinal tract.
- This is rare and usually the blockage usually occurs in the small bowel because of narrowing due to:
 - inflammation (like Crohn's disease)
 - a polyp/ lump
 - scar tissue elsewhere in the abdomen which kinks small bowel (like a kink in a hose - e.g., because of adhesions from previous abdominal surgery)
- Very rarely the capsule can become lodged in other parts of the gastrointestinal tract (e.g., the oesophagus or colon).
- Overall, retention occurs in approximately 1% cases.
- However, the likelihood increases to approximately 2.5% in suspected Crohn's disease and 4.6% - 13% in patients with established Crohn's disease. These elevated risks can be significantly reduced by use of a patency capsule.
- If the capsule is retained behind a narrowing, often it causes no symptoms and bounces around back and forth; food and drink can pass by. The capsule might pass spontaneously (eventually). If the narrowing is caused by inflammation, drugs may be used to reduce the inflammation and allow the capsule to pass. Sometimes an operation or a special type of endoscopy may be needed to remove the capsule. This can often be performed "electively" (i.e., as a cold case).
- Rarely, the capsule can cause serious symptoms: It can become lodged in a narrowing and cause a blockage ("obstruction"), or other significant other symptoms and an urgent operation or endoscopy may be required.
- To minimise the risk of the video capsule becoming stuck in the gastrointestinal tract, we may ask patients to swallow a dissolvable dummy capsule (also called a patency capsule) as a "trial run" beforehand: if the capsule becomes stuck, it will dissolve (your previous history and investigations have been reviewed to decide that you are not at high risk for retention and do not need a patency).
- In the rare cases when a capsule is retained, up to a 1/3 of cases will be sent straight for surgery or endoscopy. Of the remaining 2/3 cases, about half of those 2/3 will eventually pass either spontaneously or with drug treatment of the condition which led to the retention and the other half will require endoscopy or surgery.

3. Capsule Aspiration

- This means that when the capsule is swallowed, it is accidentally inhaled into the lungs.
- It is unlikely to occur – rarer than 1 : 800 cases – 1 : 1000 but can up to 2% in people with known swallowing difficulties.
- The risk is increased in those who have difficulty swallowing, have had strokes, have Parkinson's disease.
- Sometimes the patient is not aware that they have aspirated the capsule – only the video images show that that the capsule is in the wrong place. Other times it can cause choking.
- Often the capsule is simply coughed back out!
- If it is not, an emergency endoscopy (*bronchoscopy*) or even an operation may be required.



What are the alternatives to capsule endoscopy?

Do not investigate

Usually this will not advance your diagnosis and management, but in selected cases, a period of watching and waiting can be of benefit.

Device assisted enteroscopy

- Essentially this is a protracted colonoscopy or gastroscopy.
- A special endoscope is inserted into the small bowel to enter the small bowel.
- This is a complex procedure and carries higher risks of complications overall than does a capsule.
- It also may be more uncomfortable than a conventional endoscopy and can last for hours. It is usually performed under sedation.
- However, device assisted enteroscopy allows biopsies to be taken, narrowings to be dilated and polyps to be removed. It allows areas of interest to be examined more closely. It is usually employed after an abnormality has been found on capsule endoscopy.

MRI Small Bowel or CT Small Bowel

- MRI scans and CT scans produce *cross-sectional images* of the body. CT scans and MRI scans at face-value look similar to one-another but they can yield different information.
- In both cases you lie on a movable bed in a tunnel and a dye may be injected into your vein. The CT scan is quicker, the tunnel is more open, and a machine may slide your bed backwards and forwards through the scanner. The MRI tunnel is narrower, the scan takes longer and it is noisier. CT scans use X-rays. MRI scans use magnetic fields.
- These scans do not provide detailed images of the lining of the bowel, but instead show the cross-section of the small bowel and how it lies inside the abdomen.

Surgery

Owing to advances in scans, capsule endoscopy and *device assisted enteroscopy*, *exploratory surgery* is now very uncommon. The risks are often thought not to be justified.

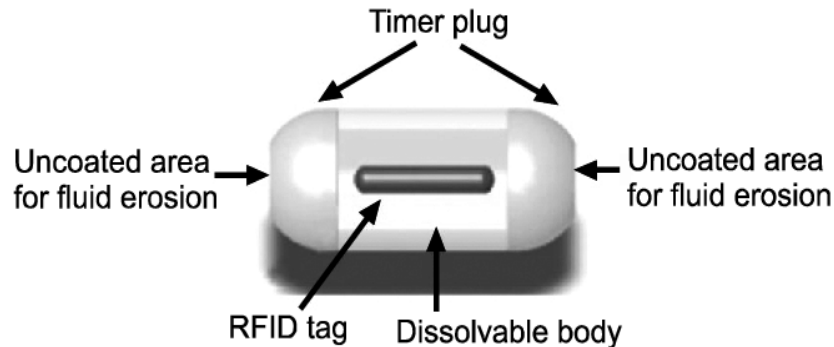
Patency capsule

Patency Capsule overview:

- To reduce the risk of the video capsule becoming stuck in the gastrointestinal tract, we may ask patients to swallow a dissolvable dummy capsule (also called a patency capsule) as a “trial run” beforehand.
- The patency capsule is the same size as the real capsule – if the real capsule were to get stuck in a narrowing, so should the patency capsule.
- The patency capsule begins to dissolve after 30 hours, so if it does become stuck +/- cause a blockage, this should only be temporary.



What is a Patency Capsule made of?



- The patency capsule is mostly made of lactose (90%), which is the sugar found in milk and is the base ingredient of most tablets. The lactose is mixed with barium (10%), which is like chalk, and shows-up on X-ray. Both ingredients dissolve in water.
- The capsule has a special coating which initially repels water, keeping the lactose and barium dry. However, the coating becomes porous after about 30 hours allowing the lactose and barium to dissolve and the capsule to shrink away.
- At the very centre of the capsule is a tiny non-dissolvable RFID tag (a bit like those tags which trigger shoplifter alarms). This tag ought to pass through all but the very tightest of narrowings (rarer than 1 : 1500 chance of retention).

What is the procedure?

The day before your real video capsule test we will ask you to come to the Whittington Hospital and swallow a patency capsule. If you pass the patency capsule in the toilet, please remember this (better still, please take a photograph with a camera).

When you return to us the following day, we will ask you if you have seen the patency capsule in the toilet. If you have, we will give you the video capsule to swallow. If you have not (or are unsure) we will perform an X-ray or a low-dose CT scan of your abdomen to see where the capsule is. The result will determine what we do next. For example:

- If the patency capsule is lodged in the small bowel, then we would allow time for the patency capsule to dissolve and we would not give you the non-dissolvable video capsule.
- If the patency capsule has passed into large bowel and is just waiting to come out with the next stool (poo) then it is safe to go ahead, and we would give you the video capsule.

Patency Capsule Risks

The risks are of capsule aspiration and capsule retention.

- The risk of retention is mitigated greatly by the fact that the capsule is dissolvable. There are solitary reports of the RFID tag becoming retained out of tens of thousands and hundreds of thousands of patency capsules being administered.
- The risks of capsule aspiration (inhalation) are the same as for the video capsule.



What are the Reasons for Having a Small Bowel Capsule?

There are many reasons for having a small bowel capsule endoscopy. Amongst the most frequent are:

- Looking for unexplained or suspected blood loss.
- Diagnosing inflammation of the small bowel (e.g., Crohn's disease)
- Clarifying imaging tests. MRI or CT scans may have coincidentally shown an abnormality and a capsule may help make a diagnosis.
- Diagnosing poor blood supply to the small bowel.
- Look for polyps and tumours in the small bowel.
- Look for coeliac disease.

The receiver belt, recorder and holster are for your benefit. We want you to leave the hospital with this equipment, but it remains the property of the NHS. The receiver belt, recorder and holster must be carefully returned undamaged and in a timely manner. Thank you!

Thank you for taking time to read this leaflet!

Patient advice and liaison service (PALS)

If you have a compliment, complaint or concern please contact our PALS team on 020 7288 5551 or whh-tr.whitthealthPALS@nhs.net

If you need a large print, audio or translated copy of this leaflet please contact us on 020 7288 3182. We will try our best to meet your needs.

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Whittington Health NHS Trust
Magdala Avenue
London
N19 5NF
Phone: 020 7272 3070
www.whittington.nhs.uk

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