

Faecal Microbiota transplantation for *Clostridioides difficile* infection



What is faecal microbiota?

Faecal microbiota refers to the microbes (bugs) residing in the lower part of our gut. It is sometimes referred as faecal microflora. Almost 80% dry weight of our faeces (stool) is made up of different types of microbes. These microbes are immensely important for our good health. They help in digestion of various foods we eat. The diversity of the bowel microbes in our gut plays different roles including protection from harmful bugs that can cause infections.

What is Clostridioides difficile?

Clostridioides difficile is the name of one of the bugs that may be present in small numbers in our gut. Presence of Clostridioides difficile along with other normal gut microbes doesn't cause any harm. However, if someone is taking antibiotics for a suspected infection, many bowel bugs are killed but Clostridioides difficile is left behind, which then can reproduce in large numbers. The microbial balance in the gut is lost. When this happens, Clostridioides difficile can produce a toxin (chemical substance) which irritates the gut lining, causing symptoms that can include diarrhoea, abdominal cramps, loss of appetite, fever and nausea. We commonly call this condition as Clostridium difficile associated diarrhoea (CDAD).

Who is at risk of getting these symptoms (CDAD)?

- Anyone taking antibiotics. Taking more than one type of antibiotic increases the risk.
- People in hospital, especially elderly patients.
- People with an inflammatory bowel disease such as Crohn's disease or ulcerative colitis.
- People who have had surgery on the stomach and/or bowel.
- People being treated for cancer.

How is CDAD treated?

When the balance in your gut flora is disturbed, the risk of CDAD increases. CDAD occurs because of the toxin released by excess numbers of the Clostridioides difficile bug in your gut. Doctors normally give an antibiotic (Vancomycin / Fidaxomicin) to kill the Clostridioides difficile in your gut,

which reduces the toxin production. As the amount of toxin released in your gut reduces, the symptoms of diarrhoea get better.

How effective is that treatment?

Usually a single treatment course (about 10-14 days) for CDAD is effective to control diarrhoea in most cases. However, about 20% of people suffering from CDAD can develop a recurrence of diarrhoea once the treatment is stopped. This is because the balance in the gut flora sometimes takes a long time to recover and *Clostridioides difficile* takes that opportunity to reappear in your gut in large numbers, releasing its harmful toxin.

If symptoms recur, further treatment is needed, sometimes with different antibiotics for a prolonged duration. This cycle can carry on for a long time until the other good bacteria in the gut take over to restore the normal balance of bowel microflora. The restoration of healthy balanced gut microflora is the only sustainable way to keep *Clostridioides difficile* under control.

How serious is recurrent CDAD?

Recurrent CDAD is a distressing condition. It's common with elderly people who sometimes require antibiotics for other conditions that make them more vulnerable to CDAD. Nursing home residents or hospitalised patients with CDAD need isolation for a long time because of the risk of spreading this nasty bug to other vulnerable groups.

In some situations, diarrhoea becomes severe and can cause dehydration, bleeding from the gut, swelling of the gut and even perforation of the gut leading to fatal sepsis. Serious complications due to CDAD may require gut surgery.

What is a faecal microbiota transplant (FMT)?

This is the transplantation of a sample of human faecal (stool) material from a healthy donor to a patient. Usually the patient has something wrong with their own gut microbiota (bugs), for example they have been killed off by antibiotic treatment or the patient has an inflammatory bowel disease that has upset the normal balance of the gut microbiota in the bowel.

Restoring the good gut microbes (bugs) is not a new idea, but it has taken some time for faecal microbiota transplantation to gain acceptance and for studies in humans to be undertaken.

How does a faecal transplant work in CDAD?

In healthy people, the numbers of *Clostridioides difficile* are usually kept under control by the good gut microbes in the bowel. A faecal transplant aims to restore the normal levels of good gut microbes in the bowel so that they can keep *Clostridioides difficile* under control and hopefully eradicate it completely.

Why have a faecal transplant rather than antibiotics?

In some people with recurrent *Clostridioides difficile* infection, repeated treatment with antibiotics is not effective and *Clostridioides difficile* cannot be removed from their bowel. This is mainly because of the persistence of reduced diversity and the number of good healthy bowel microbes in their gut. Faecal transplantation offers an effective alternative to repeated courses of antibiotics.

What does the faecal transplant involve?

A faecal transplant is usually done within a few hours as an outpatient procedure and doesn't require admission, but you might receive it as part of your care during your hospital stay.

- A few days before the faecal transplant, you will be asked to stop any antibiotics. This will prevent any unwanted effects of antibiotics on the newly transplanted healthy gut flora. The doctor will provide appropriate instructions to you.
- You will be asked to come to hospital early in the morning (if you are not already an inpatient) so that you can be prepared for the faecal transplant. This will involve:
 - Having the procedure explained to you in detail.
 - Having your vital signs checked to make sure that you are well enough to undergo the procedure.
 - Signing a consent form that gives your permission for the procedure.

- While you are being prepared for the faecal transplant, the Microbiology department will be preparing the donor faecal suspension, which is a liquid sample of the healthy donor's faecal material. The healthy donor will have been screened for a comprehensive range of infectious diseases to ensure that you are not at any risk of being infected.
- Faecal transplant can be done two different ways. You can choose to have the faecal suspension transferred either through:
 - **a nasogastric or nasojejunal tube** – this is a tube that slides in through your nose and down into your stomach. You may need to be taken to the X-ray department to insert the nasogastric or nasojejunal tube.
 - **a sigmoidoscopy** – this is a procedure where a narrow tube is inserted through your bottom in to your large bowel.
- Based on your preference, the donor faecal suspension will be slowly infused into your gut either via the nasogastric tube or sigmoidoscopy. This takes about one hour.
- You will be asked to remain in the hospital for a short time after the procedure so that the medical staff can monitor your vital signs.
- If you are not an inpatient, you will then be discharged from the hospital.
- Once you are back home, you will not have to follow any special diet, but good hand hygiene is essential.

What happens afterwards?

Following your faecal transplant, you will be asked to monitor your bowel symptoms for the first few weeks using a Bristol Stool Chart. This will be explained to you by the doctor or nurse before you leave hospital. A record of your bowel symptoms will enable the doctor to see if the faecal transplant has worked.

At a later date, you may be asked to provide a stool sample so that it can be analysed to see if you still have *Clostridioides difficile* in your bowel. This will be explained to you following the procedure.

What is the success rate?

Faecal transplant has a good chance of working – about 80-90% of people are cured after a single faecal transplantation.

Who will donate the faecal sample for transplantation?

A laboratory at the University of Birmingham screens and recruits the donors following strict screening process. The donors undergo extensive medical history and lifestyle assessments and also go through blood and faecal tests, this will ensure safe and high standard FMT is being provided.

Any questions?

If you have any questions or need any further information please speak to your doctor.

If you would like this leaflet in large print, braille, audio version or in another language, please contact the General Office on 01872 252690

