

[MUSIC PLAYING]

**ROBERT ORENSTEIN:** Clostridium difficile is a bacteria that often causes infection in people who have had alteration of their gut, usually due to antibiotics or hospitalization, and they develop a diarrheal illness, which can range from a mild episode of diarrhea to severe episode which can be life threatening.

**JOHN DIBAISE:** We see many people who are just almost incapacitated by it, either because of just persistent diarrhea leading to incontinence and inability to leave the safety of their home for fear of not being able to reach a bathroom quickly enough. It can just wreak havoc with their life. There are trillions of microbes incorporating thousands, if not tens of thousands, of different species.

**ROBERT ORENSTEIN:** If you take an antibiotic, be it a pill or an antibiotic, you may eliminate a lot of those bacteria. It's similar to destroying a forest. And one way to restore that is to take the healthy bacteria that normally live in the colon from a healthy person and re-implant those back into the colon of the sick person.

The procedure we talk about as FMT is commonly known as fecal transplantation, but we like to call it fecal microbiota transplantation-- because the idea is we're actually transplanting bacteria back to their normal residence in the gut, and that can be done by a variety of techniques. It could be done through the upper gastrointestinal tract, through a nasogastric tube. It could be done through an endoscope, where it's placed in through the upper GI tract into the lower GI tract, or it can be placed in with a colonoscope directly into the colon or even by enema, as long as someone's able to retain the enema.

The way we've chosen to do it is by colonoscopic infusion. The reason for that is you can directly visualize the area. You can directly place the bacteria into the terminal ileum and through the colon, where it likely belongs.

In order to donate the fecal material, we want to make sure that the donors are not going to transmit an infection to the recipient, whether that is even their spouse or a family member. And so the screening that we typically do is similar to what you would do for blood donation or organ donation. We also screen the donors for Clostridium difficile to ensure that they're not chronic carriers and then are potentially going to provide C difficile to the recipient.

**JOHN DIBAISE:** Once we have obtained that specimen, it goes immediately to our endoscopy technician. We then weigh the stool, determine how many grams of stool, and then we put it in a blender-- a common disposable household blender-- and mix it with some sterile saline-- nonbacteriostatic saline-- to get the consistency to where we can easily instill it through the colonoscope. We use 60-milliliter syringes.

**SPEAKER:** We give you medicine through your IV until you're asleep, or nearly asleep.

**JOHN DIBAISE:** Then we perform the procedure, the colonoscopy. We administer the sedation and analgesia. We insert the colonoscope and advance it into the terminal ileum-- the final portion of the small intestine-- just before it reaches the colon. Once we're there, that's when we administer typically the entirety of the material.

**ROBERT** I think that many people are concerned about putting bacteria into the digestive tract of individuals who are  
**ORENSTEIN:** highly immunosuppressed-- so bone marrow transplant patients-- those who have ulcerative disease in their GI tract, where some of these bacteria could translocate from the gut into the bloodstream. I hate to exaggerate claims, but it really is quite striking. But now there have been numerous studies published that have again consistently shown these rates of success of 90% or better.

**JOHN DIBASE:** That's pretty remarkable for this complicated problem.

**ROBERT** So I think that this is now becoming a standard therapy.

**ORENSTEIN:**

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