October 23, 2014 | Speaker: Dr. Millie Long TRANSCRIPT

**OPERATOR:**
Hello everyone, and welcome to *Understanding Ulcerative Colitis*, a free telephone/web education program. It is my pleasure to introduce your moderator Laura Wingate, Vice President of Patient and Professional Services at the Crohn's & Colitis Foundation of America.

**LAURA WINGATE:**
Hello, everyone. On behalf of the Crohn's & Colitis Foundation of America, welcome, and thank you for attending tonight's program.

This activity is presented by the Crohn's & Colitis Foundation of America and is cosponsored with the American Gastroenterological Association Institute. This program is supported by educational grants from Abbvie, Janssen Biotech, Inc., administered by Janssen Scientific Affairs, and supported by a sponsorship from Takeda.

I would like to address a couple of housekeeping items before we begin. To allow full participation in today's program via the web, please be sure to disable any popup blockers on your browser or computer. Note that this program will include interactive polling questions, which will be prompted to answer throughout the program. Please respond when these questions appear on your screen. Note that your responses will be anonymous.

For the teleconference participants listening by telephone, you will be unable to respond to the polling questions, but will have the ability to hear the questions and the answers.

Thanks to everyone who submitted questions in advance of this program.

After the presentation, we will open the program up for your questions. We will take as many questions as time allows from both telephone and webcast participants. If we are not able to answer your question, the IBD Help Center will be available Monday through Friday, 9 AM to 5 PM Eastern Time, by calling 888-694-8872.

Upon exiting tonight's program, you will be prompted to complete a brief program survey. We ask that you take a few minutes to provide your responses, as your feedback is extremely important to us as we plan future educational activities.

I now have the pleasure of introducing our speaker for tonight's program, Dr. Millie Long. Dr. Long is an Assistant Professor of Medicine in the Division of Gastroenterology and Hepatology at the University of North Carolina School of Medicine in Chapel Hill, North Carolina.

Dr. Long, thank you for joining us. It is now my privilege to turn the program over to you.

**DR. MILLIE LONG:**
Thank you, Laura, and thank you to everyone for joining the program tonight.

**DR. MILLIE LONG:**
Tonight we'll be talking about understanding ulcerative colitis and hopefully you'll find this program tonight educational and I look forward to fielding some questions from the audience at the end of the program.

The program's goals include essentially trying to help you understand ulcerative colitis and its effects. We will review current treatments, including medications and surgery, and we'll also provide tips for managing your disease through diet and complementary and alternative therapies. We also will share some resources to answer your questions and provide support.

We'll start with trying to get to know who you are. The first poll question we'll ask you to participate in, I'm going to ask "Which best describes you? A, I'm a patient with ulcerative colitis; B, I'm a family member of a patient with ulcerative colitis; C, I'm a friend of a patient with ulcerative colitis; D, I'm unsure if I have ulcerative colitis; or E, no connection, just wanting more information." So please key in your responses now.

The majority of you have reported that you're a patient with ulcerative colitis, which is great. And hopefully you'll find that this will help you moving forward with communication with your provider as well.

We'll start with an overview of what ulcerative colitis is. As many of you well know, it's a type of inflammatory bowel disease. This is a chronic, relapsing disease of the large intestine, involving only the colon. It causes inflammation and ulceration in the bowel lining.

About half of cases are mild, however, half of cases can be more aggressive. Flares may be alternating with symptom-free periods and ulcerative colitis usually requires treatment, to not only induce a remission, but also to maintain remission and keep from having recurrent flares.

Unfortunately we do not know exactly what causes ulcerative colitis, or many other autoimmune-mediated diseases. But we think that it's a combination of factors. And these three circles demonstrate the components of a Venn diagram that tell us what we think is the potential cause.

A substantial proportion of patients have a genetic predisposition and by this we mean that as much as 20% of patients have a close relative that does have inflammatory bowel disease, so we think there may be a genetic predisposition. But that's not the only factor because we do have data on individuals who are identical twins and only one has ulcerative colitis. So there are certainly other factors that play a role.

One of those components is environmental factors, things like infections that could set off an inflammatory process, or antibiotics. There are many studies now of investigating antibiotic use during childhood and perhaps that might play a role in development of inflammatory bowel disease.

The microbiome refers to the bacteria that live in the gut and we think that there's a disruption or a change in the bacteria that live in the gut that can set off the inflammatory process. There are also

**DR. MILLIE LONG:**
certain medications, things like nonsteroidal anti-inflammatory drugs, medications like ibuprofen, Advil®, naproxen, etc. They may play a role, as do changes in diet, smoking and stress. These are just to name a few because we feel that there are many environmental factors at play.

And then the third important component is immune system abnormality, meaning that there's an inappropriate reaction by the body's immune system to set off this inflammatory process, that is not turned off, and therefore we need to use medications to help to turn off this process.

What are the symptoms of ulcerative colitis? I know you as an audience can likely tell this quite well. Diarrhea mixed with blood and mucus, abdominal pain and cramping. Urgency is very common in ulcerative colitis and the reason is that the inflammation in the rectum, in the very distal part of the bowel, can be associated with significant urgency, and most individuals with ulcerative colitis have inflammation in that area.

Other factors, appetite loss, fatigue, weight loss. And certain there may be intermittent symptoms with flare-ups with periods of symptom-free time.

In children one of the important clues to diagnosing ulcerative colitis is actually growth impairment. And sometimes that can come even before many of the symptoms that I just listed, where watching a child's growth curve becomes very important.

There can also be non-intestinal complications with ulcerative colitis. These are things like joint pain, whether centrally in the back or peripherally in knees, ankles, skin and oral ulcerations, eye inflammation, bile duct inflammation, which is an area in the liver, and others. And so ulcerative colitis really is not just localized to the gut, it's actually a systemic disorder.

When we talk about disease pattern, the rectum, that very end part of the colon, is almost always involved. When we classify ulcerative colitis we usually talk about not only severity of the inflammation, but also the location, where of the colon is involved.

In terms of when symptoms first start, often people will report rather gradual onset with worsening of symptoms over a time period. And recurrent attacks can occur with complete remission of symptoms in the interim time period.

What these pictures on the right show is the anatomy of the anus and the rectum. And one thing I want to point out is that inflammation in the distal rectum is very common with ulcerative colitis and this is where the sphincter is, and urgency is quite common, as can be incontinence just because of the area where the inflammation is located, such that the sphincter can't control release of stool.

Other things with disease pattern that are important to remember is that there can be significant triggers. Someone can be doing quite well, maintained in a remission, and then develop a flare. And sometimes we can't tell why, but other times we check for things that could be associated with that trigger. Certainly many patients tell us that psychological stress plays a role.

**DR. MILLIE LONG:**
Medications. In about 20% of individuals who take NSAIDs, things like aspirin, ibuprofen and naproxen, these can trigger a flare of disease. And so to my patients I recommend avoiding these medications if possible, to help to prevent that risk of flare.

Appendectomy, so surgical alteration of the GI tract, can be a risk factor for flare.

And infections. Infections are very common. And unfortunately one certain infection called *C. difficile* is becoming much more common, not only in ulcerative colitis patients, but also in all populations. And so it has become very standard that should you develop a flare, it's very important to check a stool sample for this infection because this could be the driving process that set off the flare. And you actually won't get better until this is treated, as well as the inflammation that it has caused.

Remission rates decline with disease severity. It's harder to maintain a remission when someone has quite severe disease.

The relapse rate, those rates of flares, are higher in younger patients. And as someone gets older, they can actually reduce with increasing age.

One thing that's important to remember about ulcerative colitis is that it primarily affects quality of life and symptoms, not necessarily life span. If you have ulcerative colitis your life span is no different than someone who does not have it.

In regards to the types of ulcerative colitis, I would encourage you to talk to your provider, if you don't already know, about where in your colon is involved. Because medical therapies and outcomes differ, depending on which type of ulcerative colitis you have.

Proctitis is the shortest type of ulcerative colitis. This is involvement limited to just the rectum, just the very end part of the colon. Proctosigmoiditis involves the rectum and the sigmoid colon, which is kind of that part of the colon in the picture that makes the first part of that loop going up, the rectosigmoid. And then left-sided colitis involves the entire left colon, extends from the rectum up to the transverse colon. And pancolitis can involve the whole colon. And pancolitis goes all the way from the rectum to the cecum, which is the end part of the colon on the right side.

In regards to disease severity, this is judged not only based on someone's symptoms, but also on endoscopic evaluation, when we look with a colonoscope and see how active the inflammation is. When we're speaking of symptoms, mild symptoms may be stools up to four times per day, they may be bloody, mild abdominal pain. Moderate, four to six stools per day with increasing abdominal pain, and we start to see anemia. With severe disease, people will have very bloody stools, over six per day, fever, anemia. And fulminant disease is dangerous. Fulminant disease is when the stool volume increases to over ten per day, you can have continuous bleeding, severe abdominal pain, your abdomen can become quite distended. And it's very important to be in a controlled hospitalized setting in this scenario. And so what we're trying to do obviously is avoid fulminant disease and recognize flares in the earlier stages, such as mild or moderate, to help to prevent these complications.

**DR. MILLIE LONG:**
There are also extraintestinal features of ulcerative colitis and sometimes these features actually occur even before the GI symptoms worsen, are independent of the GI symptoms. So it's important to recognize these features.

People can get ulcers throughout their mouth, kind of deep aphthous ulcerations, that make it quite painful to swallow.

You can also have eye inflammation. Your eye can turn very red, almost like a cherry tomato. The reason this is quite important is that certain forms of this eye inflammation can be dangerous to vision. So if you do develop erythema or redness in your eye, it's something you should see your physician about.

Arthritis of the hands and feet and lower spine. There's a particular form of arthritis called ankylosing spondylitis that involves the lower spine, that is an autoimmune condition in and of itself, that actually is treated with some of the same medications that we use to treat ulcerative colitis, that these two disorders are linked.

And skin sores. Pyoderma gangrenosum is a very deep painful ulceration that can occur really anywhere on the body. A common place is perianally, but it can also occur on extremities. And it almost looks like an infection, but it's not, it's actually an inflammatory skin disorder that needs to be treated with medications that reduce the immune system. Medications like the ones we use for ulcerative colitis, that's how it improves.

Erythema nodosum is painful red nodules that can occur, usually on extensor surfaces, on the arms or the legs. And often these two skin rashes are actually associated with increased activity in your colon as well.

What about risk factors? Ulcerative colitis can really occur at any age. Many people are diagnosed in their 20s or 30s, however, there's also a second peak of individuals who develop ulcerative colitis later in life, in their 50s or 60s. And actually affects all ethnic backgrounds. It's more common in Caucasians and in Ashkenazi Jews. It's also somewhat more common in women than men. And individuals have a higher risk of developing ulcerative colitis if they do have a first degree relative with ulcerative colitis.

We estimate in the United States right now that there are over 700,000 individuals with ulcerative colitis and a similar number with Crohn's disorder, a sister disorder in inflammatory bowel disease.

Many of you may have heard about the colorectal cancer risk that can be associated with ulcerative colitis. We think that the risk factor involved is actually the ongoing inflammation. That high cell turnover associated with inflammation can increase the risk of malignancy within the colon. This is not immediate, it usually occurs – you start to have an increased risk eight to ten years after the onset of your ulcerative colitis. And it can be more of a risk associated with increased severity of ulcerative colitis. It just makes sense if you have more inflammation, that becomes a risk factor.

**DR. MILLIE LONG:**
And so how do we prevent this, how do we catch this early? We recommend surveillance colonoscopies for ulcerative colitis patients who've had disease for a certain number of years. So for example, if you had pancolitis, meaning inflammation that extended all the way from your rectum to your cecum, the entire colon, it's recommended that after ten years of disease, you start to have regular surveillance colonoscopies every one to two years, where we biopsy throughout the colon and look for pre-cancerous changes.

And individuals who only have inflammation on the left side of their colon, their recommended start date is somewhat later, just because the risk does not increase until that time, which is 15 years after diagnosis.

And again, recognize that this risk factor is inflammation, and so if we treat the inflammation we can actually reduce that risk. So many of the medications that we use to treat ulcerative colitis have data demonstrating that they reduce the risk of colorectal neoplasia over time. Yet one more reason to treat ulcerative colitis.

What about testing? A majority of our population have ulcerative colitis, that you've been through many, most, if not all, of these testing modalities. That's because ulcerative colitis isn't easy to diagnose. We can't just use a blood sample. We have to eliminate other things that could cause ulcerative colitis and confirm via multiple modalities.

So for example, in diagnostic testing, stool samples to rule out the presence of other bacteria or parasites. We certainly do use blood samples, we check for things like infection, anemia or inflammation within the bloodstream. But most importantly, we need to biopsy the lining of the intestine to see if there is evidence of ongoing chronic inflammation, which is diagnostic of ulcerative colitis.

We also check liver and kidney function tests.

Endoscopy itself, which is the means to biopsy, is the gold standard for diagnosis. We insert a flexible scope with a light and a camera on the end into the rectum and advance it either just through the left part of the colon or throughout the entire colon. If you're only investigating the left side of the colon it's called a sigmoidoscopy. And if you're investigating the entire colon it's called a colonoscopy.

We do also use other formats. We use things like radiographs, barium enemas or CAT scans. These can give us a good idea of the degree of thickening in the wall of the colon and, importantly, also rule out involvement in other parts of the bowel such as the small bowel, which is involved in other disorders such as Crohn's disease, that is not involved in ulcerative colitis.

So often in coming to a diagnosis, an individual has been through a battery of tests such as this, to arrive at the diagnosis of ulcerative colitis.

**DR. MILLIE LONG:**
So now let's talk about how we treat it. Managing your symptoms through over-the-counter medications, using medications such as aminosalicylates, corticosteroids, immunomodulators and biologics. And we'll talk about each of these classes of medication and how they can be helpful in ulcerative colitis management.

So before we move on, I want to get an idea of what kind of treatment regimens you all are familiar with. And so this poll question, I'm going to ask you whether your treatment regimen includes A, corticosteroids; B, aminosalicylates, these are mesalamine-based medications; C, immunomodulators; D, biologics; or E, two or more of the above medications.

Just waiting on the poll results.

Okay, and hopefully they'll get those poll results to me and I'll move on. Oh, okay, the majority of individuals are on two or more of the above medications. And I'm not surprised by that because many of these medications are very complementary to one another and many of these medications, some are used acutely and others are used for maintenance, and so they're often used together and we'll talk about that.

So first let's talk about over-the-counter medications. These are medications that certainly can be used for symptoms, but recognize that these medications are not going to treat the underlying inflammatory process of the ulcerative colitis, and so they're not going to heal the inflammation itself. But certainly they can be helpful, particularly when someone needs to travel, when someone needs to have kind of a reduction in urgency, that their anti-inflammatory medications are not fully providing.

And so the most common over-the-counter medication that is used in ulcerative colitis is anti-diarrheal agents, things like Imodium®. Some individuals who have more of a constipation-predominant symptom can use laxatives. And pain relievers, things like Tylenol® to help with abdominal pain and cramping.

NSAIDs, things like Motrin®, Advil®, ibuprofen, these can actually cause GI irritation. You may have read or know that those medications are very much a risk factor for development of ulcers in the stomach, regardless of whether you have any chronic GI condition. Individuals with ulcerative colitis, as I mentioned earlier, 20% of individuals will actually have a significant flare associated with NSAID use because of that irritation that can occur not only in the stomach as with ulcers, but also down in the colon. So it's important to recognize that and potentially try to avoid NSAIDs if you feel that they may be a factor in your flares.

And certainly I would recommend that you talk to your physician before taking any over-the-counter medications. Certainly many can be absolutely fine, but kind of discussing it and making sure that there are no interactions or issues with over-the-counter preparations and your other primary maintenance medications is important.

**DR. MILLIE LONG:**
Moving on, we'll talk about aminosalicylates. These medications, as you can see listed here on the slide, have been around for a long time and are very effective at treating mild to moderate inflammation from ulcerative colitis. They have very few serious side effects. It is recommended that we check your kidney function once a year when you're on these medications because they are metabolized through your kidneys. But they don't suppress your immune system, and in general have very few side effects. They're very useful in maintaining remission.

I've listed here a few of the different classes. Sulfasalazine is an old timey medication that is still very effective, if you're not allergic to sulfa. Olsalazine, balsalazide. And then all of the mesalamine-based preparations as they're listed here. And each of these preparations comes in an oral format, with different reliefs in different areas of the colon or potentially small bowel. But additionally they come in rectal preparations and the reason why this is important is if an individual has significant inflammation in the very end part of the colon, in the rectum, that can be difficult for the oral medication to reach optimum efficacy. So we use what we call topical medications. These are things like suppositories or enemas that can go directly to where the inflammation is and can have a soothing effect and can really help to heal up that distal inflammation. And so some of those preparations there are actually rectal preparations.

In individuals with left-sided ulcerative colitis it's actually been shown in numerous studies that actually using an oral and a rectal preparation is superior and can maintain remission better.

So let's move on to corticosteroids. Now unfortunately I bet a significant portion of this population has been on corticosteroids or known someone who's been on corticosteroids. Corticosteroids are a necessary therapy for short-term control of flares. What's not good about corticosteroids is that they can have fairly significant long-term complications. And so the use of corticosteroids really needs to be limited, short-term induction of remission, and then using another medication to maintain that remission over the long-term.

The risks of steroids can include everything from increased infectious risk to sleep disturbances, mood swings, neurological changes, changes in physical appearance. You can have a significant amount of fluid retention associated with corticosteroids and your face becomes somewhat more rounded.

In children, you can have growth delays, which is very unfortunate. Limiting corticosteroids is very important during puberty.

Bone loss and fracture over time. Individuals on corticosteroids have a much higher risk of osteopenia and osteoporosis, therefore have a higher fracture risk.

What are the medications in this class? Budesonide, which comes in two forms, Entocort® or Uceris®, is actually an interesting steroid. It's probably the least side effect and least peripheral issues because of its mechanism of action. This medication doesn't go through what's called first pass metabolism of

**DR. MILLIE LONG:**
the liver, so it actually just stays in the gut and so it has steroid effects in the gut without going elsewhere. And because of that it's a very useful medication to limit side effects. Of these formulations, the Uceris formulation is the one that has release in the colon, is more applicable to ulcerative colitis patients.

Also hydrocortisone is used. Here I've listed a few brand names of enemas. Just like the mesalamine-based enemas, these enemas can be very effective for relieving urgency and symptoms associated with left-sided ulcerative colitis.

Also you may need systemic steroids, meaning oral steroids or intravenous steroids, things like methylprednisolone or prednisone. But again, we always try to limit the prednisone to a short course to help to minimize those long-term side effects, with the idea that we start the steroid, but then maintain an individual on a different class of medication that has a better side effect profile to help to prevent recurrence.

Okay, now moving on to immunomodulators. These are steroid-sparing agents and they've really been in use since the early 1990s. These are medications that are used if someone cannot maintain a remission on aminosalicylates alone. They're pill-based medications. The most common is azathioprine, also known as Imuran®. Or 6-mercaptopurine, also known as Purinethol®. These are medications that modulate the immune response and lower the immune response enough to prevent the inflammatory process.

When you're on these medications, we need to follow things like your blood counts and your liver tests. You can also now check levels of these drugs to make sure that someone's level is optimized. And the medications over time have demonstrated the ability to help to prevent relapse.

Additionally, as I mentioned earlier in the presentation, this particular class of medications has excellent data on reduction of colorectal cancer risk, again to turning off that inflammation at the root. Instead of allowing the inflammation to form and then soothing it, these medications actually prevent the inflammation from forming.

That's also true of the next class of medications, the biologic class. The biologic therapies block inflammation at the root as well. They're effective for patients who do not respond to standard therapies, things like the aminosalicylates, or individuals that no longer respond to standard therapies. Some individuals may have been stable on a therapy for five, ten years, but then develop really refractory flare that we're not able to control in other fashions, and the biologics can actually not only induce their remission, meaning they can help to get you feeling better and get your symptoms resolved, but they also have demonstrated efficacy in maintaining remission.

And so with these medications, also individuals are able to taper off of corticosteroids. And the side effects of corticosteroids are such that we certainly want to try to avoid those over the long-term, and therefore these medications can be quite effective in doing so.

**DR. MILLIE LONG:**
There are many different forms of biologic medications and they actually have different mechanisms of action as well. I've listed four here. Three, the infliximab, adalimumab and golimumab, are of the same mechanism. These are anti-tumor necrosis factor alpha medications and they block tumor necrosis factor alpha, which is at the root of the inflammation cascade.

The other medication in this list is actually a new medication that you may or may not have heard of. Vedolizumab actually became available in May of this year, was approved by the FDA. And just this summer we've started infusing it here and other places throughout the country. And this is a medication that blocks something called alpha-4/beta-7 integrin, and it is a gut-specific medication. And so its mechanism of action is just to keep inflammatory cells from adhesing to the lining of the gut. And therefore it avoids other systemic immunosuppression. And this medication demonstrated efficacy in clinical trials in both ulcerative colitis and Crohn's disease and is now approved. And so it allows for another option, which is wonderful, for individuals who don't respond to the other therapies.

So what about the risks? I did mention to you that we want to try to avoid long-term corticosteroid use, but there can be specific risks associated with the anti-TNF medications as well as immuno-modulators. However, these risks are quite rare. And I want to give you some of those numbers here in this slide.

If you think of a population of patients, of 10,000 patients that are treated for a year, in that population, in the general population, 2 out of 10,000 would develop something called non-Hodgkin's lymphoma. Now in individuals on an immunomodulator, that risk is slightly higher. It's usually around 4 out of 10,000. So while relatively it's higher, the absolute risk is still incredibly low. And the same is true of those on anti-TNF therapy with history of prior immunomodulators. Approximately 4 out of 10,000.

The other risk, a very rare risk, much rarer than that, is a risk of something called hepatosplenic T-cell lymphoma. It's so rare we actually can't quantify it, but there have been a little over 30 cases of this seen and associated with therapy for ulcerative colitis. And it seems to be young males that have been on combined therapy with anti-tumor necrosis factor alpha as well as immunomodulators. And this is something that we're continuing to monitor in terms of the risk and hopefully we'll be able to quantify and determine specifically what the risk factors are.

Death from sepsis certainly can occur, associated with untreated ulcerative colitis. People can develop infections, sepsis, and that risk is 4 out of 1,000.

Tuberculosis. Tuberculosis is very rare in the United States, less rare internationally. And so if you've been exposed to tuberculosis previously in an unknown – and did not know it, and were started on one of these medications, you do have the risk for reactivating that tuberculosis. Now if you have not been exposed, you do not have that risk. And so the way we prevent this risk associated with the biologic therapies is we actually test for tuberculosis exposure prior to initiation. And if you've never been exposed you can't develop it. And so we do something called a PPD test on your skin.

**DR. MILLIE LONG:**
Or there's now a new blood test called an interferon gamma release assay that will look for tuberculosis exposure. And likely for those of you that reported you are on biologic therapies, you had this test prior to initiation of that therapy.

So location, location, location. This is very important. As I've mentioned a few times now, the rectum is often responsible for the most nagging symptoms, and that's because it's right there at the end. Individuals can have significant frequency, urgency, nighttime bowel movements, and something called tenesmus, which is a very sharp severe pain with passing the bowel movement, and that's related to that inflammation very low there.

And rectal therapy can help to minimize these symptoms. And so don't forget the value of these topical therapies, things like enemas, suppositories. And they also make foams, because often when you're that inflamed in the distal rectum, you can't hold a full enema very well because you have urgency even associated with the enema. And so they have foam-based medications that will actually dissolve into the wall of the rectum and it's nothing you have to hold. And so those medications can be quite helpful in that scenario.

And what about surgery? I mentioned various medications that can be used, but there's also a surgical option for treatment of ulcerative colitis. Typically we use this option for individuals who are not responding to medication. And the number we quote is maybe 25% of individuals with ulcerative colitis will ultimately end up undergoing colectomy.

It's often considered a cure, but that is in quotation marks for a reason, for ulcerative colitis. But sometimes in individuals even after the surgery, symptoms can continue because people can develop some residual inflammation in their reconstructed pouch on the inside.

There are several different possible approaches. All of these approaches include removal of the entire colon. Even though you may only have inflammation on one side of your colon, studies have demonstrated over the years that if you only take out one side the rest of the colon will actually develop ulceration within it. The recommended surgery is to remove the entire colon. And temporarily, the small intestine is brought to the abdominal wall to create something called an ostomy. And a patient wears an appliance on the outside, an ostomy bag, to catch the waste. However, this is usually temporary, in that there's a reconstruction option called an ileoanal – IPAA, which is an ileal pouch anal anastomosis. And this is where you use – the surgeon will actually take part of your small bowel and basically reconstruct a new rectum in a J shape on the inside. And then they take down that ostomy bag on the outside, so the individual is in continuity.

The other approach is an ileoanal anastomosis and this is where the colon is removed, but the small bowel is hooked just directly to the anus itself. And then as I mentioned, that internal pouch does require two stages of surgery for completion.

**DR. MILLIE LONG:**
What about treatment strategies? Obviously our goal is to make you feel well, to make you feel like you don't have ulcerative colitis. And that's what I tell my patients. I want their remission to feel like they're not sick, that they don't have to know where every bathroom is. That's our goal, to improve your quality of life and have you reach clinical remission.

We certainly also want to prevent recurrence, prevent flares of disease, and control the impact of complications.

So we often will use a combined approach in our treatment strategies. What this graph demonstrates is kind of disease progression on the left and an arrow, where you have mild to moderate to severe. And on the right, various medications that can be used. The dark lines are induction therapies. The dotted lines are maintenance therapies. And so aminosalicylates, those medications, the mesalamine-based medications or sulfasalazine, those can be used both to induce and maintain a remission in individuals with mild disease. In individuals with more moderate disease, we often will have to use corticosteroids to induce remission, but both aminosalicylates or even immunomodulators can be used then to maintain remission.

With more severe disease, we often need to use again corticosteroids to induce remission and/or an anti-TNF medication, and then use immunomodulators, that anti-TNF medication, or a medication like vedolizumab to really maintain remission.

And so for those of you that are on combinations of medications, often you may be on an aminosalicylate and then also on an immunomodulator, or you may be on an aminosalicylate and an immunomodulator and an anti-TNF medication.

Obviously these medications are adjusted based on your individual scenario and the individual severity of disease.

So monotherapy refers to a single medication treatment. Combination therapy, multiple medications. And just as I mentioned in a prior slide, the choice of strategy certainly depends on disease severity, but also on individual patient considerations. Your thoughts and recommendations on which therapies you would like to take. And potentially there can be some differences based on age or gender as to the recommended therapy.

UC can have a huge impact on quality of life. Certainly there are practical consequences, things like unpredictable episodes of diarrhea, bleeding and cramping, as well as sudden urgency to use the restroom. Often individuals are tempted to avoid travel or activities where it's difficult to be in public and not know where a restroom is. We certainly don't want you to have to limit your life such as that. How can we help with that? Medications we use can help to really reduce inflammation and allow for clinical remission. One important thing to consider is that medication adherence is very important. There's a decreased chance of flare if you're adherent to your maintenance medication and an increased chance of obtaining remission.

**DR. MILLIE LONG:**
In one prospective study in patients with ulcerative colitis in remission, taking mesalamine, they found that the remission rate was markedly higher, here almost 90% in adherent patients, and only 40% in individuals who only intermittently took their medication.

And then as an aside, recognizing that medication adherence and continuing on maintenance therapy, can actually help from a colorectal cancer standpoint as well.

And so what about impact on quality of life? These are medications that can be used to help to improve quality of life. Methotrexate, aminosalicylates, biologics, antibiotics to some extent, steroids, and over-the-counter medications. Certainly there can be potential risks as evidenced here on the right side of the slide. But your physician is going to be monitoring for any of these risks. They're going to be monitoring blood work while you're on these medications, monitoring for symptoms or side effects. So it's very important to stay in a monitoring program with your physician, to have regular lab work as indicated, to help to prevent some of these complications.

And how else can we help? Managing a chronic illness can be difficult. But thinking about advance planning can be helpful. Overcoming fear of being in public. Particularly this is the case for some ileostomy patients who worry about bag slippage or leakage. Being prepared and having supplies. And maintaining social interactions can enhance self-image. These are all recommendations to help with managing a chronic illness.

Exercising is also very important. Exercising can help maintain weight and well-being. And certainly we know that exercise reduces stress and stress is a known risk factor for flare of disease. And so staying on a maintenance exercise regimen when you are in remission can potentially be helpful. Considering low impact activities, yoga, swimming, golf, bowling, walking. Know and plan for bathroom breaks. And listen to your body. And certainly when you're in a time period of exacerbation, we don't want you needlessly overdoing it. Consult with your physician and use exercise between flare-ups as much as you can.

There's also a role of diet. Now I wish that I could tell you specifically that there's one diet for all individuals with ulcerative colitis, but that is really not the case. It's very individualized. There's not a definitive link between diet and flare-ups. Certainly each individual should know what foods seem to trigger symptoms and limit those foods. I recommend to my patients that they kind of make a food diary and understand and see if there are any connections between types of food and increased symptoms. I have to admit one common trigger is dairy products. And so sometimes doing a lactose-free diet can help with some bloating and cramping.

Experiment with fiber. There's usually a right amount. There can be too much and there can be not enough, and so finding for your body what is the right amount.

And then also eating smaller meals can be helpful, instead of larger ones. Being sure to drink ample fluids. It's tempting when someone's having looser stools to cut back on hydration, to not have as

**DR. MILLIE LONG:**
many bowel movements, but that is not good for your body. You need to make sure that you do maintain adequate hydration.

And certainly you can consider nutritional supplements as well as probiotics.

And while this talk is not going to focus on diet, I do want to take one minute and recommend to you a webinar that the CCFA will be hosting on November 20, all on diet. So hopefully you'll be able to learn a great deal more about diet, not only in managing flares, but also during remission, at that time.

And importantly, something else that you can do that will really improve your care, is really strengthening your communication with your doctor. And what are some questions that you should ask if you don't know, so that you can communicate back and forth with your doctor about treatment plans for you. Knowing what parts of the bowel are affected, not just that you have ulcerative colitis, but knowing is it my rectum, is it my left side of the colon, is it the complete colon, the pancolitis. Talking to your doctor about a treatment plan that's suitable for you, based on your lifestyle and your disease severity and the distribution of your inflammation.

Talking to the doctor about nutritional supplements or probiotics, to see if that's something that could be of benefit for you. And really understanding what the side effects could be from medications that you're on, so you know what to look out for. Knowing how soon symptoms are expected to subside when you start a new medication. Should you be changing your diet or taking supplements? Are there any restrictions on your activities? And how often do you need a follow-up colonoscopy?

As I mentioned earlier in the program, once an individual with pancolitis has had disease ten years or an individual with left-sided colitis has had disease for 15 years, starting to have regular colonoscopies then to be preventive, to help to detect early changes of colorectal neoplasia, are very important.

So I'm going to now go to our third polling question. Because communication is just so important with your doctor and having the ability to ask these questions and have these discussions, I'd like to know how comfortable do you feel discussing concerns about managing ulcerative colitis with your doctor? Do you feel, A, very comfortable; B, comfortable; C, somewhat comfortable; or D, not comfortable at all.

So if you all can key in your poll results.

The majority say A, which is wonderful. I'm very glad that you have that sort of relationship with your physician, and really you should feel that way. And if you don't, I hope you will go back to your physician and really try to have some of these discussions. But that's great that this group is so involved with their physician.

Now I'd like to take a moment, you know, many of my patients ask me, well, how can I get involved and how can I help us to learn more about these conditions? And not everyone is at an IBD center where they can participate in a registry study or even a treatment study of a medication. But this is a

**DR. MILLIE LONG:**
wonderful opportunity for individuals to participate in research and actually gain something back from it as well, through an initiative called CCFA Partners. I am actually an investigator on CCFA Partners, and what this is is it's the largest internet-based study of individuals living with Crohn's disease and ulcerative colitis in the world. And so over 13,000 individuals have joined. And the website is www.CCFA Partners.org, as listed here. And you can go and check out the site and see what it's all about, but essentially you would log on and you just do a survey every six months, to update us on how you're doing, things like your diet, exercise, different factors, stress, anxiety, medications that you're using, that may be affecting your disease severity. And you fill out a few instruments that measure your disease activity through self-report, and measures of your quality of life, how you're feeling with your colitis then. And it's allowing us to follow people forward in time and actually study these things that are so difficult to study. Things like diet, exercise, and these factors that can really play an important role in disease.

And already there've been numerous publications. And you can actually go to the Results tab on the website and see some of the results of the study thus far. Just to describe one, in individuals with Crohn's disease, we've studied the role of sleep. And we actually found that if individuals had better sleep, they actually had a reduced risk of relapse. So that's very important, obviously if there are ways we can help our patients with sleep and rest, then that would really – and it would impact our life through reducing relapse, that's very important. And so that's just one example of many. And so I would encourage you all to check out the website for CCFA Partners and please join if you feel like you can spend 20 minutes twice a year and fill out a survey to help us to really understand how individuals live with ulcerative colitis.

So now I'd like to finalize with a few key points on ulcerative colitis.

So as you well know, ulcerative colitis is a chronic, relapsing disease of the large intestine. It causes inflammation and ulceration. Symptoms and prognosis are very different for each person. And I would encourage you to know the goals of your treatment strategies and discuss those with your physician. And importantly, take those tools to monitor your disease. Prepare for your visits, create checklists for your care, and really have open communication with your healthcare team, so that you can get the most out of your visits, and hopefully maintain your remission for a long time to come.

So at this point this concludes my presentation. And I'd like to turn it back over to Laura Wingate, who will moderate the question and answer session.

**LAURA WINGATE:**
Thank you very much, Dr. Long, for that informative presentation.

**LAURA WINGATE:**
Now it's time for the question and answer part of our program. For everyone's benefit, please keep your questions general without personal details, so Dr. Long can provide an answer that is general in nature. In the interest of time, I will also ask that you keep your questions related to the topic of ulcerative colitis. You are always welcomed to contact the IBD Help Center if you have other questions.

Operator, can you please give the instructions for our telephone and webcast audience?

**OPERATOR:**
To participate in the call by asking a question, please dial star-1 on your keypad. If you are joining us by web, simply click on Ask a Question, type your question, and then hit Submit. We will take questions in the order they are received. We only take one question per person. Once your question has been voiced, the Operator will transfer you back into the audience line. Again, to ask a question, please dial star-1 on your keypad or click on Ask a Question, type your question, and then hit Submit.

**LAURA WINGATE:**
Thank you, Operator.

Dr. Long, we're going to take our first question from our webcast audience and our first question comes from Bazia and Bazia wants to know "What indications should one take into account when deciding a surgical option for UC?"

**DR. MILLIE LONG:**
Bazia, this was a great question. And a surgical option is always there. The surgical option actually has great outcomes in individuals who have had severe colitis that have been medically refractory and have gone on to colectomy. Certainly there's a time period of recovery, you know, associated with the surgery itself, but you can have a staged reconstruction such that the ostomy bag on the outside is only temporary.

What happens after the surgery? Well, you clearly no longer have a colon. You basically have a new rectum that's made out of wall bowel. And the colon's only job is really to pull water out of the stool. And so once you've had the surgery to remove your colon, your bowel movements are somewhat looser than they would be if you didn't have a colon.

Now that said, after the surgery, the average number of bowel movements is somewhere in the neighborhood of five to six. And in individuals who have severe colitis, they're going much more than five to six. And so that's a very good outcome.

And the advantage is obviously there's no more urgency, there's no more bleeding, there's no more tenesmus. Those symptoms are gone because the inflammation is gone.

Now in a small percentage of patients, about 10% who have the surgery, you can develop something called pouchitis which is kind of an inflammatory reaction in the pouch associated with bacteria that

**DR. MILLIE LONG:**
may require intermittent antibiotic therapy. But overall outcomes can be quite good. And so because of that, colectomy is something that can be considered at many points along the treatment strategy.

Certainly with mild disease I would not recommend it because medications like the mesalamine-based medications are very safe and very effective in mild disease. But with more severe disease, individuals who've had reactions to medications or don't tolerate those medications well or don't have a response, this becomes an excellent option for management of ulcerative colitis. And so really for those individuals with medically-refractory moderate to severe disease, as you're starting on some of these medications, as you're on these recurrent courses of corticosteroids, it's very reasonable to meet with a colorectal surgeon. And that's the point at which I ask my patients to meet. I don't say you have to go to surgery now. Of course not. But just so that you're educated and understand what those surgical options are, kind of from that point moving forward. And that's typically what I recommend.

And some individuals will wait until the very end and they've exhausted every medication before moving on to surgery, and other individuals feel more comfortable moving onto it somewhat earlier. So it's kind of an individualized decision that you can make with your treatment providers.

**LAURA WINGATE:**
Thank you, Dr. Long.

Our next question comes from Bruce. "If remission is achieved with immunomodulators or biologics, do you continue to take them or once you go into remission, do you switch to aminosalicylates?"

**DR. MILLIE LONG:**
Bruce, that's a great question. And the answer is there's not one answer for everyone, but in general, if you are maintained in remission on a medication, I strongly recommend that you stay on that medication because that medication has kept you doing well and we worry that if you discontinue the medication, you can certainly have a relapse at one of these kind of lower less strong medications.

The other thing to consider is that some of the medications, namely the biologic medications, if you do stop those medications, you can then develop something called antibodies to them. Meaning that if you were to try to get back on that medication, you may not have as good a response or you may have an allergic reaction to that medication. And thus if you've found a medicine that works and has gotten you into remission and you're feeling very well, it's hard for me to want to say come off that medicine and, oh, by the way, we may not be able to get you feeling this well again if we tried to restart it. And so I often recommend staying on that medication. And we have data that demonstrate these medications will help to prevent relapse.

**LAURA WINGATE:**
Thank you.

**LAURA WINGATE:**
Our next question comes from Sharon and she wonders, "Can patients with UC have perianal fistulas or perianal abscesses?"

**DR. MILLIE LONG:**
So, Sharon, it's a good question because perianal fistulas can actually occur in individuals that don't even have Crohn's disease or ulcerative colitis. And so it's something that can occur.

Now that said, as this group likely well knows, Crohn's disease and ulcerative colitis mimic each other to a great extent. And sometimes we think someone has one and then their diagnosis is revised to the other. If an individual does have recurrent perianal fistulas and perirectal abscesses, it would put my radar up that the individual actually doesn't have ulcerative colitis, but may actually have Crohn's disease.

Now Crohn's disease can just involve the colon and can look very similar to ulcerative colitis. But having those factors just makes it be more of a consideration and it's something you should definitely talk to your physician about in terms of with those recurrent perirectal abscesses and perianal fistulas, is this really potentially a Crohn's disease.

**LAURA WINGATE:**
Thank you. Operator, can we take our next question from the telephone audience?

**OPERATOR:**
Our first telephone question comes from Celine in New York. Celine, please state your question.

**CELINE:**
Hi, my question is how likely is it that my children will develop UC?

**DR. MILLIE LONG:**
Celine, thanks for asking that, it's really important. So the answer is most likely not. What we do know is that if you have one parent with ulcerative colitis or Crohn's disease with a form of inflammatory bowel disease, the risk to the child is approximately 5%. So really fairly low. Now that is different if both parents have inflammatory bowel disease. If both parents have inflammatory bowel disease, it's somewhat higher, about 30%. And so take those numbers into consideration, there's obviously some variability there, but it is reassuring that the majority of individuals, children, will not have inflammatory bowel disease.

**LAURA WINGATE:**
Thank you, Dr. Long.

Our next question comes from Bob and he's wondering, "When should a UC patient have a chromoendoscopy?"

**DR. MILLIE LONG:**
So, Bob, thanks for that question. Let me tell the audience a little bit about what chromoendoscopy is, if you're not aware.

What chromoendoscopy is, is it's a special form of surveillance colonoscopy, where we use a kind of blue dye and it's a really cool dye that we actually put in the wash with our colonoscope. And this blue dye on the lining of the colon really highlights some of the mucosal level changes. And it allows us to see a little bit better and make sure that we don't see any raised areas or any abnormal architecture of the colon. And it helps us to target the biopsies that we're doing when we're surveying for colorectal cancer.

And so this is a form of surveillance, chromoendoscopy. We also have other forms of surveillance that use high definition colonoscopes, with really high powered scopes that also allow you to see very well. And at this point one is not necessarily recommended over the other. But what we do know is if there's a question of dysplasia, if there's a question of pre-cancerous changes, that chromoendoscopy becomes more important because you could really determine if it's an isolated area or if it is more diffusely involved. And so I do chromoendoscopy and most individuals do. Certainly in that setting. And some individuals will even do it routinely as part of the standard surveillance.

**LAURA WINGATE:**
Thank you for that comprehensive answer, Dr. Long.

The next question comes from Matt and Matt is wondering, "How many flares a year do you tolerate before escalating to a more aggressive therapy like an immunomodulator or a biologic?"

**DR. MILLIE LONG:**
So there's not a magic number, but what we really want to avoid is recurrent use of prednisone. Prednisone, believe it or not, is actually a really dangerous drug over the long term. Certainly we've seen a lot of increased infectious risk and some of the other complications, whether they be blood sugars or bone and other things, are really important. And if an individual requires one or two courses of prednisone and then gets into a stable remission, that's one thing. But once you've had three flares a year or have any difficulty coming off of corticosteroids, that's a time period where I would be really considering one of these alternate medications to minimize the steroid effects.

**LAURA WINGATE:**
Operator, can we take our next question from the telephone audience?

**OPERATOR:**
Our next question comes from Charles in Michigan. Charles, please state your question.

**CHARLES:**
Yes, I'm here, thank you so much. If you recommend that the UC patient use lactose-free milk to avoid having flare-ups, I was wondering – I don't have UC, but I have Crohn's disease, and I was wondering if you would recommend that advice for someone like me, who has Crohn's disease, Doctor. Thank you.

**DR. MILLIE LONG:**
Sure. And this gets at the point where there's not one dietary recommendation for all, certainly. But I can tell you that particularly during a time of flare, whether that be Crohn's or whether that be ulcerative colitis, a lot of patients tell me that they get a lot of bloating, gas and cramping. And one of the things that lactose can do is increase bloating, gas and cramping. And so one thing to consider is trying lactose-free during a time of flare, regardless of the underlying inflammatory bowel disease.

Now some individuals are not bothered by lactose at all. That's why really keeping a good dietary log for yourself, so you can see whether there may be a link to certain types of food, can be really helpful for you to minimize those exposures that may be exacerbating your symptoms.

And yet again, Bruce and others, there's going to be a diet webinar that the CCFA will be hosting that I strongly encourage you to participate in, that hopefully will give you some ideas dietary-wise, that's going to be on November 20th. And I know Laura will give us more information about that at the end of this presentation as well.

**LAURA WINGATE:**
Alright, thank you, Dr. Long.

Our next question comes from William and William is asking, "Can you comment on the likelihood of your body building a resistance to biologics, i.e., developing antibodies rendering the biologics ineffective?"

**DR. MILLIE LONG:**
Yes, and so this is one of the things that I touched on earlier. Now one thing we do know is that intermittent dosing of your biologic, meaning not taking it regularly as prescribed per its maintenance recommendation, increases your risk of developing antibodies and losing effectiveness to this medication. And so if you can do one thing, it's take the biologic regularly or come into your infusions at the assigned intervals.

The second thing is that there are some things we can do to help to minimize that. And actually adding a medication like an immunomodulator, a medicine like Imuran®, a medicine like azathioprine, or there's another called methotrexate, has been shown to help to reduce antibody formation and help to prevent that sort of allergic response from occurring over time with the biologics.

**DR. MILLIE LONG:**
And so certainly it is a possibility to lose response. But now that we have the ability to measure levels of these drugs and we understand the importance of regular dosing, that really helps to minimize those complications. And so really try to stay on track with your biologic dosing.

**LAURA WINGATE:**
Thank you.

Our next question comes from Margaret. "Are UC and Crohn's different manifestations of the same disease, i.e., can UC change into Crohn's?"

**DR. MILLIE LONG:**
So it's a continuum. But Crohn's disease is different at a pathologic level and a distribution level. So when things get kind of confused, when you're told you have ulcerative colitis, and then you develop Crohn's, often what's happened is is that your Crohn's disease initially had involved only your colon. And how it looked very much mimicked ulcerative colitis. So you were then thought to have colitis. But as that distribution changes and you start to develop, say, for example, small bowel inflammation, it becomes very clear that you actually have Crohn's disease rather than ulcerative colitis.

So it's not necessarily that one transforms into the other, but it's as your disease itself changes, you get more clues as to the true underlying etiology.

Now in many ways ulcerative colitis and Crohn's disease are treated very similarly. We use similar medications. But the one thing that is markedly different between Crohn's and ulcerative colitis is how we treat these diseases surgically, and that's when it becomes most important to know which of these you have.

**LAURA WINGATE:**
Thank you. Operator, we'll take another question from the phone.

**OPERATOR:**
Our next question comes from Douglas in New York. Douglas, please state your question.

**DOUGLAS:**
Yes, my question is nobody has mentioned Remicade®, but that has been the only drug that ever worked for me. It's been wonderful. The prednisone was an utter and complete and unmitigated disaster. I mean, the consequences of prednisone were absolutely horrible. I can't believe they prescribe that for ulcerative colitis. But Remicade®, I wonder about the long-term consequences of using it over – I've been taking it now for 20 years, well, not 20 years, since it was approved, I think it was 2005. I'm wondering about the long-term consequences in terms of effects. I've never had any side effects. It's been terrific. But long-term down the road – yes.

**DR. MILLIE LONG:**
And I appreciate you sharing that because the Remicade®, the other name for it is infliximab, and it's one of the biologic medications that I've been discussing. And it's a very effective medication for the treatment of ulcerative colitis. And as you mentioned, it helps us to avoid the steroids. Steroids are bad players. And it's wonderful that over a 20 year time span it's helped you to avoid steroids and that is really the goal.

Now as I mentioned, what we don't want to happen over time is an individual to lose response or lose effectiveness, and staying on schedule with your infusions certainly helps. We really, with these drugs, we have found they seem to be excellent in terms of side effect profile. The only two factors that have come out with any of these biologic therapies is that very rare 4 out of 10,000 risk of lymphoma, and there may be a risk of sun sensitivity because there can be a risk of skin cancer over the long term. And so whether you're on an immunomodulator, a medicine like azathioprine or mercaptopurine, or whether you're on a biologic, medications like Remicade®, Humira®, Simponi®, it's going to be very important to wear sunscreen, have skin checks, and just help to prevent skin cancer in that way as well.

But otherwise these are very good medications with a much better side effect profile than prednisone, as was mentioned by the caller.

**LAURA WINGATE:**
Thank you, Dr. Long.

Our next question comes from Daniel. "Is it common for ulcerative colitis patients to develop osteoporosis while taking only 5-ASA drugs, no steroids, over a long period of time?"

**DR. MILLIE LONG:**
So we don't necessarily think that ulcerative colitis itself is a risk factor for osteoporosis. The caller is correct in that the most common risk factor is the individuals who've had to use steroids over time.

Now one other factor is that – this is an epidemic in the US, not just among ulcerative colitis patients – but people in the US seem to have much lower Vitamin D levels than they once did and part of this may be because we're just not outside in the sunlight. Sunlight helps to make the active form of Vitamin D. And so it's possible that Vitamin D deficiency played a role in developing osteoporosis. And so one of the things I do in all my patients with inflammatory bowel disease, is once a year I check a Vitamin D level. And I maximize Vitamin D because that can help to prevent and keep bones very strong. And so I would encourage that. Recognize bone health, know that steroids are a risk factor, but that we should all potentially have a Vitamin D level checked and that can help prevent problems.

**LAURA WINGATE:**
Thank you.

**LAURA WINGATE:**
And this is our last question for this evening and it comes from Debbie. "Is there a link between UC and blood clots? How does one manage UC treatment, biologics, and anticoagulant therapy, warfarin?"

**DR. MILLIE LONG:**
So Debbie is exactly right. We do think there is a link between UC and blood clots. And the link is that if someone is very inflamed from their UC, that's a risk factor for clots. The other thing is you can imagine that if you were really inflamed and feeling pretty lousy, you're probably not getting out of bed that much. And immobility is a risk factor for clots.

The other two things that can be a risk factor for clots in ulcerative colitis patients are if you're a woman and you're on an oral contraceptive, that can increase your risk for clots. And if you smoke. And so quitting smoking is a wonderful way to reduce this risk. Helping to prevent flares is a wonderful way to reduce this risk because the active inflammation can cause this risk.

But if you do develop a blood clot, treating it with warfarin, also known as Coumadin®, usually over a six month time period is sufficient. But that medication does not interact with the biologic medications or these other maintenance medications that we use. So it's absolutely fine to be on the blood thinner and still be on the other medication.

But hopefully for the others out there in the audience, being aware that clotting risk out there and certainly during periods of inflammation, being aware to try to be mobile, certainly can help. And smoking cessation can help.

**LAURA WINGATE:**
Thank you.

I'd like to give the audience a few more resources that may be very valuable as you learn more about ulcerative colitis.

The American Gastroenterological Association offers the Helpful Patient Center with guides to GI procedure and information on diets and medication. To access these resources, visit www.gastro.org or the link shown on the slide.

The Crohn's & Colitis Foundation of America is also here to help. Our IBD Help Center is open Monday to Friday, 9 AM to 5 PM Eastern Time, at 888-694-8872, by email at info@CCFA.org, or you can chat online with an Information Specialist directly via Answer Chat at www.ccfa.org for more information.

If you would like to watch our other educational webcasts on IBD, please visit the website on your screen to explore the other IBD-related topics.

You can also connect with other patients through the CCFA Community website at CCFACommunity.org or by joining a support group or the local Power of Two peer-to-peer mentor program.

**LAURA WINGATE:**
I'd also like to mention GI Buddy, which is an online tracking tool and also available on mobile applications, that has everything you need to stay on top of managing your inflammatory bowel disease. Please visit www.ccfa.org for more information about GI Buddy.

You can also participate in other educational programs by connecting to your local chapter at – and you can find more information about our chapters at www.ccfa.org.

And lastly I'd like to talk to you about our upcoming programs. If you are looking for other ways to get involved with CCFA, join a local Take Steps walk or Team Challenge event. These are fun, family-friendly events that help raise mission-critical funds and awareness around inflammatory bowel disease. Please visit our website and the links you see on your screen below to learn more.

Finally, we'd like to extend a special thank-you to the American Gastroenterological Association for cosponsoring this program. In addition, we'd like to thank Abbvie, Janssen Biotech, Inc., administered by Janssen Scientific Affairs, and Takeda for their support of this program.

We hope you will join us on October 30th, next week, for our educational webcast and teleconference on biological therapy in IBD. Visit www.ccfa.org/resources/webcasts for more information.

On behalf of the Crohn's & Colitis Foundation of America, thank you for joining us tonight. Have a good evening.

**END**