

Colorectal Cancer Screening and Treatment

Early detection is key

Physicians always stress to patients the importance of early detection for cancer, advising that the sooner cancer is found and treatment is started, the better the outcomes. But for colorectal cancer, there's a unique story to tell. Proper screening finds cancer in the early stages, when it's most treatable. It detects the adenomatous polyps that can be precursors to cancer and provides an opportunity for those precancerous growths to be eliminated. Cancers of the colon and rectum can literally be stopped from developing.

Colorectal carcinoma is a neoplastic growth of the mucosa of the lining of the colon and rectum. Most of these cancers are adenocarcinomas and nearly 90 percent of these tumors occur in patients after the age of 50. Colorectal cancer is the third most common cancer diagnosed and totals nearly 133,000 cases per year in the U.S., according to the American Cancer Society (ACS). This breaks down to approximately 93,000 cases of colon cancer and almost 40,000 cases of rectal cancer.

What are the signs and symptoms?

Unfortunately, colorectal cancer is often symptomless, though patients should

report any of these symptoms to their primary care physician for possible follow-up:

- Blood in the stool
- A change in bowel habits
- A change in the size, shape or caliber of the stool
- Abdominal pain
- Unexplained weight loss

Parameters for Screening

Recommendations by the ACS are based on three risk categories: average, moderate and high. While gender does not seem to be a risk factor, age is, and risk increases after age 50. Average risk is defined as all people 50 years or older who do not have any personal or family history of adenoma, carcinoma or predisposing disease. This category encompasses 70 to 80 percent of the U.S. population. The recommendations state that people who are considered average risk undergo screenings between ages 50 and 75.

Individuals at high risk should start screenings earlier and have more frequent follow-ups. People considered to be at higher risk include those with a family history of polyps, colon cancer or uterine cancer; individuals with inflammatory bowel disease; anyone with a

personal history of polyps; and persons with inherited syndromes such as familial adenomatous polyposis and hereditary nonpolyposis colorectal cancer, also known as Lynch syndrome. In addition, recent studies show that because African-Americans have a higher risk of colon cancer, they may want to start screenings at age 45.

“Researchers at Stony Brook and many other U.S. and international institutions continue to delve into the causes, prevention and treatment of colorectal cancers. But it's important to remember that research has proven that screening of colon cancer saves lives. Having precancerous polyps removed before disease develops is an important intervention that reduces the chances of having colon cancer.”

– **Vincent Yang, MD, PhD**, *Simons Chair and Professor, Department of Medicine*

The Stony Brook Approach

At Stony Brook, colonoscopies are considered the gold standard in screening for colorectal cancer. Two types of colonoscopies are offered: optical or traditional colonoscopy and computed tomography (CT) colonoscopy, also known as virtual colonoscopy. For details on these screening procedures, turn to page 2.

Stony Brook's Multidisciplinary Colorectal Oncology Team

At Stony Brook University Cancer Center, the latest protocols and treatments for colorectal cancer are offered by the Colorectal Oncology Management Team. This multidisciplinary approach ensures coordinated care tailored to the needs of each patient.

Colorectal surgeons perform robotic-assisted surgery in addition to open surgery and laparoscopic surgery. Each type of surgery has a purpose and each case is evaluated to determine the best course of treatment.

Robotic-Assisted Surgery

Stony Brook Medicine acquired the da Vinci® Surgical System — the first system approved by the Food and Drug Administration in 2000. In fact, our medical center was the first on Long Island to acquire the most technically advanced model of the robot.

Robot-assisted surgery has added a new dimension to surgical options for patients with colorectal cancer. The surgeon is in full control of the robotic system, which translates his or her hand movements into smaller, more

precise movements of tiny instruments inside the patient's body. Surgeons first make a few small incisions, similar to what's done in traditional laparoscopy. But, the robotic system features a magnified 3D high-definition vision system and special wristed instruments that bend and rotate far greater than the human wrist. As a result, the robotic system enables the colorectal surgeon to operate with enhanced vision, precision, dexterity and control. And this technique has proved its safety profile in both colon and rectal surgery.

“The robot represents a major advance in colon and rectal surgery that offers patients more benefits than the conventional surgical approach,” said Roberto Bergamaschi, MD, PhD, Professor of Surgery, and Chief, Division of Colon and Rectal Surgery. “In addition, we are the first to have published evidence that robotic-assisted surgery for rectal cancer provides a radial resection margin larger than the margin laparoscopic or traditional surgery can offer. This is very important, because radial resection margin is the metric that predicts survival.”

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Sharing My Story

“I'm lucky. My doctor scheduled a follow-up colonoscopy for me in November 2010. On my original colonoscopy, they found a polyp, which was taken care of. From the second one, I was diagnosed with stage I rectal cancer. My doctor recommended Dr. Bergamaschi and Stony Brook Cancer Center. Dr. Bergamaschi removed the tumor robotically, leaving my colorectal system intact and preserving my quality of life. I'm grateful every day that I was sent to Dr. Bergamaschi. I am now four years cancer free and I feel great.” – Mike K.

TREATMENT:

The patient received an intersphincteric resection (ISR), which is a procedure indicated for rectal cancers abutting the dentate line. The surgeon removed the internal anal sphincter while preserving the external anal sphincter and levator ani muscles. ISR is a delicate surgical procedure with a hand-sewn coloanal anastomosis. It is considered the only alternative to removing the anus with a permanent colostomy.

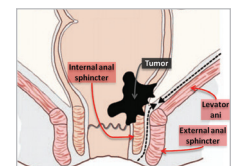


Illustration of the tumor



Message From the Deputy Director

Samuel Ryu, MD
Deputy Director, Clinical Affairs
Stony Brook University Cancer Center

Anticipation is growing among the Cancer Center physicians and staff as we count down in months — instead of years — to the opening of the Medical and Research Translation (MART) building next spring. The dream is tangible: the walls now surround a portion of the steel frame and indoor construction is progressing.

We are also actively expanding our innovative cancer programs and creating new ones as we hone our strategic plan. One major focus is on prevention and early diagnosis through screening programs. We successfully launched the Center for Lung Cancer Screening and Prevention, which uses a computed tomography (CT) scan instead of an x-ray for screening of individuals at high risk. When a tumor is detected early, curative treatment options are available with either conventional or cutting-edge technologic therapy for the best outcomes. These advanced multidisciplinary treatments are being performed by physicians with disease-specific expertise for personalized care.

This issue is dedicated to the colorectal cancer screening program at Stony Brook, where both optical and virtual colonoscopies are performed. I am proud that our team of experts continues to develop the program through research and education.

I personally invite you to discuss any aspect of our cancer program with me. The Cancer Center staff and I look forward to working as a partner with you to optimally serve the community.

Did You Know?

Stony Brook was one of the original pioneers in virtual colonoscopy. The software used to read virtual colonoscopy described in the landmark research paper published in 2003 by *New England Journal of Medicine* (NEJM) was invented at Stony Brook and continues to be used today.

Prevention and Detection of Colorectal Cancer with Screenings at Stony Brook Cancer Center

Optical colonoscopy. At Stony Brook Medicine, patients who are ages 50 to 75 and deemed “average risk” or have no significant health risks are scheduled for an optical colonoscopy through the Division of Gastroenterology and Hepatology. This screening procedure has two objectives: Find polyps or tumors throughout the colon and rectum, and perform a polypectomy on any size polyp that is detected. Removing the polyp reduces the risk of developing colorectal cancer. When a precancerous lesion is found, an optical colonoscopy is needed every three to five years. If the screening reveals no abnormalities, the patient can wait 10 years to have a follow-up colonoscopy, assuming there are no medical complications during that same time period.

Individuals who have not had their initial colonoscopy and who have complicated medical histories are scheduled for an office visit with a board-certified gastroenterologist in the division prior to a colonoscopy. There are several reasons why an individual may need to have a colonoscopy before age 50, including rectal bleeding, anemia and a change in bowel habits. Patients should discuss these concerns with their primary care physician or gastroenterologist.

While people often dread undergoing a colonoscopy, it is important to know that recent changes in both preparation and procedure make it a gentler experience. Now, a smaller amount of liquid with an improved taste is used for bowel preparation. Also, patients undergo a short, fast-working, deep sedation that has minimal side effects, including no memory of the procedure. Because patients are sedated, they will need to arrange for someone to drive them home.

When Cancer Is Diagnosed

At Stony Brook, when cancer is diagnosed, the patient is immediately referred to our colorectal surgeons, who often see the patient at the time of the colonoscopy. Immediate follow-up is arranged so that the patient can have radiology tests performed in an expedited manner. The patient will then undergo expert laparoscopic removal of the tumor and the patient is referred to medical oncology to discuss if any further therapy is indicated. The patient receives counseling regarding a more intensive surveillance program and may be referred for genetic testing. Information is given regarding more aggressive screening for family members. ■

Virtual colonoscopy. Also known as computed tomography (CT) colonography, virtual colonoscopy is a safe, highly accurate minimally invasive CT imaging examination of the entire colon and rectum. It is a well-tolerated exam that takes about 10 minutes to complete. Its goal is the same as that of traditional colonoscopy: to identify polyps and cancers in the colon. Polyps have been shown to be the precursor of most colon cancers, and the goal of virtual colonoscopy is to find these potentially dangerous polyps before they become actual cancers.

Virtual colonoscopy does not require any sedation, and therefore patients can drive themselves to and from the procedure and immediately return to work. Virtual colonoscopy uses only a small very flexible tube with only the tip inserted, which essentially eliminates the risk of colon perforation and complications. At the end of the exam, the carbon dioxide used to distend the colon is decompressed, giving patients immediate relief. In addition, virtual colonoscopy involves minimal radiation.

Candidates for Virtual Colonoscopy

Virtual colonoscopy is appropriate for all patients who are candidates for colon cancer screening. It is especially useful for patients who are at risk and cannot undergo traditional colonoscopy or who have had a prior incomplete colonoscopy.

Expected Outcomes and Follow-Up

Ninety percent of average-risk patients who undergo virtual colonoscopy will have no polyps detected and will not need further testing. These patients should return for routine screening in five years. Ten percent will have one or more polyps greater than 6 mm detected and will need to undergo optical colonoscopy to remove the polyps. In some of these patients, where the risk of undergoing colonoscopy may be greater than the risk of leaving the polyp in place, short-term follow-up with a repeat CT colonography in three years may be recommended.

Virtual colonoscopy screening requires bowel preparation the same way the traditional method does. A benefit to the virtual exam is that it can detect unsuspected medical problems outside the colon. While only 1 in 300 patients who has a virtual colonoscopy screening will have colon cancer, up to 1 in 200 patients has been shown to have an unsuspected kidney, lung or lymph node cancer.

For those who refuse or cannot endure either an optical or virtual colonoscopy, an annual immunochemical fecal occult blood test (iFOBT) is strongly recommended (see table below). ■

SCREENING OPTIONS: For the detection of precancerous polyps and cancer

Test	Description	Frequency	Advantages	Considerations
Optical Colonoscopy (Screens entire colon)	The rectum and total colon are looked at using a flexible tube with a built-in camera and light called a colonoscope. Abnormal growths can be found and removed or biopsied.	Every 10 years	<ul style="list-style-type: none"> • Can look at entire colon and rectum • Allows for polyps to be taken out at time of exam • IV sedation used for comfort 	<ul style="list-style-type: none"> • Cleansing of the colon is required (bowel prep) • Sedation with recovery time; patient needs a single day off of work • Patients need a driver to take them home
Virtual Colonoscopy (Screens entire colon)	A CT scan of the abdomen is done while gas (CO ₂) is put into the colon. Special computer software builds a 3D model of the total colon and rectum. This is viewed by a radiologist to look for colon polyps and cancer.	Every 5 years	<ul style="list-style-type: none"> • Can look at entire colon and rectum • Patients can return to work/activity following the test, unless optical colonoscopy is required • No IV or sedation required 	<ul style="list-style-type: none"> • Cleansing of the colon is required (bowel prep) • If a polyp is found, optical colonoscopy is required to remove the polyp • CT images provide a limited view of other internal organs • No driver needed to take the patient home

ADDITIONAL SCREENING OPTIONS

Test	Description	Frequency	Advantages	Considerations
Immunochemical Fecal Occult Blood Test (iFOBT)	This test checks for invisible blood in the stool and can be completed at home by collecting one stool sample. If blood is found in the stool, this may be due to a polyp or cancer and more testing is needed.	Every year	<ul style="list-style-type: none"> • No bowel prep is needed • May be done at home • Most affordable option for uninsured patients 	<ul style="list-style-type: none"> • Does not detect polyps at an early stage • May have false-positive and false-negative results • Colonoscopy is needed if test is positive for blood
Multitarget Stool DNA Testing (Cologuard™)	This test checks for 7 DNA mutation biomarkers and 2 DNA methylation biomarkers. A single stool sample is collected at home.	Interval determined by physician	<ul style="list-style-type: none"> • No bowel prep is needed • May be done at home 	<ul style="list-style-type: none"> • Better detection of advanced polyps than iFOBT • Colonoscopy is needed if test is positive • Cost is high

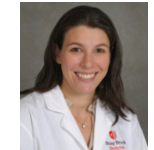
Referring physicians or patients:
Call (631) 444-COLON (444-2656) for an optical or virtual colonoscopy.

Referring physicians:
Call (631) 638-2121 to schedule a virtual colonoscopy for your patient.

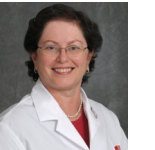
Focus On New Clinical Program



New Cardio-Oncology Program Instituted



Michelle Weisfelner Bloom, MD
Cardiologist



Lea N. Baer, MD
Medical Oncologist

An innovative program, partnering the expertise of physicians from Stony Brook University Heart Institute and Stony Brook University Cancer Center, has been established to address the unique need for cardiovascular care in patients with cancer. Patients with cancer require careful attention for potential cardiovascular complications at all stages of their cancer therapy, from initial diagnosis, during subsequent treatment, and well beyond completion of therapy. Patients may already have known or undiagnosed cardiovascular disease at the time of a cancer diagnosis, putting them at higher risk for adverse effects from cancer therapy. Even in those who do not have heart problems, such patients may develop heart dysfunction during cancer therapy. For those who have completed treatment, there are ongoing long-term cardiac concerns.

With the Cardio-Oncology Program, operations between the Heart Institute and Cancer Center are streamlined, coordinated and facilitated, to safely administer care to this patient population. Heart Failure Cardiologist Michelle Weisfelner Bloom, MD, and Medical Oncologist Lea Baer, MD, are the co-leaders of this initiative.

“The Heart Institute has always cared for patients with cancer on a case-by-case basis. Now, as we embark on this exciting collaboration, all patients will have access to early surveillance, comprehensive imaging and personalized cardiac care to maximize the chances for optimal outcomes,” said Dr. Bloom. “By creating a team of cardiologists and oncologists, we will work together to improve disease prognosis and patient survival. This initiative furthers our commitment to focus on novel, comprehensive ways to benefit our patients.”

The program offers close monitoring of patients with, or at risk for, heart-related complications through clinical evaluation, blood tests, and state-of-the-art non-invasive imaging at the Heart Institute under the direction of Smadar Kort, MD, Director, Cardiovascular Imaging. “This is one of the main advantages of an academic medical center. These premier services are all offered through Stony Brook facilities and we can build on that by collaborating with our colleagues in other medical specialties,” said Dr. Baer.

For more information or to schedule a consultation with the Stony Brook Cardio-Oncology Program, call (631) 444-9746.