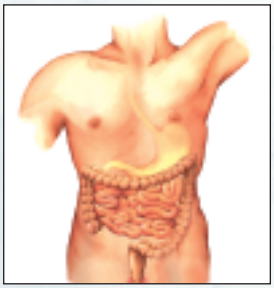
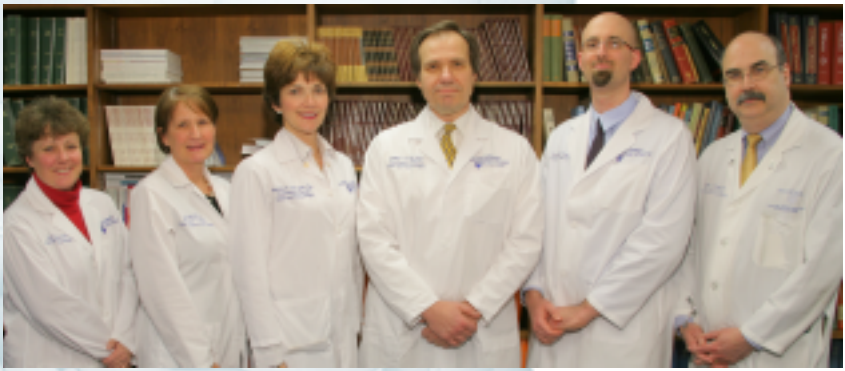
Colorectal Cancer



A Patient Guide



PENNSTATE HERSHEY
Colon & Rectal Surgery

Comprehensive Colon & Rectal Care

Colon and rectal cancer is the third most common cancer in both men and women in the United States, and the second leading cancer killer in men and women. More that 140,000 new cases are diagnosed each year, and more than 50,000 men and women die each year from colon and rectal cancer. Early screening, advances in chemotherapy and radiation along with surgical techniques that can preserve the muscles of continence have improved the quality of life for patients with colorectal cancer.

The board-certified physicians at Penn State Milton S. Hershey Medical Center have been providing treatment to patients with colon and rectal cancer for over ten years. Our skilled surgeons utilize state-of-the-art diagnostic capabilities, the latest drug therapies and leading-edge surgical techniques to provide the most advanced and effective medical care available.

Introduction

To our patients and families:

This booklet was written for you by members of your healthcare team to educate you about colorectal cancer, the surgical options for its treatment and the associated medical management of the disease.

We know that surgery is a stressful event, and we believe that an understanding of the process can help reduce these fears. We encourage you to share this information with your families and significant others.

This booklet will discuss many aspects of colon and rectal cancer, including sphincter sparing surgical procedures.

This booklet describes the following:

- Normal anatomy
- Explanation of colon and rectal cancer
- Staging of colon and rectal cancer
- Surgical procedures involved
- Pre- and postoperative care
- Chemotherapy and radiation
- Stoma care—ileostomy and colostomy
- Postoperative surveillance
- Risk for family members

We believe that patients are critical to the recovery process, so your participation is important. Please come to us with your questions and concerns.

Sincerely,
Your healthcare team:

Walter Koltun, M.D., F.A.C.S., F.A.S.C.R.S.
Chief, Division of Colon and Rectal Surgery; Peter and Marshia Carlino Professor in Inflammatory Bowel Disease

Lisa Poritz, M.D., F.A.C.S., F.A.S.C.R.S.
Associate Professor of Surgery

Kevin McKenna, M.D., F.A.S.C.R.S.
Assistant Professor of Surgery

David Stewart, M.D.
Assistant Professor of Surgery

Marjorie Lebo, M.S.N., C.R.N.P.
Certified Registered Nurse Practitioner

Amy Sheranko, M.A.
Medical Assistant

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Normal Anatomy & Function of the Colon and Rectum

The gastrointestinal (GI) tract begins at the mouth and ends at the anus. The GI tract digests and stores food, absorbs vitamins and nutrients and eliminates wastes. The small bowel absorbs much of the nutrients and then passes the material into the colon.

Large Bowel or Colon

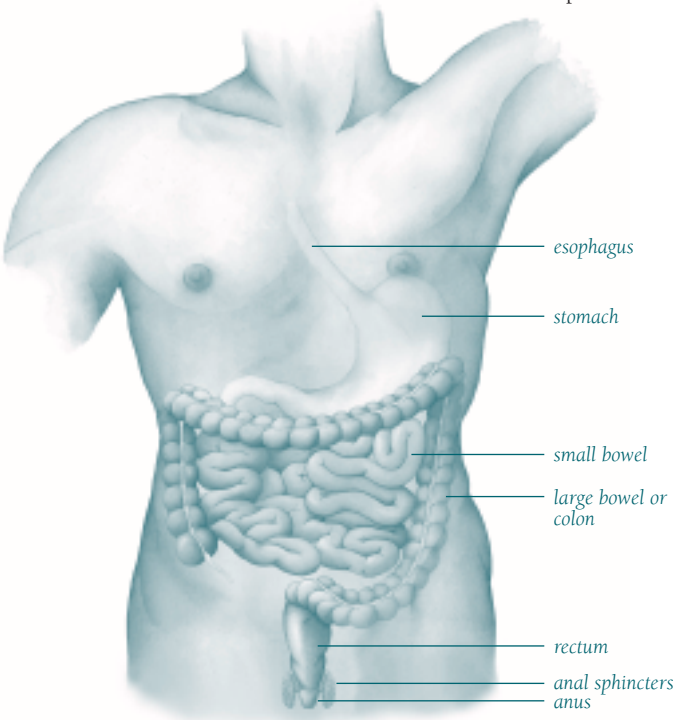
The large bowel has two major functions—absorption of water and storage of stool. As water is absorbed from the paste-like liquid passed from the small intestine, the material that remains becomes semi-solid stool. The stool is stored in the large bowel until it is passed (defecated) through the anus. An adult's colon is approximately five to six feet long.

Rectum

The rectum is the last part of the colon and extends about 15-20 cm from the anus. When your rectum becomes filled with stool, you feel an urge to defecate. As the anal sphincters relax, the rectum squeezes and expels stool.

Anal Canal and Sphincters

The anal canal is surrounded by two sphincter muscles, the internal anal sphincter and the external anal sphincter, that help to maintain continence.



Overview of Colon and Rectal Cancer

The majority of colon and rectal cancers begin as benign polyps. Benign polyps are non-cancerous growths of the lining of the colon and rectum that, with time, get larger and can grow into cancers. Removal of polyps helps to prevent colon and rectal cancers. Colonoscopy and barium enema are two procedures that help to find polyps before they can grow into cancers.

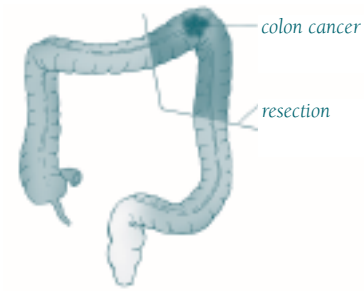
Cancers are also growths of the lining of the colon and rectum but differ in that they have the ability to spread to other organs. Polyps do not spread but eventually turn into cancers that can spread. We attempt to find polyps or cancers early before they grow too big or have spread too far.

Nearly all colon and rectal cancers will need surgery of some type. The type of operation you will have for your cancer depends on the size of your cancer and its location in the colon or rectum.

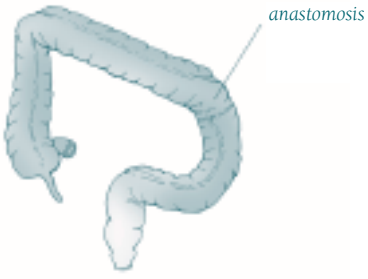
Colon Cancer

Sixty-five percent of patients have cancer limited to the colon, higher than 15-20 cm from the anal opening. When the cancer is limited to the colon, the section of the colon containing the cancer can be removed and the two healthy ends of the bowel reconnected, usually without the need for a colostomy or "bag". The patient resumes normal bowel movements and does not notice that they have less colon. Depending on the size of your cancer, you may need chemotherapy following surgery.

Operation for Colon Cancer



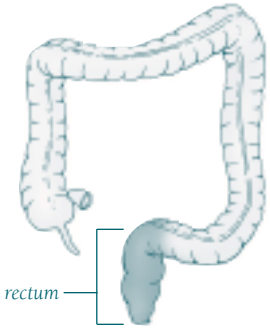
Before: *Colon with cancer*



After: *Colon with segment removed*

Rectal Cancer

Twenty to thirty percent of patients have cancer in the rectum. The goal of surgery for rectal cancer is to remove all the cancer and surrounding tissues that may contain cancer cells, but at the same time give patients as much "normal" rectal function as possible. The location of the tumor in the rectum, including the distance from the anal opening, and the size and depth of the tumor determines the type of operation that is needed.



Types of Operations for Rectal Cancer

Low Anterior Resection or Colo-Anal Anastomosis

The majority of rectal cancers are removed this way. A segment of the rectum is removed through an incision in the abdomen and the colon is hooked up to the remaining healthy rectum. This can usually be done without a colostomy or an ileostomy.

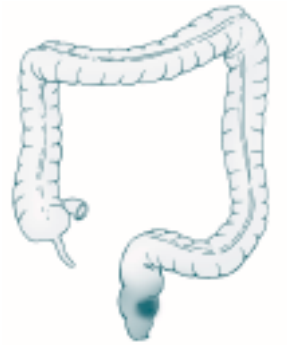
Before: *Colon with cancer in mid-rectum*

After: *Colon with segment removed*

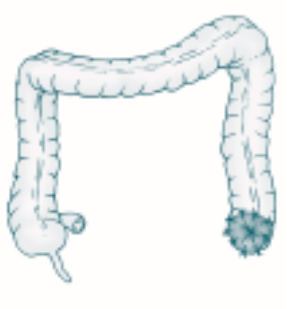
Types of Operations for Rectal Cancer *(cont.)*

Abdomino-Perineal Resection (APR)

Five to ten percent of patients have cancer very close to the anal opening and require this operation. In this operation the entire rectum, anal canal, and anal sphincter complex are removed. Because the sphincter muscles control the release of bowel movements, you will need a permanent colostomy.



Before: *Colon with cancer in lower-rectum*



After: *Colon with rectum removed and colostomy in place*

Transanal Excision

Very small cancers that are near the anus can often be completely removed through the anus. This preserves anal function and normal stool elimination. There is no skin incision since all the surgery is done through the anus.

Transsacral Excision

Small cancers, a little higher in the rectum, may sometimes be removed through the tailbone area. Again, this preserves normal elimination but can only be done for small or early cancers. The operation does have an incision next to the tailbone near the anus.

Colon and Rectal Cancer Staging

You may hear your physician talking about the stage of your cancer. Staging of colon and rectal cancer helps to determine prognosis and to decide which patients should receive additional therapy in the form of chemotherapy and possibly radiation.

This is dependent on a microscopic examination of the tumor removed at the operation. There are two staging systems: the older system is called Dukes' Classification and the newer system is the TNM Staging System.

Dukes' Classification	
A	Tumor is confined to the mucosa of the colon or rectum
B1	Tumor is confined to the bowel wall, but deeper than the mucosa
B2	Tumor goes all the way through the bowel wall
C1	Same as B1, but with cancer in the draining lymph nodes
C2	Same as B2, but with cancer in the draining lymph nodes
D	Cancer has spread to other organs (liver or lung)
TNM Staging	
Stage 1	Tumor is confined to the mucosa of the colon or rectum
Stage 2	Tumor is confined to the bowel wall
Stage 3	Tumor is in the lymph nodes
Stage 4	Cancer has spread to other organs (liver or lungs)

Risk of Colon Cancer for Your Family Members

Although it is not completely understood, family history (or genetics) plays a role in determining who is at risk for colon cancer. Your family members are at increased risk for developing colon and rectal cancer—especially if you are under the age of 50 when you get your cancer. They should notify their family physician that they have a relative with colon and rectal cancer so that the doctor can decide if they need to have a colonoscopy.

There are two known genetic familial syndromes that predispose patients to develop colon and rectal cancers at a young age. They are Familial Adenomatous Polyposis (FAP) and Hereditary Non-Polyposis Colon Cancer (HNPCC). If your doctor thinks you have one of these syndromes, he/she may suggest that you undergo genetic testing and possibly have further screening tests for other types of cancers.

What to Expect During Your Hospitalization

The Preoperative Visit

After you have been seen by one of our colon and rectal surgeons and have decided upon surgery, you will be scheduled to have a preoperative visit to prepare for surgery. You will be given prescriptions and instructions to follow the day before surgery, including "bowel prep" instructions. Blood will be drawn for laboratory tests and a urine sample will be taken; you may also have a chest X-ray and an EKG. Medications to take the morning of surgery will be reviewed.

If necessary, you will be seen by an enterostomal therapy nurse who specializes in caring for ostomy patients. This nurse will teach you about ileostomies or colostomies, answer your questions, and mark a location on your abdomen where she recommends that the surgeon place the stoma. If this marking is not done during the preoperative visit, it will be done the morning of surgery.

The Day Before Surgery

Most patients are admitted on the day of surgery. The day before surgery, you will be contacted at home by a nurse from the Same Day Unit (SDU). If surgery is scheduled for Monday, the SDU nurse will contact you on Friday. The nurse will tell you what time to come to the hospital and where to go for admission.

Bowel prep

Before surgery, it is essential that the bowel be as clean as possible to prevent infection. To do this, you will follow a standard "bowel prep." You will be instructed to drink a solution that has a strong laxative effect (such as CoLyte, GoLytely, NuLytely), to take some antibiotics and to follow a liquid diet. (Do not eat solid foods). The antibiotics decrease the amount of bacteria in the bowel to lessen the risk of infection.

You should not eat or drink anything after midnight.

What to Expect During Your Hospitalization *(cont.)*

The Day of Surgery

Usual medications

If you have been told to take any medications at home before surgery, take them with small sips of water.

You will be admitted to the hospital the day of the operation. Patients are usually hospitalized for four to six days after the surgery.

The surgery will take between two and four hours. With preparation before surgery and time in the recovery room, it will be approximately six hours before you are admitted to your hospital room.

Family members may wait in the surgical waiting area. The surgeon will either call or visit with family members after the surgery, so they should sign in and out with the volunteer if they leave the waiting area.

Recovery Room

After surgery, you will be taken to the Post-Anesthesia Care Unit (recovery room), where you will be monitored closely until you awaken fully from the anesthesia. No visitors are allowed in the recovery room. You will then be admitted to an inpatient unit.

Intravenous Line(s)

You will have at least one intravenous (IV) line. An IV is a long, flexible tubing connected to a small catheter that is inserted into the top of a hand or an arm. It is used to give fluids and medications. The IV will be used until you are taking enough fluid by mouth to prevent dehydration, usually about 4 days.

Drainage Tubes

While you are asleep in the operating room, the following tubes and drains may be placed:

The nasogastric (NG) tube is used to drain stomach fluids. It is placed through the nose into the stomach. Usually this tube is removed in the recovery room, and patients do not remember having it. Sometimes the tube is left in place to be removed later.

A urinary catheter is placed in the bladder to collect urine. It is painlessly removed several days after surgery. One or two pieces of soft rubber tubing may be left in the abdomen to drain accumulated fluid coming out through small incisions. These will be removed a few days after surgery.

Pain Control

Before surgery, you will talk with the surgeon and anesthesiologist about pain control. The three of you will decide which method of pain control will be the best choice. Two of the possible methods that can be used after colon and rectal surgery are epidural analgesia or patient controlled analgesia (PCA).

What to Expect During Your Hospitalization *(cont.)*

Epidural analgesia consists of placing a small, thin catheter into the patient's back, outside the spinal cord. The epidural catheter is inserted while the patient is in the operating room. When medications are given through this catheter, a patient feels numb in the general area of the abdominal surgery. This catheter is left in for three to four days after the surgery to control pain.

The PCA is a small pump attached to the IV line by a hand-held control button. The patient can receive medication to control pain by pushing this button as needed.

Pain Scale

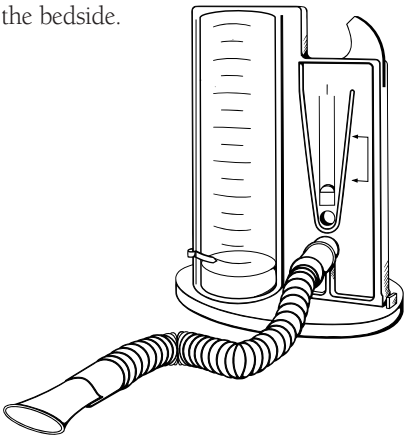
Nurses will frequently ask you to rate your pain on a scale of 0 to 10, with 10 being the worst pain you have ever felt. If you have significant pain, tell a nurse so that your medications may be modified. You may not be totally pain-free, but your pain should be at a tolerable level that will allow you to breathe deeply, get out of bed and walk.

Activity

It is essential to begin moving as soon as possible after surgery to prevent complications from bed rest. These complications include blood clots in leg veins and respiratory infections. On the day of surgery, you will get out of bed and sit in a chair (with the assistance of a nurse) at least once. The first day after surgery, a nurse will help you get up and walk.

Breathing Exercises

Nurses will also encourage you to cough and deep breathe to prevent pneumonia. You will be taught breathing exercises called incentive spirometry breathing (ISB). For these exercises, you will use a small, hand-held machine kept at the bedside.



What to Expect During Your Hospitalization *(cont.)*

Diet

Initially, you will not have anything to eat or drink. As normal bowel function returns, your diet will be advanced in steps.

Clear liquids

You will begin with small sips of clear liquids (water, fruit juices)—one medicine cup full of liquid per hour. When you tolerate this without nausea, vomiting, or increase in pain, you may have as many clear liquids as you like. You will get a tray of liquids at meal time (juices, tea, broth, Jell-O). You may not have carbonated liquids.

Full liquids

When you tolerate clear liquids without any difficulty, your diet will be advanced to full liquids. This diet includes clear liquids as well as creamy soups, milk, eggnog, ice cream, and cream of wheat. If you have lactose intolerance, please tell the surgeon before being placed on full liquids.

Low-fiber diet

After you are able to tolerate full liquids, you will be advanced to a low-fiber diet for approximately one to two weeks. This mostly consists of avoiding raw fruits and vegetables. The low-fiber diet helps avoid difficulties with stool passing through your anastomosis. You will be given a phone number you can call after discharge in case you have any questions about the diet.

Discharge

Patients who have had abdominal surgery are usually discharged four to six days after surgery. Discharge instructions include information about caring for the incision, activity guidelines, signs and problems to watch for, and how to reach a physician if you need advice at home.

At the time of discharge, you should be walking independently, tolerating at least a liquid diet without difficulty, and be urinating without any difficulty.

Follow-Up Care

Before discharge, a clinic appointment will be scheduled with the surgeon (usually one to four weeks after discharge). Follow-up appointments will be scheduled with Oncology and Radiation Therapy if needed.

Follow-Up After Surgery for Colon and Rectal Cancer

Physician Visits

You should schedule a checkup with your surgeon, the oncologist, or your family doctor every three months for the first two years following your surgery.

Tests

Blood tests may be ordered at each visit depending on your type of cancer. A chest X-ray and CT scan of your abdomen may be ordered one year after your surgery.

Colonoscopy

You will need to have a follow-up colonoscopy one year after your surgery. If there are no signs of new polyps, you will require another colonoscopy three years later and then five years after that, although this is variable based on your type of cancer.

Stoma (Ostomy)

An ileostomy is when an end of the small intestine is brought up to the skin by surgery and wastes are eliminated into a bag. Wastes are usually liquid.

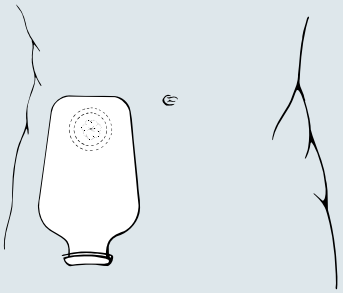
A colostomy is when the end of the colon is brought up to the skin by surgery and wastes are eliminated into a bag. These wastes are more solid than an ileostomy.

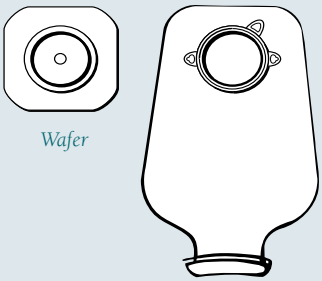
Managing Your Stoma (if you have one)

For three to four weeks after surgery, the drainage from an ileostomy is watery. The consistency becomes a thicker liquid, or semi-solid, as the small bowel begins to take over the process of absorbing water. Colostomy drainage is usually thick from the beginning.

Learning to care for a stoma may seem overwhelming and time-consuming at first, but most patients soon find themselves caring for it with ease. The enterostomal therapy nurses will teach you how to change the appliance covering your ostomy, how to empty and rinse it, and how to purchase supplies for ostomy care. These nurses will also tell you how to get assistance if you have any problems with your ostomy after discharge.

You may need assistance with changing your ostomy appliance at home. A family member may help with this. We can also arrange for a visiting nurse to assist. You may meet with an enterostomal therapy nurse when you have a follow-up clinic appointment with the surgeon.





Wafer

Pouch

Second Stage Surgery – Ileostomy Closure If You Have One

Before the stoma is closed, you will undergo an X-ray of your rectum to ensure that it has healed properly. If the X-ray is normal, the stoma closure will be scheduled, and you will have another preoperative visit similar to that of the first surgery.

Day Before Surgery

The day before surgery, a nurse from the Same Day Unit will call with a time to report to the hospital and where to go for admission.

Bowel prep

The bowel prep for the ileostomy closure is slightly different from that of the first surgery. You will be receiving prescriptions for antibiotics and directions for drinking a laxative, Magnesium Citrate.

Foods

Once the bowel prep has begun, do not eat any solid foods. Your diet should consist of clear liquids. After midnight, you should not eat or drink anything.

Day of Surgery

Again, you will be admitted on the day of your surgery. Patients are usually hospitalized for two days after this surgery.

The ileostomy closure usually takes less than an hour. The incision is made as a circle around the stoma, and the stoma is closed restoring elimination through the anus. The incision is then fully or partially closed. A midline abdominal incision is rarely needed.

Urination

Urinary catheters are usually not inserted for the ileostomy closure.

Pain Control

Pain after the ileostomy closure is much less than after the first surgery. When you feel you need medication for pain relief, ask a nurse. These medications will not be given automatically. Your pain should be at a tolerable level, which allows you to get out of bed, walk, and do deep breathing exercises.

Diet

The day after surgery, you will start on sips of clear liquids every hour and advance to as many clear liquids as you like, if tolerated. When you have passed gas, you will be advanced to either a full liquid diet or a low-fiber diet. You will need to stay on the low-fiber diet (same as with the prior surgery) for approximately two weeks.

Second Stage Surgery – Ileostomy Closure If You Have One *(cont.)*

Wound Care

You may have an open wound where the ileostomy was removed. This site is left open and heals from the inside—out to the skin. The wound will need to be packed two times a day. At first, most people require visiting nurses to assist with this at home. If you have a family member who is willing to learn the dressing change, or if you are able to learn it yourself, you will be taught.

Discharge

Patients are usually discharged two days after surgery. At the time of discharge, you should be tolerating at least a liquid diet and be having bowel movements without difficulty. You will receive guidelines for activity, advice about problems you should watch for, and how to reach a physician if you need assistance. A clinic appointment will be made for you to see the surgeon. If you are discharged on a weekend or holiday, a representative from Central Scheduling will call the following business day.

Chemotherapy and Radiation

Colon Cancer

The size of your cancer and extent of involvement with the lymph nodes will be reported by the pathologists. This will determine whether you need chemotherapy after surgery. Patients with small cancers that have not spread may not need further treatment after surgery. If you could benefit from chemotherapy, an oncologist (cancer doctor) will visit you in the hospital or you will be scheduled for an appointment after discharge. They will discuss chemotherapy with you. Chemotherapy would not be started for several weeks until you have had time to fully recover from surgery. Colon cancer is usually not treated with radiation.

Rectal Cancer

The size of your cancer and extent of involvement with the lymph nodes will be reported by the pathologists. This will determine whether you need chemotherapy after surgery. Like colon cancer, patients with small cancers that have not spread may not need further treatment after surgery. If you could benefit from chemotherapy, an oncologist (cancer doctor) will visit you in the hospital or you will be scheduled for an appointment after discharge. The oncologist will discuss chemotherapy and radiation with you. Rectal cancer is often treated with radiation, in conjunction with chemotherapy. The radiation is given by a Radiation Oncologist. You will meet the radiation oncologist after being seen by the chemotherapy oncologist, if radiation is appropriate for you. Therapy would not be started for several weeks until you have had time to fully recover from surgery.

Some patients will be treated with chemotherapy and radiation prior to surgery to help shrink the cancer.

Glossary

Anastomosis – The sewn connection between two ends of bowel.

Anal Sphincters – Ring-like muscular structures that surround the anus and control bowel movements.

Anus – The opening in the end of the rectum that allows stool to pass out of the body.

Benign – A growth that cannot spread to other organs.

Cancer (malignancy) – A growth that has the potential to spread to other organs.

Clinical Case Manager – A registered nurse who will assist in coordinating your care during your hospitalization.

Colon (large bowel or intestine) – The portion of the gastrointestinal tract extending from the end of the small bowel to the rectum.

Colonoscopy – A procedure when your surgeon or gastroenterologist looks inside your entire colon with a long scope with a light on the end.

Colostomy – When the end of the colon is brought up to the skin by surgery and wastes are eliminated into a bag. These wastes are more solid than an ileostomy.

Enterostomal Therapy Nurse – A registered nurse who specializes in ostomy care.

Epidural Analgesia – A form of pain control delivered through a catheter that is placed in the lower back.

Gastrointestinal System (GI Tract) – The group of structures from the mouth to the anus that are responsible for the ingestion (taking in), digestion, and absorption of nutrients, as well as the storage and elimination of fecal wastes.

Ileostomy – When an end of the small intestine is brought up to the skin by surgery and wastes are eliminated into a bag. Wastes are usually liquid.

IV (intravenous) Line – A long, flexible tubing that is connected to a small catheter inserted in a vein used for giving fluids.

Patient Controlled Analgesia (PCA) – A form of pain control, delivered through an IV, in which the patient uses a small pump to control the timing and amount of medication received. The maximum amount of medication that can be delivered is programmed into the pump, so the patient receives a safe and effective dose.

Polyp – A benign growth in the colon or rectum.

Rectum – The last portion of intestine that connects to the anus.

Stoma (ostomy) – An opening created in the intestine and brought to the abdominal wall so that wastes can be eliminated.

Resources – Who To Contact

Your healthcare team at Penn State Hershey Medical Center is available to respond to your questions and concerns. If you would like, your surgeon will refer you to another patient who has undergone treatment for colon cancer and is willing to provide support and information from a patient perspective.

Penn State Milton S. Hershey Medical Center

- Medical questions or concerns, or referral to another patient (weekdays)
  - ☐ Walter A. Koltun, M.D., F.A.C.S., F.A.S.C.R.S.
  - ☐ Lisa S. Poritz, M.D.,F.A.C.S., F.A.S.C.R.S.
  - ☐ Kevin McKenna, M.D., F.A.S.C.R.S.
  - ☐ David Stewart, M.D.
  - ☐ Marjorie A. Lebo, M.S.N., C.R.N.P.
  - ☐ Amy Sheranko, M.A.

    (717) 531-5164
- Medical questions or concerns (nights, weekends, holidays)
  - ☐ Surgical resident on call

    (717) 531-8521
- Discharge or home-healthcare questions or concerns (weekdays)
  - ☐ Clinical Case Manager

    (717) 531-8521 pager 2023
- Ostomy care or nutrition questions or concerns (weekdays)
  - ☐ Enterostomal Therapy Nurses

    (717) 531-5427

Other Resources Available for Information and Support

- The companies that manufacture ostomy supplies provide free literature on ostomy care. They may also provide free samples of their appliances. Contact them directly.

Notes

History

Founded in 1963 through a gift from The Milton S. Hershey Foundation, **Penn State Milton S. Hershey Medical Center** is one of the leading teaching and research hospitals in the country. The 484-bed Medical Center is a provider of high-level, patient-focused medical care. The Medical Center campus also includes Penn State College of Medicine (Penn State's medical school), Penn State Hershey Cancer Institute, and Penn State Hershey Children's Hospital—the region's only children's hospital. The Medical Center campus is part of Penn State Hershey Health System, which also includes the Pennsylvania Psychiatric Institute, Penn State Hershey Rehabilitation Hospital, and other specialty facilities. On the Web at **pennstatehershey.org**.

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1855

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PennStateHershey.org

Division of Colon and Rectal Surgery

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