Patient Guide to Colon Cancer Surgery and Treatment

oncotyple DX
Colon Cancer Assay
Confidence. Confirmed.
An educational guide prepared by Genomic Health®, Inc.
With your diagnosis of colon cancer, and throughout your treatment, it is normal for you to feel concerned. At the same time, it is important to remember that you are not alone. Because of improvements in diagnosis and treatment, millions of individuals have been treated successfully for colon cancer. You have at your disposal the skills, knowledge and experience of dedicated healthcare experts who can help guide your decisions through this challenging time.

Where to begin
Start by learning all you can about colon cancer. The more you know, the more your healthcare team can help.

Find the best care. You need to have confidence in your healthcare team and feel comfortable talking to them about your fears and concerns.

Take charge. You have a life to live. Talk to your doctor. Understand your diagnosis and treatment plan. Keep track of how you’re feeling. Ask for what you need. And stay actively involved in all treatment decisions.

This is your booklet
It is designed to help you through this challenging time. Use it as a guide during discussions about your treatment with your surgeon and other colon cancer experts on your healthcare team.

Draw on it. Write on it. Make it your own.
This booklet provides basic information on the diagnosis and treatment of colon cancer. Learn all you can. Ask questions. Use the form at the back to record your treatment plan, and keep it for future reference and meetings with your healthcare team.

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Your Healthcare Team

Treatment of colon cancer is complex and requires a team of specialists with expertise in several areas. The most important member of the team is you. The job of the rest of your team is to make sure that you are informed and that your surgery and treatment are a success. Here are the medical experts who might be part of your healthcare team:

- **Primary care doctor**
  Attends to your general healthcare needs before, during and after your cancer surgery and treatment

- **Gastroenterologist**
  Performs colonoscopies, assesses and removes polyps and provides diagnostic information

- **Colorectal or general surgeon**
  Removes section of colon and surrounding lymph nodes

- **Surgical oncologist**
  Specializes in the surgical treatment of the organs affected by cancer

- **Pathologist**
  Analyzes biopsy samples to characterize your colon cancer

- **Medical oncologist**
  Treats cancer using chemotherapy, targeted therapy and other drugs

- **Radiation oncologist**
  Designs and administers radiation therapy

- **Oncology nurse or nurse practitioner**
  Manages your care and comfort before, during and after treatment

- **Nurse navigator**
  Acts as an educator and patient advocate, who coordinates treatment and follow-up

- **Dietician**
  Helps plan and manage dietary changes due to a changed intestinal tract

- **Social worker**
  Helps with your psychological, family and financial concerns before and after treatment

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**Colon Anatomy**

Learning about colon anatomy can help you better understand your treatment options.
Anatomy of the Colon

The colon, along with the esophagus, stomach and small intestine, is part of the digestive system. Also referred to as the large intestine or large bowel, the colon absorbs water from digested food and moves wastes out of the body. Beneficial bacteria living inside the colon produce vitamins and help prevent growth of harmful bacteria.

The cecum is connected to the ileum and is the first part of the colon.

The ascending colon travels up the right side of the body from the cecum.

The transverse colon runs across the abdomen, just below the stomach.

The descending colon runs down the left side of the body.

The sigmoid colon is a short, S-shaped section of the colon just before the rectum.

The rectum is the last section of the colon.

The anus is an opening at the end of the digestive tract through which wastes are expelled from the body.

Blood vessels supply oxygen and nutrients to tissues of the colon.

Lymph nodes are part of the lymphatic system. The lymphatic system drains and filters fluids from cells and is an important part of the immune system.
About Colon Cancer

The more you know about colon cancer, the better you can understand your treatment options and the choices available to you.
What is Colon Cancer?

Colon cancer develops over a number of years and usually begins with the growth of a polyp. A polyp is a benign tumor. However, some types of polyps can become malignant tumors and grow into the wall of the colon and spread further into tissues of the colon, blood vessels and nearby lymph nodes.

There are different types of colon cancer. Most are a type called adenocarcinoma. Others such as carcinoid tumors and gastrointestinal stromal tumors (GISTs) are less common.

What causes colon cancer?

There are several known risk factors associated with colon cancer and every person is unique. However, like all cancers, colon cancer tumors result from changes in DNA (deoxyribonucleic acid) within the cells. These changes, or mutations, can be inherited or acquired during a person’s lifetime.

For most patients with colon cancer, acquired mutations that occur in colon cells result in malignant tumors. A very small percentage of patients have an inherited susceptibility to colon cancer.
How Colon Cancer is Diagnosed

A medical consultation for colon cancer includes collecting information such as symptoms, a physical exam, review of medical and family history, and a series of diagnostic tests. For a definite diagnosis of colon cancer, a biopsy is required.

**Symptoms**
Symptoms of colon cancer include signs such as:
- Blood in the stool
- Increased stomach discomfort
- Changes in bowel habits
- Unexplained weight loss
- Constant or unexplained fatigue and weakness

**Diagnostic tests**
There are a number of diagnostic tests that doctors use to help detect if a person has colon cancer:
- **Colonoscopy** – a method that allows the doctor to view the entire colon to see whether polyps or suspicious growths are present
- **Sigmoidoscopy** – a method used to view the sigmoid section of the colon to see whether polyps or suspicious growths are present
- **Imaging** – such as CT scan (computed tomography), chest X-ray, MRI (magnetic resonance imaging) and PET scan (positron emission tomography) provide accurate details of the colon and other organs
- **Blood testing** – tests for certain markers in the blood, for example:
  - CEA (carcinoembryonic antigen) indicates the presence of colon cancer
  - CBC (complete blood count) rules out anemia due to blood loss from a bleeding tumor
  - Metabolic panel – assesses organ (such as liver or kidney) function

The Biopsy

During a colonoscopy or surgical procedure, tissue samples are collected and sent to a pathologist for review. The pathologist examines the biopsy samples under a microscope and may also perform genetic testing on them.

A biopsy is performed on all polyps removed during a colonoscopy as well as on tissue removed during a surgical procedure. A biopsy is required for a cancer diagnosis and essential for colon cancer staging.
Characterizing Your Cancer

Characterizing your unique tumor biology for developing your treatment plan.

Confidence. Confirmed.
The Pathology Report

The pathology report provides detailed information about your colon cancer. This information is obtained from tests performed on the biopsy sample or surgical sample taken from your tumor. It is important to discuss the pathology report with your physician as soon as the results are available.

Information on your pathology report may include:

**Tumor cell type** – the kind of cells that form your tumor

**Tumor grade** – describes how different cells in the tumor appear, compared to normal cells in the colon

**Tumor depth** – how far the tumor has grown or spread into surrounding tissues

**Tumor size** – usually reported in millimeters or centimeters

(1 cm = 10 mm = 0.4 inches)

**Surgical margins** – the amount of normal tissue surrounding the edge of the tumor tissue removed during surgery

- Negative margins – cancer was entirely removed during surgery
- Positive margins – residual cancer cells may remain following surgery

**Lymphovascular involvement** – whether the blood vessels and lymphatic drainage system have been invaded by cancer cells

**Lymph node status** – whether or not cancer is detected in lymph nodes removed during surgery

**Mismatch repair (MMR) status** – tests for mismatch repair deficiency (MMR-D), an acquired or inherited biological feature associated with some colon cancers

**Recurrence and MMR status**

Knowing your MMR status may help you and your doctor in making treatment decisions. Studies have shown that stage II colon cancer patients with MMR-deficient (MMR-D) tumors have a lower risk of recurrence compared to patients with MMR-proficient (MMR-P) tumors.*

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Colon Cancer Grading and Staging

The information on your pathology report—along with other factors, including your age, general health, and medical and family history—help you and your doctor make treatment decisions.

**Colon cancer grading**

“Grade” is a term used to describe how closely the cells in your tumor resemble normal tissue cells under a microscope. The higher the grade, the more the cells differ from normal. For example, low-grade tumor cells look like normal cells, while high-grade tumor cells look different from normal cells. The tumor grade is more important for some types of tumors than others.

**Colon cancer staging**

Staging is a method of organizing information about your colon cancer that helps your doctor to describe your tumor and how far it has spread. It gives physicians a common language and is useful for deciding on treatment options following surgery. Staging is usually done after the tumor is removed and the lymph nodes have been examined.

**The TNM system**

Staging is based on three criteria:

- **T (Tumor)** – the tumor size and location
- **N (Nodes)** – whether any lymph nodes are involved
- **M (Metastasis)** – whether the cancer has spread beyond the lymph nodes.

Numbers or letters are added after T, N and M to provide additional information. For example: TX means *Primary tumor cannot be assessed*; N1 means *Metastasis in 1–3 lymph nodes*; MO means *No distant metastasis*.
Your Treatment Decision

After your colon cancer is staged, take the time you need to talk to your doctor, consider your treatment options and develop your treatment plan.
Treatment Approaches

There are several conventional approaches to the treatment of colon cancer. Before making any treatment decisions, be sure to discuss your options—and their potential effects—with your physician.

Surgery (colectomy) – removes the cancerous part of the colon and reconnects the healthy parts (anastomosis)

Chemotherapy – drugs (injected or oral) that kill cancer cells, shrink tumors and slow tumor growth

Targeted therapy – drugs (often monoclonal antibodies) that disrupt/stop cancer cell growth (anti-angiogenesis, anti-epidermal growth factor response); sometimes used in combination with standard chemotherapy

Radiation – uses high energy X-rays to destroy cancer cells; rarely used to treat colon cancer; more common in treatment of rectal cancer

Looking at the Biology of Your Tumor

Additional tumor testing, such as the Oncotype DX® Colon Cancer test, can further guide treatment decisions, including whether to undergo chemotherapy following surgery. The Oncotype DX® test can help people with certain types of colon cancer learn more about the biological features of their specific tumor and how likely it is that their cancer may return in the future.*

Treatment by Stage

When developing a colon cancer treatment plan, it is important to consider the stage of your cancer. Depending on the stage, more than one treatment approach may be used.

Following are some examples. A specific plan for you should be discussed with your physician.

### Stage 0
Local surgery (removal of polyps or larger tumors)

### Stage I
Surgery followed by observation

### Stage II
Surgery followed by chemotherapy or observation

### Stage III
Surgery followed by chemotherapy

### Stage IV
Surgery, chemotherapy, radiation, targeted therapy

### Recurrent
Surgery if recurrence is local; chemotherapy, targeted therapy, radiation as required

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* At present, the National Comprehensive Cancer Network (NCCN®) has not described the utility of the application of multi-gene assay panels for prognostic or predictive application to colon cancer care. NCCN is a registered trademark of the National Comprehensive Cancer Network. NCCN does not endorse any product or therapy.
Understanding Your Risk of Recurrence After Surgery

One of the challenges in treating patients with colon cancer is determining the risk that the disease will return after surgery and determining the need for post-surgical chemotherapy. For patients with stage II colon cancer, the OncoType DX® Colon Cancer test provides additional insight into an individual’s risk of recurrence based on the patient’s unique tumor biology, independent of T-stage, node involvement and MMR status.

OncoType DX® Colon Cancer Test Patient Report

A detailed OncoType DX Colon Cancer test patient report is generated for each patient, with test results provided as a Recurrence Score® result on a scale from 0–100. The report also includes information to aid in interpreting the result.
OncoType DX® Colon Cancer Test

A UNIQUE TEST FOR PATIENTS WITH STAGE II COLON CANCER
Informing Treatment Decisions

If you have stage II colon cancer, the Oncotype DX® test is a gene-based diagnostic test that will help you learn more about your specific tumor and the likelihood of cancer recurrence. The decision to use the Oncotype DX test depends on a number of factors and should be discussed with your doctor.

The Recurrence Score® result
The Oncotype DX Colon Cancer test looks at the activity of 12 genes in a sample taken from your colon cancer tumor sample in order to provide a Recurrence Score®. The Recurrence Score result has been shown to be valuable in patients with early-stage, lymph node-negative colon cancer.

How is the test performed?
The Oncotype DX® test is performed on tissue removed during your initial surgery (resection). It typically takes 10 to 14 calendar days to receive the Oncotype DX test results. Results will be sent to the doctor treating you and the pathologist who submitted the sample.

As with any laboratory test, an authorized healthcare provider, such as your surgeon or oncologist, must order the Oncotype DX test.

Are You a Candidate for the Oncotype DX Test?
You may be a candidate for the Oncotype DX test if you have recently been diagnosed with stage II (Dukes’ B) colon cancer, and you and your doctor are making treatment decisions regarding chemotherapy following surgery.

The decision whether to order the Oncotype DX test is one that you and your doctor should make together.

Does my insurance cover the Oncotype DX test?
Genomic Health offers the Genomic Access Program (GAP), a comprehensive program designed to help you with the coverage process and provide financial assistance when necessary, based on eligibility. Please call 866-ONCOTYPE (866-662-6897) for more information on insurance and financial aid questions.

More information about the Oncotype DX test is available at www.oncotypedx.com
Help is close at hand through your healthcare team, support groups and online resources.
Taking Care of Yourself

Be an active participant in your treatment. Work with your healthcare team. Learn, ask questions, maintain a positive outlook and join a support group. Joining a colon cancer support group is a great way to find answers, receive encouragement and meet others who can assist you in getting the help you need.

Information Resources

Here are some suggested websites where you can start your search for information and support groups.

**American Cancer Society**
www.cancer.org
The American Cancer Society (ACS) is a nationwide, community-based voluntary organization that provides detailed information for patients on colon cancer prevention, detection, treatment, staying healthy, research and community activities.

**CancerCare**
www.cancercare.org
CancerCare is a national nonprofit organization that provides free, professional support services and programs to people with cancer.

**Cancer Support Community**
www.wellness-community.org
The Cancer Support Community is an international nonprofit organization that provides personalized services and education to people affected by cancer.

**Colon Cancer Alliance**
www.ccalliance.org
The Colon Cancer Alliance is an organization committed to eliminating the suffering and death caused by colon cancer. Their website offers educational resources and support for patients, friends and families, as well as personal stories and information on advocacy, research and clinical trials.

**My Colon Cancer Coach**
www.mycloncancercoach.org
My Colon Cancer Coach is the first patient-focused, interactive online tool where newly diagnosed colon cancer patients can learn more about their disease. The site includes a questionnaire that takes less than 10 minutes to complete and provides patients with information unique to their diagnosis, including personalized treatment options to discuss with their physician.

**Fight Colorectal Cancer**
www.fightcolorectalcancer.org
Fight Colorectal Cancer's mission is to win the fight against colorectal cancer through research, empowerment and access. Their website contains information and resources for patients, advocacy and research news, a newsletter and physician-written articles about colorectal cancer.

**National Cancer Institute (NCI)**
www.cancer.gov
The National Cancer Institute is part of the U.S. National Institutes of Health (NIH). Their website provides comprehensive information on colon cancer, clinical trials, ongoing research, patient support and resources.
Glossary
USEFUL TERMS AND DEFINITIONS FOR COLON CANCER PATIENTS AND CAREGIVERS
Glossary
Useful terms and definitions for colon cancer patients and caregivers

**Adenocarcinoma:** Cancer that begins in cells that line certain internal organs that have glandular (secreting) properties. Most colon cancers are adenocarcinomas.

**Adjuvant Therapy:** Treatment performed in addition to surgery.

**Anastomosis:** Surgically connecting two ends of the colon after colectomy (resection).

**Anemia:** A condition in which there is not enough hemoglobin or red blood cells in the blood.

**Angiogenesis:** The growth of new blood vessels, including those that feed a tumor.

**Anti-angiogenesis:** Blocking the growth of new blood vessels.

**Anti-EGFR (Anti-Epidermal Growth Factor Receptor):** An agent that blocks the activity of EGFR (see EGFR) to prevent cancer growth.

**Antibody:** A protein in the blood produced by immune cells to fight off diseases.

**Benign Tumor:** A tumor that is not cancerous and will not spread to surrounding tissues or to other parts of the body.

**Cancer:** A condition in which abnormal cells divide without control or fail to die as part of a normal cell’s life cycle. Cancer cells can also invade nearby tissues and can spread through the bloodstream and lymphatic system to other parts of the body.

**Carcinoid Tumors:** Tumors that start from hormone-producing cells.

**CAT (Computerized Axial Tomography) Scan:** A type of X-ray that uses a computer to produce a series of detailed pictures of areas inside the body. Also called a CT (computed tomography) scan.

**CEA (Carcinoembryonic Antigen):** A protein marker in the blood that may be present with some cancers; may be used to monitor response to treatment or disease recurrence.

**Cell:** The smallest unit of tissues that make up any living thing. Cells have a very specialized structure and function.

**Colectomy:** Surgery to remove all or part of the colon (also called resection).

**Colonoscopy:** A test procedure in which a flexible, tubular instrument equipped with a video camera is used by a doctor to visually inspect the inner lining of the colon.

**Diagnosis:** Identification of a condition, such as colon cancer, by its signs and symptoms and the results of laboratory tests or other examinations.

**DNA (Deoxyribonucleic Acid):** A biological compound found in all living organisms that contains genetic instructions used by cells to develop and function.

**EGFR (Epidermal Growth Factor Receptor):** A protein on the surface of some tumor cells that may promote their growth and spread of the cancer.

**Gastrointestinal stromal tumors (GISTs):** Tumors that start from cells in the wall of the colon called the interstitial cells of Cajal; may be benign or malignant; not often found in the colon.

**Gene Expression:** The level of activity of a gene or group of genes.

**Gene:** A biological unit of inherited traits in living beings that is passed on from one generation to the next.

**Lymph Nodes:** Small, bean-shaped organs; part of the lymphatic system. During surgery, some lymph nodes may be removed to help determine the stage of the cancer.

**Malignant:** Cancerous

**Metastasis:** The spread of cancer cells from where they started to other parts of the body.

**Monoclonal Antibody:** An antibody produced in the laboratory that can bind to specific cells; can be used for diagnosis or therapy; can also be used with other drugs or to deliver drugs or radioactive material to cells.

**MRI (Magnetic Resonance Imaging):** A method of imaging organs of the body using magnetic energy.

**Mutation:** A change in DNA sequence of a gene.

**PET (Positron Emission Tomography) Scan:** An imaging method that produces three-dimensional images of processes in the body.

**Polyp:** A growth from a mucous membrane commonly found in organs such as the colon.

**Recurrent:** The return to a previous condition. A recurrent cancer is one that reappears in the body after it was removed, either at the original site (local) or in other organs (distant).

**Resection:** The surgical removal of part or all of an organ or tissue (also called colectomy).

**X-ray:** A form of radiation that can be used at low levels to produce images of the body or at high levels to destroy cancer cells.
Tumor type: __________
Tumor size: __________ cm
Lymph node status: __ positive __ negative; if positive, location: __________
Cancer grade: __________
Cancer stage: __________ (Final staging determination will occur after your surgery.)
OncoType DX® Recurrence Score® result: __________
Therapy:
  radiation
  chemotherapy
  targeted

Notes:
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