



Common treatment approaches

Depending on the [stage of the cancer](#) and other factors, different types of treatment may be combined at the same time or used after one another.

- [Treatment of Colon Cancer, by Stage](#)
- [Treatment of Rectal Cancer, by Stage](#)

Who treats colorectal cancer?

Based on your treatment options, you might have different types of doctors on your treatment team. These doctors could include:

A **gastroenterologist**:

Whether you are thinking about treatment, getting treatment, or not being treated at all, you can still get supportive care to help with pain or other symptoms. Communicating with your cancer care team is important so you understand your diagnosis, what treatment is recommended, and ways to maintain or improve your quality of life.

Different types of programs and support services may be helpful, and can be an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our caring, trained cancer helpline specialists.

- [Palliative Care](#)
- [Programs & Services](#)

Choosing to stop treatment or choosing no treatment at all

For some people, when treatments have been tried and are no longer controlling the cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it's important to talk to your doctors as you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- [If Cancer Treatments Stop Working](#)

The treatment information given here is not official policy of the American Cancer Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor. Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask your cancer care team any questions you may have about your treatment options.

Surgery for Colon Cancer

Surgery is often the main treatment for early-stage colon cancers. The type of surgery used depends on the [stage](#)¹ (extent) of the cancer, where it is in the colon, and the goal of the surgery.

- [Polypectomy and local excision](#)
- [Colectomy](#)
- [Colostomy or ileostomy](#)
- [Surgery for colon cancer spread](#)
- [Possible side effects of colon surgery](#)
- [More information about Surgery](#)

Any type of colon surgery needs to be done on a clean and empty colon. You will be put on a special diet before surgery and may need to use laxative drinks and/or enemas to get all of the stool out of your colon. This bowel prep is a lot like the one used before a [colonoscopy](#)².

Polypectomy and local excision

Some early colon cancers (stage 0 and some early-stage I tumors) and most polyps can be removed during a colonoscopy. This is a procedure that uses a long, flexible tube with a small video camera on the end that's put into the person's rectum and eased into the colon. These surgeries can be done during a colonoscopy:

- For a **polypectomy**, the cancer is removed as part of the polyp, which is cut at its base (the part that looks like the stem of a mushroom). This is usually done by passing a wire loop through the colonoscope to cut the polyp off the wall of the colon with an electric current.
- A **local excision** is a slightly more involved procedure. Tools are used through the colonoscope to remove small cancers on the inside lining of the colon, along with a small amount of surrounding healthy tissue on the wall of colon.

When cancer or polyps are taken out this way, the doctor doesn't have to cut into the abdomen (belly) from the outside. The goal of either of these procedures is to remove the tumor in one piece. If some cancer is left behind or if, based on lab tests, the tumor is thought to have a chance to spread, a type of colectomy (see below) might be the next surgery.

Colectomy

A colectomy is surgery to remove all or part of the colon. Nearby [lymph nodes](#)³ are also removed.

- If only part of the colon is removed, it's called a **hemicolectomy**, **partial colectomy**, or **segmental resection**. The surgeon takes out the part of the colon with the cancer and a small segment of normal colon on either side. Usually, about one-fourth to one-third of the colon is removed, depending on the size and location of the cancer. The remaining sections of colon are then reattached. At least 12 nearby lymph nodes are also removed so they can be checked for cancer.
- If all of the colon is removed, it's called a **total colectomy**. Total colectomy isn't often needed to remove colon cancer. It's mostly used only if there's another problem in the part of the colon without cancer, such as hundreds of polyps (in someone with [familial adenomatous polyposis](#)⁴) or, sometimes, inflammatory bowel disease.

How colectomy is done

A colectomy can be done in 2 ways:

- **Open colectomy:** The surgery is done through a single long incision (cut) in the abdomen (belly).
- **Laparoscopic-assisted colectomy:** The surgery is done through many smaller incisions and special tools. A laparoscope is a long, thin lighted tube with a small camera and light on the end that lets the surgeon see inside the abdomen. It's put into one of the small cuts, and long, thin instruments are put in through the others to remove part of the colon and lymph nodes.

Because the incisions are smaller in a laparoscopic-assisted colectomy than in an open colectomy, patients often recover faster and may be able to leave the hospital sooner than they would after an open colectomy. This type of surgery requires special expertise. If you're considering this type of surgery, be sure to look for a skilled surgeon who has done many of these operations.

Overall survival rates and the chance of the cancer returning are much the same between an open colectomy and a laparoscopic-assisted colectomy.

If the colon is blocked

When cancer blocks the colon, it usually happens slowly, and the person can become very sick over time. In cases like these, if the person is strong enough to tolerate surgery and the colon cancer is felt to be curable, it is generally recommended that they undergo surgery to remove the tumor and treat the blockage. If the person is not strong enough to undergo colon surgery or their colon cancer is not curable, a stent may be placed to treat the blockage. A **stent** is a hollow, expandable metal tube that the doctor can put inside the colon and through the small opening using a colonoscope. This tube keeps the colon open and relieves the blockage.

If a stent can't be placed in a blocked colon or if the tumor has caused a hole in the colon, surgery may be needed right away. This usually is the same type of colectomy that's done to remove the cancer, but instead of reconnecting the ends of the colon, the top end of the colon is attached to an opening (called a stoma) made in the skin of the abdomen. Stool then comes out of this opening. This is called a **colostomy** and is usually only needed for a short time. Sometimes the end of the small intestine (the ileum) instead of the colon is connected to a stoma in the skin. This is called an **ileostomy**. Either way, a bag sticks to the skin around the stoma to hold the stool.

Once the patient is healthier, another operation (known as a **colostomy reversal** or **ileostomy reversal**) can be done to put the ends of the colon back together or to attach the ileum to the colon. It might take anywhere from 2 to 6 months after the ostomy was first made for this reversal surgery to be done due to healing times or even the need to treat with chemotherapy. Sometimes, if a tumor can't be removed or a stent placed, the colostomy or ileostomy may need to be permanent.

Colostomy or ileostomy

More information about Surgery

For more general information about surgery as a treatment for cancer, see [Cancer Surgery](#)⁷.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)⁸.

Hyperlinks

1. www.cancer.org/cancer/types/colon-rectal-cancer/detection-diagnosis-staging/staged.html
2. www.cancer.org/cancer/diagnosis-staging/tests/endoscopy/colonoscopy.html
3. www.cancer.org/cancer/diagnosis-staging/lymph-nodes-and-cancer.html
4. www.cancer.org/cancer/types/colon-rectal-cancer/causes-risks-prevention/risk-factors.html
5. www.cancer.org/cancer/managing-cancer/treatment-types/surgery/ostomies/colostomy.html
6. www.cancer.org/cancer/managing-cancer/treatment-types/surgery/ostomies/ileostomy.html
7. www.cancer.org/cancer/managing-cancer/treatment-types/surgery.html
8. www.cancer.org/cancer/managing-cancer/side-effects.html

References

Francone TD. Overview of surgical ostomy for fecal diversion. Weiser M and Chen W, eds. UpToDate. Waltham, MA: UpToDate Inc. <https://www.uptodate.com> (Accessed on Jan 29, 2024.)

Lawler M, Johnston B, Van Schaeybroeck S, Salto-Tellez M, Wilson R, Dunlop M, and Johnston PG. Chapter 74 – Colorectal Cancer. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

Libutti SK, Saltz LB, Willett CG, and Levine RA. Ch 62 - Cancer of the Colon. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 11th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2019.

National Cancer Institute. Physician Data Query (PDQ). Colon Cancer Treatment. 2024. Accessed at <https://www.cancer.gov/types/colorectal/hp/colon-treatment-pdq> on Jan 29, 2024.

National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Colon Cancer. V.1.2024. Accessed at https://www.nccn.org/professionals/physician_gls/pdf/colon.pdf on Jan 29, 2024.

Tong G, Zhang G, Liu J, et al. A meta-analysis of short-term outcome of laparoscopic surgery versus conventional open surgery on colorectal carcinoma. *Medicine* (Baltimore). 2017;96(48):e8957.

Last Revised: January 29, 2024

Surgery for Rectal Cancer

Surgery is usually the main treatment for rectal cancer. [Radiation](#) and [chemotherapy](#) are often given before or after surgery. The type of surgery used depends on the [stage](#)¹ (extent) of the cancer, where it is, and the goal of the surgery.

- [Determining surgery options](#)
- [Polypectomy and local excision](#)
- [Transanal excision \(TAE\)](#)
- [Transanal endoscopic microsurgery \(TEM\)](#)
- [Low anterior resection \(LAR\)](#)
- [Proctectomy with coloanal anastomosis](#)
- [Abdominoperineal resection \(APR\)](#)
- ↓ [Pelvic exenteration](#)
[Diverting colostomy](#)

Before doing surgery, the doctor will need to know how close the tumor is to the anus. This will help decide what type of surgery is done. It can also impact outcomes if the cancer has spread to the ring-like muscles around the anus (anal sphincter) that keep stool from coming out until they relax during a bowel movement.

Polypectomy and local excision

Some early-stage rectal cancers and most polyps can be removed during a [colonoscopy](#)². This is a procedure that uses a long, flexible tube with a small video camera on the end that's put into the person's anus and threaded into the rectum. These surgeries can be done during a colonoscopy:

- For a **polypectomy**, the cancer is removed as part of the polyp, which is cut at its base (the part that looks like the stem of a mushroom). This is usually done by passing a wire loop through the colonoscope to cut the polyp from the wall of the rectum with an electric current.
- A **local excision** is a slightly more involved procedure. Tools are used through the colonoscope to remove small cancers on the inside lining of the rectum, along with a small amount of surrounding healthy tissue on the wall of rectum.

When cancer or polyps are taken out this way, the doctor doesn't have to cut into the abdomen (belly) from the outside. The goal of these surgeries is to remove the cancer or polyp in one piece. If some cancer is left behind or if, based on lab tests, the tumor is thought to have a chance to spread, a more complex type of rectal surgery (see below) might be the next step.

Transanal excision (TAE)

This surgery can be used to remove some early-stage I rectal cancers that are relatively small and not too far from the anus. As with polypectomy and local excision, TAE is done with instruments that are put into the rectum through the anus. The skin over the abdomen (belly) isn't cut. TAE is usually done with local anesthesia (numbing medicine); the patient is not asleep during the operation.

In this operation, the surgeon cuts through all layers of the rectal wall to take out the cancer, as well as some surrounding normal rectal tissue. The hole in the rectal wall is then closed.

[Lymph nodes](#)³ are not removed during this surgery, so radiation with or without chemotherapy might be recommended after surgery if the cancer has grown deep into

Proctectomy with coloanal anastomosis

Some stage I and most stage II and III rectal cancers in the middle and lower third of the rectum require removing the entire rectum (called a **proctectomy**). The rectum has to

Pelvic exenteration

For patients with T4 rectal cancer (where the rectal cancer is growing into nearby organs, see [Colorectal Cancer Stages](#)⁸) and no evidence of metastatic disease, a pelvic exenteration (or multivisceral resection) may be recommended. This is a major surgery and is not commonly done. The surgeon will remove the rectum as well as any nearby organs that the cancer has reached, such as the bladder, prostate (in men), or uterus (in women).

A colostomy is needed after pelvic exenteration. If the bladder is removed, a [urostomy](#)⁹ is needed, too. (This is an opening in skin of the abdomen where urine leaves the body and is held in a pouch that sticks to the skin.) It can take many months to fully recover from this complicated surgery.

Diverting colostomy

Some patients have rectal cancer that has spread and is also blocking the rectum. In this case, surgery may be done to relieve the blockage without removing the part of the rectum containing the cancer. Instead, the colon is cut above the cancer and attached to a stoma (an opening in the skin of the abdomen) to allow stool to come out. This is called a **diverting colostomy**. It can often help the patient recover enough to start other

for a few days. For the first couple of days, you may not be able to eat, or you may be allowed limited liquids, as the rectum needs some time to recover. Most people are able to eat solid food again in a few days.

Rarely, the new connections between the ends of the colon may not hold together and may leak. This can quickly cause severe belly pain, fever, and the belly to feel very hard. A smaller leak may cause you to not pass stool, have no desire to eat, and not do well or recover after surgery. A leak can lead to infection, and more surgery may be

become less intense. Normal aging may cause some of these changes, but they may be made worse by the surgery. An APR can also affect fertility. Talk with your doctor if you think you want to father a child in the future. There may still be ways to do this.

- **If you are a woman**, rectal surgery (except pelvic exenteration) usually doesn't cause any loss of sexual function. Abdominal adhesions (scar tissue) may sometimes cause pain or discomfort during sex. If your uterus is removed, you won't be able to get pregnant.

If you have a colostomy, it can have an impact on body image and sexual comfort level . While it may require some adjustments, it should not keep you from having an enjoyable sex life.

- [staging/staged.html](#)
8. www.cancer.org/cancer/types/colon-rectal-cancer/detection-diagnosis-staging/staged.html
 9. www.cancer.org/cancer/managing-cancer/treatment-types/surgery/ostomies/urostomy.html
 10. www.cancer.org/cancer/managing-cancer/treatment-types/surgery/ostomies/colostomy.html
 11. www.cancer.org/cancer/managing-cancer/treatment-types/surgery/ostomies/ileostomy.html
 12. www.cancer.org/cancer/managing-cancer/side-effects/fertility-and-sexual-side-effects.html
 13. www.cancer.org/cancer/managing-cancer/treatment-types/surgery.html
 14. www.cancer.org/cancer/managing-cancer/side-effects.html

References

Kelly SR and Nelson H. Chapter 75 – Cancer of the Rectum. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

Libutti SK, Willett CG, Saltz LB, and Levine RA. Ch 63 - Cancer of the Rectum. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 11th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2013. 3300-3308. [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3863838/](#) (. 11th I.0256(DeVita I.0256(DeVita I.0.1a ysici4 1Da(

Ercolani G. Average treatment effect of robotic versus laparoscopic rectal surgery for rectal cancer. *Int J Med Robot.* 2021 Apr;17(2):e2210. doi: 10.1002/rcs.2210. Epub 2020 Dec 28. PMID: 33314625.

Wang X, Cao G, Mao W, Lao W, He C. Robot-assisted versus laparoscopic surgery for rectal cancer: A systematic review and meta-analysis. *J Cancer Res Ther.* 2020 Sep;16(5):979-989. doi: 10.4103/jcrt.JCRT_533_18. PMID: 33004738.

Last Revised: January 29, 2024

Ablation and Embolization for Colorectal Cancer

Ablation and embolization are sometimes used to treat colorectal cancer that has spread to other parts of the body, such as the liver or lungs.

- [When are ablation and embolization used?](#)
- [Ablation](#)
- [Embolization](#)

When are ablation and embolization used?

When colon or rectal cancer has spread and there are a few small tumors in the liver or lungs, these metastases can sometimes be removed by surgery or destroyed by other techniques, such as ablation or embolization.

When all of the primary cancer in the colon or rectum can be removed with surgery, ablation or embolization might be used to destroy small tumors in other places in the body.

Ablation and embolization might also be good options for people whose metastatic tumors come back after surgery, whose cancer can't be cured with surgery, or who can't have surgery for other reasons. This might help a person live longer. It can also help treat problems the cancer is causing, like pain.

In most cases, patients don't need to stay in the hospital for these treatments.

Ablation

Ablation techniques are used to destroy small tumors (less than 4 cm across) instead of removing them with surgery. There are many different types of ablation techniques. They can be used to treat tumors in other places, too.

Radiofrequency ablation (RFA)

Radiofrequency ablation is one of the most common methods to treat cancer that has spread to the liver. It uses high-energy radio waves to kill cancer cells. A [CT scan](#)¹ or [ultrasound](#)² is used to guide a thin, needle-like probe through the skin and into the tumor. An electric current is then sent to the tip of the probe, releasing high-frequency radio waves that heat the tumor and destroy the cancer cells.

Microwave ablation (MWA)

The microwave ablation method is used to treat cancer that has spread to the liver. Imaging tests are used to guide a needle-like probe into the tumor. Electromagnetic microwaves are then sent through it to create high temperatures that kill the cancer quickly. This treatment has been used to treat larger cancers (up to 6 cm across).

Percutaneous ethanol ablation (PEI) or Alcohol ablation

Percutaneous ethanol injection destroys the cancer cells by injecting concentrated alcohol into the tumor. This is usually done through the skin using a needle, which is guided by ultrasound or CT scans. Sometimes multiple treatments of PEI may be needed to treat the whole tumor.

Cryoablation

Cryoablation destroys the tumor by freezing it with a thin metal probe. The probe is guided through the skin and into the tumor using ultrasound. Then very cold gas (usually liquid nitrogen or argon gas) is passed through the end of the probe to freeze the tumor, killing the cancer cells. This method can treat larger tumors than the other ablation techniques, but sometimes general anesthesia (drugs used to put the patient into a deep sleep) is needed. Treatment can be repeated as needed to kill all the cancer cells.

Side effects of ablation therapy

Possible side effects after ablation therapy include:

- Abdominal (belly) pain
- Infection in the liver
- Fever
- Bleeding into the chest cavity or abdomen
- Abnormal liver tests.

Serious complications are rare, but they are possible.

Embolization

Embolization is used to treat tumors in the liver. In an embolization procedure, a substance is injected directly into an artery in the liver to block or reduce the blood flow to the tumor.

The liver is special in that it has 2 blood supplies. Most normal liver cells get blood from the **portal vein**, but cancer cells in the liver usually get their blood supply from the **hepatic artery**. Blocking the part of the hepatic artery that feeds the tumor helps kill the cancer cells, and it leaves most of the healthy liver cells unharmed because they get their blood supply from the portal vein.



Embolization can be used to treat tumors larger than 5 cm (about 2 inches) across that are often too big to be treated with ablation. It can also be used along with ablation. Embolization does reduce some of the blood supply to the normal liver tissue, so it may not be a good option for patients with liver damage from diseases like hepatitis or cirrhosis.

There are 3 main types of embolization procedures used to treat colon or rectal cancer that has spread (metastasized) to the liver:

- **Arterial embolization** is also called **trans-arterial embolization** or **TAE**. In this procedure, a catheter (a thin, flexible tube) is put into an artery through a small cut

in the inner thigh and eased up into the hepatic artery in the liver. A dye is usually injected into the blood to help the doctor watch the path of the catheter using [x-ray](#)³ pictures. Once the catheter is in the right place, small particles are injected into the artery to plug it up, blocking oxygen and key nutrients from the cancer.

Chemoembolization (also called **trans-arterial chemoembolization or TACE**)

combines arterial embolization with chemotherapy. TACE is done by giving

chemotherapy through a catheter that's put right into the artery that feeds/F2 12 Tf 0 0 0 rg /GS75

- [cancer.html](#)
2. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/ultrasound-for-cancer.html
 3. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/x-rays-and-other-radiographic-tests.html

References

Aykut B, Lidsky ME. Colorectal Cancer Liver Metastases: Multimodal Therapy. *Surg Oncol Clin N Am*. 2023 Jan;32(1):119-141. doi: 10.1016/j.soc.2022.07.009. Epub 2022 Nov 3. PMID: 36410912.

Boas FE, Bodei L, Sofocleous CT. Radioembolization of Colorectal Liver Metastases: Indications, Technique, and Outcomes. *J Nucl Med*. 2017;58(Suppl 2):104S-111S.

Kelly SR and Nelson H. Chapter 75 – Cancer of the Rectum. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

Lawler M, Johnston B, Van Schaeybroeck S, Salto-Tellez M, Wilson R, Dunlop M, and Johnston PG. Chapter 74 – Colorectal Cancer. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Colon Cancer. V.1.2024. Accessed at

Radiation Therapy for Colorectal Cancer

Radiation therapy is a treatment using high-energy rays (such as x-rays) or particles to destroy cancer cells. It is more often used to treat rectal cancer than colon cancer. For some colon and rectal cancers, treating with [chemotherapy](#) at the same time can make radiation therapy work better. Using these 2 treatments together is called **chemoradiation**.

- [Radiation therapy for colon cancer](#)
- [Radiation therapy for rectal cancer](#)
- [Types of radiation therapy](#)
- [More information about radiation therapy](#)

Radiation therapy for colon cancer

It's not common to use radiation therapy to treat colon cancer, but it may be used in certain cases:

- Before surgery (along with chemo) to help shrink a tumor and make it easier to remove.
- After surgery, if the cancer has attached to an internal organ or the lining of the belly (abdomen). If this happens, the surgeon can't be sure that all of the cancer has been removed. Radiation therapy may be used to try to kill any cancer cells that may have been left behind.
- During surgery, right to the area where the cancer was, to kill any cancer cells that may be left behind. This is called **intraoperative radiation therapy** or **IORT**.
- Along with chemo to help control cancer if a person is not healthy enough for surgery.
- To ease symptoms if advanced colon cancer is causing intestinal blockage, bleeding, or pain.
- To help treat colon cancer that has spread to other areas, such as the bones, lungs, or brain.

Radiation therapy for rectal cancer

For rectal cancer, radiation therapy is a more common treatment and may be used:

Either before and/or after surgery, often along with chemotherapy, to help keep the cancer from coming back. Many doctors now favor giving radiation therapy before surgery, as it may make it easier to remove the cancer, especially if the cancer's size and/or location might make surgery difficult. This is called **neoadjuvant treatment**. Giving chemoradiation before surgery can also help lower the chances of damaging the sphincter muscles in the rectum when surgery is done. In either

- Bladder irritation, which can cause problems like feeling like you have to go often (called frequency), burning or pain while urinating, or blood in the urine
- Fatigue/tiredness
- Sexual problems (erection issues in men and vaginal irritation in women)
- Scarring, fibrosis (stiffening), and adhesions that cause the tissues in the treated area to stick to each other

Most side effects should get better over time after treatment ends, but some problems may not go away completely. If you notice any side effects, talk to your doctor right away so steps can be taken to reduce or relieve them.

More information about radiation therapy

To learn more about how radiation is used to treat cancer, see [Radiation Therapy](#)².

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)³.

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/treatment-types/radiation/external-beam-radiation-therapy.html
2. www.cancer.org/cancer/managing-cancer/treatment-types/radiation.html
3. www.cancer.org/cancer/managing-cancer/side-effects.html

References

Buckley H, Wilson C, Ajithkumar T. High-Dose-Rate Brachytherapy in the Management of Operable Rectal Cancer: A Systematic Review. *Int J Radiat Oncol Biol Phys*. 2017;99(1):111-127.

Philadelphia, Pa. Elsevier: 2020.

Libutti SK, Saltz LB, Willett CG, and Levine RA. Ch 62 - Cancer of the Colon. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 11th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2019.

Libutti SK, Willett CG, Saltz LB, and Levine RA. Ch 63 - Cancer of the Rectum. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 11th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2019.

National Cancer Institute. Physician Data Query (PDQ). Colon Cancer Treatment. 2024. Accessed at <https://www.cancer.gov/types/colorectal/hp/colon-treatment-pdq> on Jan 29, 2024.

National Cancer Institute. Physician Data Query (PDQ). Rectal Cancer Treatment. 2023. Accessed at <https://www.cancer.gov/types/colorectal/hp/rectal-treatment-pdq> on Jan 29, 2024.

National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Colon Cancer. V.1.2024. Accessed at https://www.nccn.org/professionals/physician_gls/pdf/colon.pdf on Jan 29, 2024.

National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Rectal Cancer. V.6.2023. Accessed at https://www.nccn.org/professionals/physician_gls/pdf/rectal.pdf on Jan 29, 2024.

Roeder F, Meldolesi E, Gerum S, Valention/Ccer. V.6.2023 0 0 1 72 325.6 Tm 0 0 0 rg /GS1033 gs (i

your body.

- **Regional chemotherapy:** Drugs are put into an artery that leads to the part of the body with the cancer. This focuses the chemo on the cancer cells in that area. It reduces side effects by limiting the amount of drug reaching the rest of your body. **Hepatic artery infusion**, or chemo given directly into the hepatic artery, is an example of regional chemotherapy sometimes used for cancer that has spread to the liver.

Chemo drugs for colon or rectal cancer that are given into a vein (IV), can be given either as an injection over a few minutes or as an infusion over a longer period of time. This can be done in a doctor's office, infusion center, or in a hospital setting.

Often, a [slightly larger and sturdier IV¹](#) is required in the vein system to administer chemo. These are known as central venous catheters (CVCs), central venous access devices (CVADs), or central lines. They are used to put medicines, blood products, nutrients, or fluids into your blood. They can also be used to take blood for testing. There are many different kinds of CVCs. The most common types are the tunneled central lines, ports, and peripherally inserted central catheter (PICC) lines.

Chemo is given in cycles, which include a rest period to give you time to recover from the effects of the drugs. Each cycle is usually 2 or 3 weeks long. The schedule varies depending on the drugs used. For example, with some drugs, the chemo is given only on the first day of the cycle. With others, it is given for a few days in a row, or once a week. Then, at the end of the cycle, the chemo schedule repeats to start the next cycle.

Adjuvant or neoadjuvant chemo is often given for a total of 3 to 6 months, depending on the drugs used. The length of treatment for advanced colorectal cancer depends on how well it is working and what side effects you have.

Chemotherapy drugs used to treat colorectal cancer

Some drugs commonly used for colorectal cancer include:

- **5-Fluorouracil (5-FU)**
- **Capecitabine (Xeloda)**, a pill that is changed into 5-FU once it gets to the tumor
- **Irinotecan (Camptosar)**
- **Oxaliplatin (Eloxatin)**
- **Trifluridine and tipiracil (Lonsurf)**, a combination drug in pill form

Most often, combinations of 2 or 3 of these drugs are used. Sometimes, chemo drugs are given along with a [targeted therapy drug](#).

Possible side effects of chemo

Chemo drugs attack cells that are dividing quickly, which is why they work against cancer cells. But other cells in the body, such as those in hair follicles and in the lining of the mouth and intestines, are also dividing quickly. These cells can be affected by chemo too, which can lead to side effects.

The side effects of chemo depend on the type and dose of drugs given and how long you take them. Common side effects of chemo can include:

- Hair loss
- Mouth sores
- Loss of appetite or weight loss
- Nausea and vomiting
- Diarrhea
- Nail changes
- Skin changes

Chemo can also affect the blood-forming cells of the bone marrow, which can lead to:

- Increased chance of infections (from low white blood cell counts)
- Easy bruising or bleeding (from low blood platelet counts)
- Fatigue (from low red blood cell counts and other reasons)

Other side effects are specific to certain drugs. Ask your cancer care team about the possible side effects of the specific drugs you are getting. For example:

- **Hand-foot syndrome** can develop during treatment with capecitabine or 5-FU. It can start out as redness in the hands and feet, and then might progress to pain and sensitivity in the palms and soles. If it worsens, the skin may blister or peel, sometimes leading to painful sores. It's important to tell your doctor right away about any early symptoms, such as redness or sensitivity, so that steps can be taken to keep things from getting worse.
- **Neuropathy** (nerve damage) is a common side effect of oxaliplatin. Symptoms include numbness, tingling, and even pain in the hands and feet. It can also cause

intense sensitivity to cold in your throat, esophagus (the tube connecting the throat to the stomach), and the palms of your hands. This can cause pain when swallowing cold liquids or holding a cold glass. If you'll be getting oxaliplatin, talk with your doctor about side effects beforehand, and let them know right away if you develop numbness and tingling or other side effects.

- **Allergic or sensitivity reactions** can happen in some people while getting the drug oxaliplatin. Symptoms can include skin rash; chest tightness and trouble breathing; back pain; or feeling dizzy, lightheaded, or weakness. Be sure to tell your nurse right away if you notice any of these symptoms while you're getting chemo.
- **Diarrhea** is a common side effect with many of these chemo drugs, but can be particularly bad with irinotecan. It needs to be treated right away – at the first loose stool – to prevent severe dehydration. This often means taking a drug like loperamide (Imodium) or even being admitted to the hospital for intravenous hydration. If you're getting a chemo drug that will likely cause diarrhea, your doctor will give you instructions on what drugs to take and how often to take them to control this problem.

Most of these side effects tend to go away over time after treatment ends. Some, such as hand and foot numbness from oxaliplatin, may last for a long time. There are often ways to lessen these side effects. For example, you can be given drugs to help prevent or reduce nausea and vomiting, or you may be told to keep ice chips in your mouth while chemo is being given to lower the chances of getting mouth sores.

Be sure to discuss any questions about side effects with your cancer care team. Also report any side effects or changes you notice while getting chemo so that they can be treated right away. In some cases, the doses of the chemo drugs may need to be reduced or treatment may need to be delayed or stopped to help keep the problem from getting worse.

More information about chemotherapy

For more general information about how chemotherapy is used to treat cancer, see [Chemotherapy²](#).

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects³](#).

Hyperlinks

Targeted Therapy Drugs for Colorectal Cancer

As researchers learn more about changes in cells that cause colon or rectal cancer, they have developed new types of drugs to specifically target these changes.

- [When is targeted therapy used?](#)
- [Drugs that target blood vessel formation \(VEGF\)](#)
- [Drugs that target cancer cells with EGFR changes](#)
- [Drugs that target cells with BRAF gene changes](#)
- [Drugs that target cells with HER2 changes](#)
- [Drugs that target cells with NTRK gene changes](#)
- [Drugs that target cells with RET gene changes](#)
- [Drugs that target cells with KRAS gene changes](#)
- [Other targeted therapy drugs](#)
- [More information about targeted therapy](#)

When is targeted therapy used?

Targeted drugs work differently from [chemotherapy](#) (chemo) drugs. They sometimes work when chemo drugs don't, and they often have different side effects. They can be used either along with chemo, by themselves, or in combination with another targeted therapy drug.

Like chemotherapy, these drugs enter the bloodstream and reach almost all areas of the body, which makes them useful against cancers that have spread to distant parts of the body.

Several types of targeted drugs might be used to treat colorectal cancer.

Drugs that target blood vessel formation (VEGF)

Vascular endothelial growth factor (VEGF) is a protein that helps tumors form new blood vessels (a process known as **angiogenesis**) to get nutrients they need to grow. Drugs that stop VEGF from working can be used to treat some colon or rectal cancers. These include:

- **Bevacizumab (Avastin)**

- **Ramucirumab (Cyramza)**
- **Ziv-aflibercept (Zaltrap)**
- **Fruquintinib (Fruzaqla)**

Most of these drugs are given as infusions into your vein (IV) every 2 or 3 weeks, in most cases along with chemotherapy. Fruquintinib is given as a capsule and not combined with chemotherapy. These drugs can often help people with advanced colon or rectal cancers live longer.

Possible side effects of drugs that target VEGF

Common side effects of these drugs include:

- High blood pressure
- Protein in the urine
- Bleeding (from the nose or rectum)
- Headaches
- Taste changes
- Skin changes

Rare but possibly serious side effects include blood clots, severe bleeding, holes forming in the colon (called **perforations**), heart problems, kidney problems, and slow wound healing. If a hole forms in the colon, it can lead to severe infection and surgery may be needed to fix it.

Another rare but serious side effect of these drugs is an allergic reaction during the infusion, which could cause problems with breathing and low blood pressure.

Drugs that target cancer cells with EGFR changes

Epidermal growth factor receptor (EGFR) is a protein that helps cancer cells grow. Drugs that target EGFR (**EGFR inhibitors**) can be used to treat some advanced colon or rectal cancers. These include:

- **Cetuximab (Erbix)**
- **Panitumumab (Vectibix)**

Both of these drugs are given by IV infusion, either once a week or every other week.

protein. When given with cetuximab or panitumumab, an EGFR inhibitor (see above), this drug can shrink or slow the growth of colorectal cancer in some people whose cancer has spread. The combination of these two drugs also appears to help people with advanced colorectal cancer live longer.

This drug is taken as capsules, once a day.

Common **side effects** of encorafenib, in combination with an EGFR inhibitor, can include skin thickening, diarrhea, rash, loss of appetite, abdominal pain, joint pain, fatigue, and nausea.

Some people treated with a BRAF inhibitor might develop new [squamous cell skin cancers](#)¹. These cancers can often be treated by removing them. Still, your doctor will want to check your skin regularly during treatment and for several months afterward. You should also let your doctor know right away if you notice any new growths or abnormal areas on your skin.

Drugs that target cells with HER2 changes

In a small percentage of people with colorectal cancer, the cancer cells have too much of a growth-promoting protein called HER2 on their surface. Cancers with increased levels of HER2 are called **HER2-positive**. Drugs that target the HER2 protein can often be helpful in treating these cancers.

Drugs of this type that might be used to treat HER2-positive colorectal cancer include:

- **Trastuzumab (Herceptin, [other names](#)²)**
- **Pertuzumab (Perjeta)**
- **Tucatinib (Tukysa)**
- **Lapatinib (Tykerb)**
- **Fam-trastuzumab deruxtecan (Enhertu, T-DXd)**

For advanced, HER2-positive colorectal cancer that has already been treated with chemotherapy, the most common targeted drug regimens include trastuzumab plus either tucatinib, lapatinib, or pertuzumab. Patients who are considered to be treated with this regimen must also not have mutations in the *RAS* and *BRAF* genes.

Among these drugs, only tucatinib is FDA approved specifically to treat colorectal cancer at this time, but the others are present in treatment guidelines. Still, it's important to check with your insurance provider before getting these drugs to make sure they are

covered.

The **side effects** of HER2-targeted drugs tend to be mild overall, but some can be serious, and different drugs can have different possible side effects. Discuss what you can expect with your doctor.

Some of these drugs can cause **heart damage** during or after treatment, which might lead to congestive heart failure. Because of this, your doctor will likely check your heart function (with an echocardiogram or a MUGA scan) before treatment, and regularly while you are getting any of these drugs. Let your doctor know if you develop symptoms, such as shortness of breath, a fast heartbeat, leg swelling, and severe fatigue.

Some of these drugs can cause severe **diarrhea**, so it's very important to let your health care team know about any changes in bowel habits as soon as they happen.

Lapatinib and tucatinib can also cause **hand-foot syndrome**, in which the hands and feet become sore and red, and may blister and peel.

Lapatinib and tucatinib can cause **liver problems**. Your doctor will do blood tests to check your liver function during treatment. Let your health care team know right away if you have possible signs or symptoms of liver problems, such as itchy skin, yellowing of the skin or the white parts of your eyes, dark urine, or pain in the right upper belly area.

Fam-trastuzumab deruxtecan can cause serious **lung disease** in some people, which might even be life threatening. It's very important to let your doctor know right away if you're having symptoms such as coughing, wheezing, trouble breathing, or fever.

Drugs that target cells with *NTRK* gene changes

A very small number of colorectal cancers have changes in one of the *NTRK* genes. This causes them to make abnormal TRK proteins, which can lead to abnormal cell growth and cancer.

Larotrectinib (Vitrakvi) and **entrectinib (Rozlytrek)** are drugs that target the TRK proteins. These drugs can be used to treat advanced cancers with *NTRK* gene changes that are still growing despite other treatments.

These drugs are taken as pills or an oral solution, once or twice daily.

Common **side effects** of these drugs can include dizziness, fatigue, nausea, vomiting,

constipation, weight gain, and diarrhea.

Less common but serious side effects can include abnormal liver tests, increased risk for fractures, heart problems, vision changes, and confusion.

Drugs that target cells with *RET* gene changes

A very small number of colorectal cancers have changes in one of the *RET* genes. This causes them to make abnormal RET proteins, which can lead to abnormal cell growth and cancer.

Selpercatinib (Retevmo) is a drug that targets the RET protein. These drugs can be used to treat advanced cancers with *RET* gene changes that are still growing despite other treatments.

This drug is taken as a capsule twice daily.

This drug is approved to treat other types of cancer, but doctors can prescribe it [off-label](#)³ for colorectal cancer. Still, it's important to check with your insurance provider before getting these drugs to make sure they are covered.

Common **side effects** of these drugs can include decrease in white blood cell count and calcium, changes in liver function tests, high blood pressure, fatigue, changes in kidney function, and increased cholesterol.

Less common but serious side effects can include abnormal heart function (QT interval prolongation), bleed, allergic reaction, and inability to heal from a wound.

Drugs that target cells with *KRAS* gene changes

A very small number of colorectal cancers have the *KRAS G12C* gene mutation. This

are approved to treat other types of cancer, but doctors can prescribe them [off-label](#)⁴ for colorectal cancer. Still, it's important to check with your insurance provider before getting these drugs to make sure they are covered.

Common **side effects** of these drugs can include nausea, vomiting, diarrhea, muscle and joint pain, fatigue, decreased appetite, and changes in liver and kidney function.

Less common but serious side effects can include effects to the heart (QTc interval prolongation), liver, and lungs (interstitial lung disease).

Other targeted therapy drugs

Regorafenib (Stivarga) is a type of targeted therapy known as a **multikinase inhibitor**. Kinases are proteins on or near the surface of a cell that carry important signals to the cell's control center. Regorafenib blocks several kinase proteins that either help tumor cells grow or help form new blood vessels to feed the tumor. Blocking these proteins can help stop the growth of cancer cells.

This drug can be used to treat advanced colorectal cancer, typically when other drugs are no longer helpful. It's taken as a pill.

Common side effects include fatigue, rash, hand-foot syndrome (redness and irritation of the hands and feet), diarrhea, high blood pressure, weight loss, and abdominal pain.

Less common but more serious side effects can include confusion, severe bleeding, or perforations (holes) in the stomach or intestines.

More information about targeted therapy

To learn more about how targeted drugs are used to treat cancer, see [Targeted Cancer Therapy](#)⁵.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)⁶.

Hyperlinks

1. www.cancer.org/cancer/types/basal-and-squamous-cell-skin-cancer.html

2. www.cancer.org/cancer/managing-cancer/treatment-types/biosimilar-drugs/list.html
3. www.cancer.org/cancer/managing-cancer/treatment-types/off-label-drug-use.html
4. www.cancer.org/cancer/managing-cancer/treatment-types/off-label-drug-use.html
5. www.cancer.org/cancer/managing-cancer/treatment-types/targeted-therapy.html
6. www.cancer.org/cancer/managing-cancer/side-effects.html

References

Kelly SR and Nelson H. Chapter 75 – Cancer of the Rectum. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

Lawler M, Johnston B, Van Schaeybroeck S, Salto-Tellez M, Wilson R, Dunlop M, and Johnston PG. Chapter 74 – Colorectal Cancer. In: Niederhuber JE, Armitage JO, Dorshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

Libutti SK, Saltz LB, Willett CG, and Levine RA. Ch 62 - Cancer of the Colon. In: DeVita VT, Hellman S, Rosenberg SA, eds.

National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Rectal Cancer. V.1.2024. Accessed at https://www.nccn.org/professionals/physician_gls/pdf/rectal.pdf on Feb 5, 2024.

Ohishi T, Kaneko MK, Yoshida Y, Takashima A, Kato Y, Kawada M. Current Targeted Therapy for Metastatic Colorectal Cancer. *Int J Mol Sci.* 2023 Jan 15;24(2):1702. doi: 10.3390/ijms24021702. PMID: 36675216; PMCID: PMC9864602.

Last Revised: February 5, 2024

Immunotherapy for Colorectal Cancer

Immunotherapy is the use of medicines to help a person's own immune system better recognize and destroy cancer cells.

- [Immune checkpoint inhibitors](#)
- [Possible side effects of immunotherapy](#)
- [More information about immunotherapy](#)

Immune checkpoint inhibitors

For people with either early- or advanced-stage colorectal cancer, immunotherapy is now a cornerstone of treatment if the tumor has findings of dMMR (deficient mismatch repair) or MSI-H (microsatellite instability-high).

An important part of the immune system is its ability to keep itself from attacking the body's normal cells. To do this, it uses "checkpoints" – proteins on immune cells that need to be turned on (or off) to start an immune response. Colorectal cancer cells sometimes use these checkpoints to avoid being attacked by the immune system. Drugs that target these checkpoints help to restore the immune response against colorectal cancer cells.

Drugs called **checkpoint inhibitors** can be used for people whose colorectal cancer cells have [tested positive for specific gene changes](#)¹, specifically a high level of **microsatellite instability (MSI-H)**, or changes in one of the **mismatch repair (MMR) genes**. These drugs might be given to people before surgery for early-stage colon cancer, or to treat people whose cancer can't be removed with surgery, has come back

(recurred) after treatment, or has spread to other parts of the body (metastasized).

PD-1 inhibitors

Pembrolizumab (Keytruda), nivolumab (Opdivo), and Dostarlimb (Jemperli) are drugs that target PD-1, a protein on immune system cells called T cells that normally help keep these cells from attacking other cells in the body. By blocking PD-1, these drugs boost the immune response against colorectal cancer cells. They are only given if the tumor has had findings of dMMR or MSI-H.

Pembrolizumab can be given alone. It is given as an intravenous (IV) infusion every 3 or 6 weeks.

Nivolumab can be given alone or with ipilimumab (see below). It is typically given by itself as an IV infusion every 2 or 4 weeks. If it is used along with ipilimumab, then it is typically given every 3 weeks.

Dostarlimab can be given alone. It is given as an intravenous (IV) infusion every 3 weeks for 4 treatments, and then given at a higher dose every 6 weeks. This drug is not approved specifically to treat colorectal cancer at this time. It is approved to treat other types of cancer, but doctors can prescribe it [off-label](#)² for colorectal cancer. Still, it's important to check with your insurance provider before getting this drug to make sure it is covered.

CTLA-4 inhibitor

Ipilimumab (Yervoy) is another drug that boosts the immune response, but it has a different target. It blocks CTLA-4, another protein on T cells that normally helps keep them in check.

This drug can be used along with nivolumab (Opdivo) to treat colorectal cancer, but it's not used alone. It is given as an intravenous (IV) infusion, usually once every 3 weeks for 4 treatments.

Possible side effects of immunotherapy

Side effects of these drugs include fatigue, cough, nausea, diarrhea, skin rash, loss of appetite, constipation, joint pain, and itching.

Other, more serious side effects occur less often.

Infusion reactions: Some people might have an infusion reaction while getting these drugs. This is like an allergic reaction, and can include fever, chills, flushing of the face, rash, itchy skin, feeling dizzy, wheezing, and trouble breathing. It's important to tell your

Lawler M, Johnston B, Van Schaeybroeck S, Salto-Tellez M, Wilson R, Dunlop M, and Johnston PG. Chapter 74 – Colorectal Cancer. In: Niederhuber JE, Armitage JO, Dorshow JH, Kattan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

Libutti SK, Saltz LB, Willett CG, and Levine RA. Ch 62 - Cancer of the Colon. In: DeVita VT, Hellman S, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 11th ed. Philadelphia, Pa: Lippincott-Williams & Wilkins; 2019.

National Cancer Institute. Physician Data Query (PDQ). Colon Cancer Treatment. 2024. Accessed at <https://www.cancer.gov/types/colorectal/hp/colon-treatment-pdq> on Feb 5, 2024.

National Cancer Institute. Physician Data Query (PDQ). Rectal Cancer Treatment. 2023. Accessed at <https://www.cancer.gov/types/colorectal/hp/rectal-treatment-pdq> on Feb 5, 2024.

Treatment of Colon Cancer, by Stage

Fe10

- [Treating stage IV colon cancer](#)
- [Treating right-sided versus left-sided colon cancer](#)
- [Treating recurrent colon cancer](#)

People with colon cancers that have not spread to distant sites usually have [surgery](#) as the main or first treatment. [Chemotherapy](#) may also be used after surgery (called **adjuvant treatment**). Most adjuvant treatment is given for about 3 to 6 months.

Treating stage 0 colon cancer

Since stage 0 colon cancers have not grown beyond the inner lining of the colon,

Surgery to remove the section of the colon containing the cancer (partial colectomy) along with nearby lymph nodes may be the only treatment needed.

In certain cases, neoadjuvant therapy (therapy before surgery) may be recommended for stage II colon cancer, especially if the tumor has invaded or is attached to neighboring organs (T4b). This is generally considered for locally advanced colon cancer that is not initially operable. Decisions about what type of neoadjuvant therapy to give in these cases depends on whether the tumor has dMMR or MSI-H. If the tumor is dMMR or MSI-H, neoadjuvant [immunotherapy](#) (either PD-1 inhibitor alone or combination PD-1 and CTLA-4 inhibitor) is generally recommended. The type and duration of this therapy can vary as this approach remains very new. If the tumor is *not* dMMR or MSI-H, neoadjuvant chemotherapy is generally recommended.

If you did not receive neoadjuvant chemotherapy, after you recover from the colon surgery for treatment of Stage II cancer and if the tumor is found to *not* have dMMR or MSI-H, your doctor may recommend adjuvant chemo if your cancer has a higher risk of coming back (recurring) because of certain factors, such as:

- The cancer looks very abnormal (is high grade) when viewed closely in the lab.
- The cancer has grown through the colon wall (T4).
- The cancer has grown into nearby blood or lymph vessels.
- The surgeon did not remove at least 12 lymph nodes.
- Cancer was found in or near the margin (edge) of the removed tissue, meaning that some cancer may have been left behind.
- The cancer blocked (obstructed) the colon.
- The cancer caused a perforation (hole) in the wall of the colon.

If adjuvant chemo is given for high-risk stage II colon cancers, doctors generally recommend 5-FU or capecitabine. At times, oxaliplatin may also be offered. Each patient case is different and requires discussion about the risks and benefits of adjuvant chemo, as well as which type of chemo. Not all doctors agree on when chemo should be used for stage II colon cancers. It's important for you to discuss the risks and benefits of chemo with your doctor, including how much it might reduce your risk of recurrence and what the likely side effects will be.

Treating stage III colon cancer

Stage III colon cancers have spread to nearby lymph nodes, but they have not yet spread to other parts of the body.

changes in one of the MMR genes, an [immunotherapy drug](#), such as pembrolizumab, nivolumab or Dostarlimab, may be an option.

For advanced cancers, [radiation therapy](#) can also be used to help prevent or relieve symptoms in the colon from the cancer such as pain. It might also be used to treat areas of spread such as in the lungs or bone. It may shrink tumors for a time, but it's not likely to cure the cancer. If your doctor recommends radiation therapy, it's important that you understand the goal of treatment.

Treating right-sided versus left-sided colon cancer

In recent years, research has shown that the genetic mutations found in colon cancer can be different depending on whether it started on the right or left side of the colon. These differences can affect how the cancer responds to certain treatments as well as a person's prognosis (how well they do after treatment).

Right-sided colon cancer

The right-side of the colon includes the cecum, ascending colon, and about 2/3 of the transverse colon. Cancers that start on the right side of the colon are:

- Less common than left-sided colon cancer
- More likely to occur in older age
- More likely linked to a hereditary cancer syndrome
- More likely to be dMMR or MSI-H
- More likely to have a BRAF or KRAS mutation

These cancers tend to have a poorer prognosis if the cancer has advanced or spread outside the colon, compared to advanced cancers that started on the left. They are also unlikely to respond to anti-EGFR therapy, even if the tumor tests negative for RAS and BRAF mutations. Right-sided colon cancer may be more responsive to immunotherapy, compared to left-sided colon cancers.

Left-sided colon cancer

The left-side of the colon includes the rest of the colon, which includes the remaining 1/3 of the transverse colon, the descending colon, and the sigmoid colon. Cancers that start on the left side of the colon are:

- More common than right-sided colon cancer

- More likely to occur in younger age
- More likely to be diagnosed at an earlier stage due to symptoms
- More likely to have a HER2 mutation

These cancers tend to have a better prognosis if the cancer has advanced or spread outside the colon, compared to advanced cancers that started on the right. They are also more responsive to anti-EGFR therapy, if tests are negative for RAS and BRAF mutations. Left-sided colon cancers may be more responsive to chemotherapy, compared to right-sided colon cancers.

Treating recurrent colon cancer

Recurrent cancer means that the cancer has come back after treatment. The recurrence may be local (near the area of the initial tumor), or it may be in distant organs.

Local recurrence

If the cancer comes back locally, surgery (often followed by chemo) can sometimes help you live longer and may even cure you. If the cancer can't be removed surgically, chemo might be tried first. If it shrinks the tumor enough, surgery might be an option. This might be followed by more chemo.

Distant recurrence

If the cancer comes back in a distant site, it's most likely to appear in the liver first. Surgery might be an option for some people. If not, chemo may be tried to shrink the tumor(s), which may then be followed by surgery to remove them. Ablation or embolization techniques might also be an option to treat some liver tumors.

If the cancer has spread too much to be treated with surgery, chemotherapy, targeted therapies, and/or immunotherapy may be used. Possible treatment schedules are the same as for stage IV disease.

Your options depend on which, if any, drugs you had before the cancer came back and how long ago you got them, as well as your overall health. You may still need surgery at some point to relieve or prevent blockage of the colon or other local problems. Radiation therapy may be an option to relieve symptoms as well.

For more on recurrence, see _____

Treatment of Rectal Cancer, by Stage

Treatment for rectal cancer is based mainly on the [stage](#)¹ (extent) of the cancer, but other factors can also be important.

- [Treating stage 0 rectal cancer](#)
- [Treating stage I rectal cancer](#)
- [Treating stage II rectal cancer](#)
- [Treating stage III rectal cancer](#)
- [Treating stage IV rectal cancer](#)
- [Treating recurrent rectal cancer](#)

People with rectal cancers that have not spread to distant sites are usually treated with [surgery](#). Treatment with [radiation](#) and [chemotherapy](#) (chemo) may also be given before or after surgery.

Treating stage 0 rectal cancer

Stage 0 rectal cancers have not grown beyond the inner lining of the rectum. Removing or destroying the cancer is typically all that's needed. You can usually be treated with surgery, such as a polypectomy (removing the polyp), local excision, or transanal resection. In rare cases, a more extensive surgery might be needed.

Treating stage I rectal cancer

Stage I rectal cancers have grown into deeper layers of the rectal wall but have not spread outside the rectum itself.

This stage includes cancers that were part of a polyp. If the polyp is removed completely during colonoscopy, with no cancer at the edges, no other treatment may be needed. If the cancer in the polyp was high grade (see [Colorectal Cancer Stages](#)²), or if there were cancer cells at the edges of the polyp, you might be advised to have more surgery. More surgery may also be advised if the polyp couldn't be removed completely or if it had to be removed in many pieces, making it hard to see if there were cancer cells at the edges (margins).

For other stage I cancers, surgery is usually the main treatment. Some small stage I cancers can be removed through the anus without cutting the abdomen (belly), using transanal resection or transanal endoscopic microsurgery (TEM). For some, a low

anterior resection (LAR), proctectomy with coloanal anastomosis, or an abdominoperineal resection (APR) may be needed, depending on exactly where the cancer is located within the rectum.

Additional treatment typically isn't needed after these operations, unless the surgeon finds the cancer is more advanced than was thought before surgery. If it is more advanced, a combination of chemo and radiation therapy is usually given. 5-FU and capecitabine are the chemo drugs most often used.

If you're not healthy enough to have surgery, you may be treated with chemotherapy given with radiation therapy.

Treating stage II rectal cancer

Many stage II rectal cancers have grown through the wall of the rectum and might extend into nearby tissues. They have not spread to the lymph nodes.

For treatment of stage II rectal cancer that is pMMR or MSS, chemotherapy, radiation therapy, and surgery are usually given, although the order of these treatments might be different for some people. Recent studies have shown that an approach called total neoadjuvant therapy (TNT) may be effective and potentially allow people from having to undergo transabdominal surgery. TNT is when a patient is treated with both chemotherapy and radiation before surgery. Here is a common approach to treating these cancers:

- Many people get both chemo and radiation therapy (called **chemoradiation**) as their first treatment. The chemo given with radiation is usually either 5-FU or capecitabine .
- This may be followed by more chemotherapy (without radiation) for several months. The chemo may be the FOLFOX regimen (oxaliplatin, 5-FU, and leucovorin) or CAPEOX (capecitabine plus oxaliplatin) based on what's best suited to your health needs.
- Afterward, surgery, such as a low anterior resection (LAR), proctectomy with coloanal anastomosis, or abdominoperineal resection (APR), may be done, depending on where the cancer is in the rectum. If the chemo and radiation therapy shrink the tumor enough, sometimes a transanal resection can be done instead of a more invasive LAR or APR. This might help you avoid having a colostomy. But not all doctors agree with this method, because it doesn't let the surgeon check the nearby lymph nodes for cancer.
- Another option might be to get chemotherapy alone, followed by chemoradiation

followed by surgery.

For treatment of stage II rectal cancer that is dMMR or MSI-H, [immunotherapy](#) is preferred, but chemotherapy combined with radiation (TNT) is also an option. If you and your doctor choose to be treated with immunotherapy, it is usually given for 6 months. If there are no findings of cancer after the immunotherapy treatment by imaging and scope, no further therapy is given. If there are finding of persistent cancer after the immunotherapy treatment, combined chemo and radiation may then be given, followed by surgery.

Treating stage III rectal cancer

Stage III rectal cancers have spread to nearby lymph nodes but not to other parts of the body.

Treatment for stage III rectal cancer is very similar to that of stage II rectal cancer (see above).

Treating stage IV rectal cancer

Stage IV rectal cancers have spread to distant organs and tissues, such as the liver or lungs. Treatment options for stage IV rectal cancer is very similar to that of Stage IV colon cancer. For more details, refer to [Treatment of Colon Cancer, by Stage](#). For rectal cancers that don't shrink with chemo and widespread cancers that are causing symptoms, treatment is done to relieve symptoms and avoid long-term problems, such as bleeding or blockage of the intestines. Treatments may include one or more of these:

- Removing the rectal cancer with surgery
- Surgery to create a colostomy and bypass the rectal cancer (a diverting colostomy)
- Using a special laser to destroy the cancer within the rectum
- Placing a stent (hollow metal tube) within the rectum to keep it open; this does not require surgery
- Chemoradiation therapy
- Chemo alone

Treating recurrent rectal cancer

Recurrent cancer means that the cancer has come back after treatment. It may come

back near the area of the initial rectal cancer (locally) or in distant organs, like the lungs or liver. If the cancer does recur, it's usually in the first 2 to 3 years after surgery, but it can also recur much later.

Local recurrence

If the cancer comes back in the pelvis (locally), it's treated with surgery to remove the cancer, if possible. This surgery is often more extensive than the initial surgery. In some cases, radiation therapy may be given during the surgery (this is called **intraoperative radiotherapy**) or afterward. Chemo may also be given after surgery. Radiation therapy might be used as well if it was not used before.

Distant recurrence

If the cancer comes back in a distant part of the body, the treatment will depend on whether it can be removed by surgery.

If the cancer can be removed, surgery is done. Chemo may be given **before** or **after** surgery, too. When the cancer has spread to the liver, chemo may be given through the hepatic artery leading to the liver.

If the cancer can't be removed by surgery, chemo and/or [targeted therapy drugs](#)

medical writing.

American Cancer Society medical information is copyrighted material. For reprint requests, please see our Content UsaaTerPolic_____
