



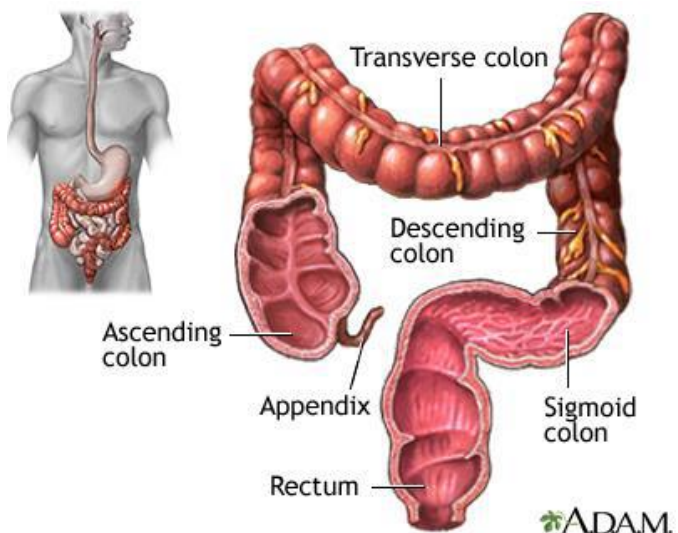
Research • Educate • Support

## Fact Sheet on Colorectal Cancer

### Introduction

Colorectal cancer is cancer that occurs in the colon and rectum. Sometimes it is called colon cancer, for short. The colon is also known as the large intestine or large bowel. The rectum is the passageway that connects the colon to the anus.

[Picture Credit: Anatomy Colon]



### Colorectal Cancer

Cancers of the colon and rectum (colorectal cancer) start when the process of the normal replacement of lining cells goes awry. Mistakes in mucosal cell division occur frequently. For reasons that are poorly understood, sometimes mistakes occur that escape our editing systems. When this occurs, these cells begin to divide independently of the normal checks and balances that control growth. As these abnormal cells grow and divide, they can lead to growths within the colon called polyps. Polyps vary in type, but many are precancerous tumours that grow slowly over the course of years and do not spread. As polyps grow, additional genetic mutations further destabilize the cells and can make the cells more bizarre. When these precancerous tumours change direction (growing through the tube rather than into the middle of it) and invade other layers of the large intestine (such as the submucosa or muscular layer), the precancerous polyp has become cancerous. In most cases this process is slow, taking at least 8 to 10 years to develop from those early aberrant cells to a frank cancer.

Sun, M., Wang, Y., Sundquist, J. Sundquist, K. & Ji, J. 2020.

**PURPOSE:** The incidence of colorectal cancer (CRC) varies by age, sex, and anatomical subsite. Few studies have examined the temporal trends of age-specific sex disparity in incidence and survival by age at diagnosis and anatomical site.

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**PATIENTS AND METHODS:** The study was performed on all incident cases of CRC, using data derived from the nationwide Swedish Cancer Register between 1960 and 2014, including right-sided colon cancer (RCC), left-sided colon cancer (LCC), and rectal cancer. Male-to-female age-standardized incidence rate ratio (IRR) and male-to-female five-year survival rate ratio (SRR) were calculated as the main indicators. Furthermore, we performed joinpoint regression analyses to estimate average annual percentage change.

**RESULTS:** The overall male-to-female IRR was 1.05 for RCC, 1.31 for LCC, and 1.66 for rectal cancer. Male-to-female IRR increased steadily for RCC by an average of 0.4% per year until the mid-1990s and then decreased gradually by an average of 1.0% per year. LCC patients showed an increase of 0.6% per year since the mid-1970s. For rectal cancer, a non-significant random fluctuation was noted during the study period. The temporal trends of male-to-female IRR varied by age at diagnosis. The male-to-female SRR was 0.87 for RCC, 0.88 for LCC, and 0.86 for rectal cancer, which remained relatively stable during the study period.

**CONCLUSION:** Sex disparity of CRC is age-, period-, and anatomical subsite-dependent. Further studies are needed to investigate the underlying contributing factors.

**Al-Ghafari, A.B., Balamash, K.S. & Al Doghaither, H.A. 2019.**

**BACKGROUND:** Many epidemiological studies have shown that vitamin D deficiency is associated with various types of human cancers. The biological action of vitamin D and its metabolites is mediated by the transcription factor vitamin D receptor (VDR). The *VDR* gene is highly expressed in the colon and is involved in many biological functions. The aim of the current study was to assess the relationship between serum vitamin D metabolite and calcium levels with *VDR* polymorphisms in normal and colorectal cancer (CRC) patients.

**METHODS:** Fifty Saudi CRC patients and fifty controls were enrolled in the study. The levels of total vitamin D, 25(OH)D<sub>3</sub>, and calcium were measured in serum.

**RESULTS:** The homozygous genotype (aa) of the *Apal VDR* polymorphism (rs7975232) was found to correlate with total serum vitamin D levels of CRC patients, while the heterozygous (Tt) *TaqI VDR* polymorphism (rs731236) was associated with serum calcium levels. In contrast, the *BsmI* and *FokI VDR* polymorphisms (rs1544410 and rs2228570, resp.) did not affect the serum levels of total vitamin D, 25-hydroxyvitamin D<sub>3</sub>, and calcium.

**CONCLUSION:** Appropriate vitamin D levels were shown to be important in preventing the onset of CRC.

### Incidence of Colorectal Cancer in South Africa

According to the outdated National Cancer Registry, known for under reporting, the following cases of colorectal cancer were histologically diagnosed during 2016 (the most recent formal statistics available for South Africa):

Group - Males 2016	Actual No of Cases	Estimated Lifetime Risk	Percentage of All Cancers
All males	2 065	1:76	5,29%
Asian males	135	1:49	13,83%
Black males	605	1:172	4,53%
Coloured males	301	1:54	6,50%
White males	1 024	1:33	5,01%

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Group - Females 2016	Actual No of Cases	Estimated Lifetime Risk	Percentage of All Cancers
All females	1 819	1:127	4,30%
Asian females	105	1:75	8,12%
Black females	609	1:262	3,00%
Coloured females	277	1:83	5,88%
White females	828	1:51	4,99%

The frequency of histologically diagnosed cases of colorectal cancer in South Africa for 2016 was as follows (National Cancer Registry, 2016):

Group - Males 2016	0 – 19 Years	20 – 29 Years	30 – 39 Years	40 – 49 Years	50 – 59 Years	60 – 69 Years	70 – 79 Years	80+ Years
All males	4	35	90	213	446	653	452	172
Asian males	1	1	4	15	41	43	22	8
Black males	3	24	53	99	158	161	87	20
Coloured males	0	5	12	26	67	106	59	26
White males	0	5	21	73	180	343	284	118

Group - Females 2016	0 – 19 Years	20 – 29 Years	30 – 39 Years	40 – 49 Years	50 – 59 Years	60 – 69 Years	70 – 79 Years	80+ Years
All females	3	26	102	201	402	479	399	207
Asian females	0	1	4	17	20	37	20	6
Black females	2	16	54	100	169	138	97	33
Coloured females	1	4	14	34	72	67	65	20
White females	0	5	30	50	141	237	217	148

N.B. In the event that the totals in any of the above tables do not tally, this may be the result of uncertainties as to the age, race or sex of the individual. The totals for 'all males' and 'all females', however, always reflect the correct totals.

According to **Bruni, et al.**, (2019), the burden of cervical cancer for South Africa for 2018 Globocan is estimated as:

- Annual number of colorectal cancer cases 4 329
- Annual number of colorectal cancer deaths 2 498

### Signs and Symptoms of Colorectal Cancer

Sign and Symptoms of colorectal cancer may include:

- A change in bowel habits, including diarrhoea or constipation or a change in the consistency of stools
- Rectal bleeding or blood in stools
- Persistent abdominal discomfort, such as cramps, gas or pain
- A feeling that the bowel does not empty completely
- Weakness or fatigue
- Unexplained weight loss

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Many people with colorectal cancer experience no symptoms in the early stages of the disease. When appearing, symptoms will likely vary, depending on the cancer's size and location in the large intestine.

### **Risk Factors for Colorectal Cancer**

Risk factors for colorectal cancer may include:

- Previous radiation therapy for cervical cancer
- Advancing age - national and international data indicate that the risk of developing colorectal cancer increases with advancing age. Most cases of colorectal cancer occur in people aged 50 or older.
- Family or personal history
  - A family history of inherited colorectal cancer syndromes, such as familial adenomatous polyposis (FAP) or hereditary non-polyposis colorectal cancer (HNPCC or Lynch syndrome)
  - A strong family history of colorectal cancer or polyps. This usually means first-degree relatives (parent, sibling, or child) who developed these conditions younger than age 60
  - A personal history of colorectal cancer or polyps
  - A personal history of chronic inflammatory bowel disease (for example, ulcerative colitis or Crohn's disease)

(Botma, *et al.*, 2012).

**Rombouts, A.J.M., Hugten, N., van Beek, J.J.P., Poortmans, P.M.P., de Wilt, J.H.W. & Nagtegaal, I.D. 2018.**

**BACKGROUND:** One of the late complications associated with radiation therapy (RT) is a possible increased risk of second cancer. In this systematic review, we analysed the incidence of rectal cancer following primary pelvic cancer irradiation.

**METHODS:** A literature search was conducted using the PubMed and EMBASE libraries. Original articles that reported on secondary rectal cancer after previous RT for a primary pelvic cancer were included. Sensitivity analyses were performed by correcting for low number of events, high risk of bias, and outlying results.

**RESULTS:** A total of 5171 citations were identified during the literature search, 23 studies were included in the meta-analyses after screening. A pooled analysis, irrespective of primary tumour location, showed an increased risk for rectal cancer following RT (N = 403.243) compared with non-irradiated patients (N = 615.530) with a relative risk (RR) of 1.43 (95% confidence interval [CI] 1.18-1.72). Organ specific meta-analysis showed an increased risk for rectal cancer after RT for prostate (RR 1.36, 95%CI 1.10-1.67) and cervical cancer (RR 1.61, 95% CI 1.10-2.35). No relation was seen in ovarian cancer patients. The modality of RT did not influence the incidence of rectal cancer.

**CONCLUSIONS:** This review demonstrates an increased risk for second primary rectal cancer in patients who received RT to the pelvic region. This increased risk was modest and could not be confirmed for all primary pelvic cancer sites. The present study does not provide data to change guidelines for surveillance for rectal cancer in previously irradiated patients.

**Pandey, A., Shen, C. & Man, S.M.** 2019.

“Colorectal cancer is a multifactorial disease and a leading cause of cancer-related deaths worldwide. Inflammation is a driver across multiple stages in the development of colorectal cancer. The inflammasome is a cytosolic multiprotein complex of the innate immune system central to the regulation of inflammation, pyroptosis, and other cellular processes important for maintaining gut homeostasis. Studies using mouse models of colitis and colitis-associated colorectal cancer have highlighted diverse and sometimes contrasting roles of inflammasomes in maintaining a balance between intestinal barrier function and the gut microbiota. In addition, persistent and/or dysregulated stimulation of inflammasome sensors finetune inflammation and tumorigenesis in the intestine. This review highlights the emerging role of inflammasome signaling in colitis and colitis-associated colorectal cancer. We also review the key mechanisms by which inflammasome signaling modulate inflammation and tumor development. Finally, we speculate the importance of using more tightly regulated experimental approaches to examine the role of gut microbiota in colorectal cancer.”

### **Lifestyle Factors that May Contribute to the Increased Risk for Colorectal Cancer:**

Lifestyle factors that may contribute to the increased risk of colorectal cancer include:

- Lack of regular physical activity
- Being overweight including obesity
- Low fruit and vegetable intake
- A low-fibre and high-fat and high sugar diet
- Red meat consumption
- Consuming processed meats
- Alcohol consumption
- Tobacco use

### **Lifestyle Factors that Play an Important Role in Reducing the Risk for Colorectal Cancer**

The following are of importance:

- Fibre – research suggests that fibre (found mostly in fruit, vegetables and whole grain products and cereals) is likely to reduce the risk for bowel cancer
- Fruit and vegetables – the large European Prospective Investigation into Cancer and Nutrition (EPIC) study has shown that people who eat a lot of fruit and vegetables have a lower risk for colorectal cancer
- Meat – eating a lot of red meat, particularly processed meat, increases one’s risk for colorectal cancer
- Fish – eating more fish high in Omega-3 lowers one’s risk for colorectal cancer
- Calcium – calcium rich diets may lower the risk of colorectal cancer
- Alcohol – alcohol has been classified as a Group 1 carcinogen by the International Agency for Research on Cancer (IARC) and should be avoided to reduce the risk of colorectal cancer
- Tobacco - people who use tobacco products have an increased risk of colorectal cancer and cancer in general. Smoking is a well-known cause of lung cancer, but some of the cancer-causing

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Page 5

substances in smoke dissolve into saliva and if swallowed, can cause digestive system cancers like colorectal cancer

- Processed meats (like sausages, luncheon meats inclusive of ham and even biltong) can increase the risk for colorectal cancer based on the use of nitrate and nitrites
- Cooking meats at very high temperatures (frying, broiling, or grilling) creates chemicals that increase cancer risk, namely Heterocyclic Amines (HCAs)
- Body weight – being overweight increases the risk of developing and dying from colorectal cancer. Obesity raises the risk of colorectal cancer in both men and women, but the link seems to be stronger in men
- Physical inactivity - increases the risk of developing colorectal cancer - increasing activity may help reduce the risk
- Radiation therapy for cancer - radiation therapy directed at the abdomen to treat previous cancers may increase the risk of colorectal cancer

**Hull, M.A. 2020.**

“The preventability estimate for colorectal cancer (CRC) is approximately 50%, highlighting the huge potential for altering modifiable lifestyle factors (including diet and body fatness) in order to reduce risk of this common malignancy. There is strong evidence that dietary factors (including intake of wholegrains, fibre, red and processed meat and alcohol) affect CRC risk. The lack of positive intervention trials and limited mechanistic understanding likely explain limited public health impact of epidemiological observations, to date. An alternative strategy for nutritional prevention of CRC is use of supplements that provide higher individual nutrient exposure than obtained through the diet (chemoprevention). There are positive data for calcium and/or vitamin D and the n-3 fatty acid EPA from polyp prevention trials using colorectal adenoma as a CRC risk biomarker. Although CRC is an obesity-related malignancy, there remains a paucity of observational data supporting intentional weight loss for CRC risk reduction. Some types of obesity surgeries (Roux-en-Y gastric bypass) might actually increase subsequent CRC risk due to alteration of local intestinal factors. There is intense interest in nutritional therapy of patients after diagnosis of CRC, in order to impact on recurrence and overall survival (now often termed cancer interception). In conclusion, nutritional prevention of CRC continues to hold much promise. Increased mechanistic understanding of the role of individual nutrients (linked to intestinal microbiota), as well as a precision medicine approach to CRC chemoprevention and interception based on both tumour and host factors, should enable translation of nutritional interventions into effective CRC risk reduction measures.”

### **Screening for Higher Risk Individuals**

People with familial risk factors for colorectal cancer may need earlier (before age 50) or more frequent testing. Genetic testing in suspected familial cases may identify candidates for secondary prevention. Screening for high risk individuals is more likely to be done using colonoscopy.

#### Testing for occult blood in the stool (faeces)

When a health care provider tests stool with a faecal occult blood test they are often looking for the presence of microscopic occult blood in the faeces, which may be a sign of a growth, inflammation or bleeding in the digestive system.

#### Causes of Blood in Stool

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Blood may appear in the stool in one or more of the following conditions:

- Benign (non-cancerous) or malignant (cancerous) growths or polyps of the colon
- Haemorrhoids (swollen blood vessels near the anus and lower rectum that can rupture, causing bleeding)
- Anal fissures (splits or cracks in the lining of the anal opening)
- Intestinal infections that cause inflammation
- Ulcers
- Ulcerative colitis
- Crohn's disease
- Diverticular disease, caused by outpouchings of the wall of the large intestine
- Abnormalities of the blood vessels in the large intestine

Gastrointestinal bleeding may be microscopic (invisible to the eye) or may be easily seen as red blood or black tar-like bowel movements, called melaena stools indicating digested blood.

A Faecal Occult Blood Test - The faecal occult blood test requires the collection of 3 small stool samples. Usually the samples are a bit of stool collected on the end of an applicator. The stool samples should be taken one day apart, because colorectal cancers may bleed from time to time, rather than consistently.

Preparation before a Faecal Occult Blood Test - The faecal occult blood test results are largely affected by how one prepares for the test, so it is important to follow the instructions carefully.

Stool samples should NOT be collected from individuals:

- with haemorrhoids
- during or within 3 days either side of a menstrual period

As certain foods can alter the test results, a special diet is often recommended for 48 to 72 hours before the test. The following foods should be avoided during that time:

- Beets
- Broccoli
- Spanspek (also cantaloupe, canteloupe, cantaloup, mushmelon, muskmelon, rockmelon, sweet melon, Persian melon)
- Carrots
- Cauliflower
- Cucumbers
- Fish
- Grapefruit
- Horseradish
- Mushrooms
- Poultry
- Radishes
- Red meat (especially 'rare' prepared)
- Turnips

- Vitamin C-enriched foods or beverages

**Von Wagner, C., Versetraete, W., Hirst, Y., Nicholson, B.D., Stoffel, S.T. & Laszlo, H. 2020.**

**BACKGROUND:** There has been interest in using the non-invasive, home-based quantitative faecal immunochemical test (FIT) to rule out colorectal cancer (CRC) in high-risk symptomatic patients.

**AIM:** To elicit public preferences for FIT versus colonoscopy (CC) and its delivery in primary care.

**DESIGN & SETTING:** A cross-sectional online survey in England.

**METHOD:** A total of 1057 adults (without CRC symptoms and diagnosis) aged 40-59 years were invited from an English online survey panel. Responders were asked to imagine they had been experiencing CRC symptoms that would qualify them for a diagnostic test. Participants were presented with choices between CC and FIT in ascending order of number of CRCs missed by FIT (from 1-10%). It was measured at what number of missed CRCs responders preferred CC over FIT.

**RESULTS:** While 150 participants did not want either of the tests when both missed 1% CRCs, the majority ( $n = 741$ , 70.0%) preferred FIT to CC at that level of accuracy. However, this preference reduced to 427 (40.4%) when FIT missed one additional cancer. Women were more likely to tolerate missing CRC when using FIT. Having lower numeracy and perceiving a higher level of risk meant participants were less likely to tolerate a false negative test. Most of those who chose FIT preferred to return it by mail (62.2%), to be informed about normal test results by letter (42.1%), and about abnormal test results face to face (32.5%).

**CONCLUSION:** While the majority of participants preferred FIT over CC when both tests had the same sensitivity, tolerance for missed CRCs was low.

**Ding, D., Han, S., Zhang, H., He, Y. & Li, Y. 2019.**

“Colorectal cancer is one of the top leading causes of cancer mortality worldwide, especially in China. However, most of the current treatments are invasive and can only be applied to very few cancers. The earlier a malignant tumor is diagnosed, the higher the patient's survival rate. In this study, we proposed a computational framework to identify highly-reliable and easily-detectable biomarkers capable of secreting into blood, urine and saliva by integrating transcriptomics and proteomics data at the system biology level. First, a large number of transcriptome data were processed to identify candidate biomarkers for colorectal cancer. Second, three classified models are constructed to predict biomarkers for colorectal cancer capable of secreting into blood, urine and saliva, which are effective disease diagnosis media to facilitate clinical screening. Then biological functions and molecular mechanisms of the candidate biomarkers of colorectal cancer are inferred utilizing multi-source biological knowledge and literature mining. Furthermore, the classification power of different combinations of candidate biomarkers is verified by machine learning models. In addition, the targeted drugs of the predicted biomarkers are further analyzed to provide assistance for clinical treatment of colorectal cancer. In this paper, our proposed computational model not only provides the effective candidate biomarkers ESM1, CTHRC1, AZGP1 for colorectal cancer capable of secreting into blood, urine and saliva, but also helps to understand the molecular mechanism of colorectal cancer. This computational framework can span the huge gap between transcriptome and proteomics, which can easily be applied to the biomarker research for other types of tumor.”

There are faecal occult blood tests available on the market that are not affected by dietary restrictions prior to collecting stool samples for screening. Enquire from the Cancer Association regarding availability of these occult blood tests.

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Page 8

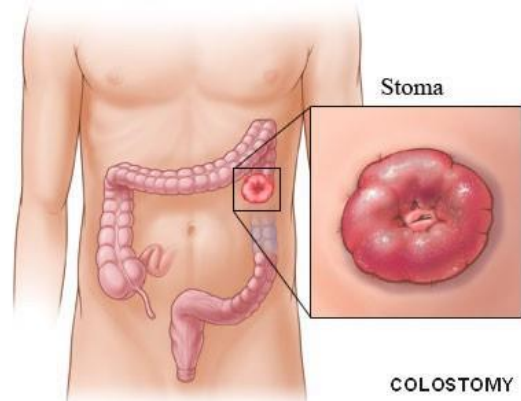


## Stoma Care

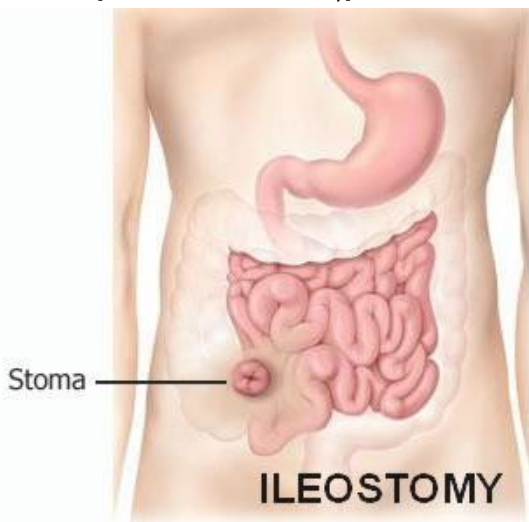
Being diagnosed with cancer and having treatment takes time to come to terms with. It can also be difficult to cope with the physical effects of treatment. If a patient had a colostomy or ileostomy operation as part of treatment, the end of the bowel is brought out into an opening on the abdomen. The opening is referred to as a stoma. Some people have a temporary colostomy (an artificial opening into the colon) made during their treatment for bowel cancer. The colostomy may be closed a few months later when the bowel has fully healed.

Some people have a permanent colostomy or ileostomy (artificial opening into the ilium or small bowel). It can take a while to get used to dealing with a stoma. There is a lot of advice and support available in the form of a specially trained nurse referred to as a stoma nurse.

[Picture Credit: Colostomy]



[Picture Credit: Ileostomy]



### *Basic Care of a Colostomy or Ileostomy*

The colostomy bag is designed to stick onto the abdomen where it collects the faeces and flatus from the stoma. It is waterproof so one can wear it while showering or bathing. Most colostomy bags have several special features including a filter. This filter works by releasing wind so the bag does not inflate (which is called 'ballooning'). The filter also has a deodorising action to make sure that there is no smell, which is one of the things that people worry about the most.

### *Emptying and Changing a Stoma Bag*

It is good to establish a routine for changing a stoma bag. Keep this routine as simple as possible. As the stoma is more active at certain times of the day, like shortly after meals, bags should be changed at time when it is relatively inactive, like first thing in the morning.

Stoma bag needs to be changed regularly – usually between one and three times a day depending on the amount of faeces. If using a drainable bag, it is recommended to empty the bag before removing it. Then seal the bag inside a disposal bag and place in the dustbin. Do not flush it down the toilet, as it will cause a blockage.

### *Taking Care of the Skin Around the Stoma is very important*

**Adhesive plate** - The adhesive plate must fit snugly around the stoma. If the hole in the adhesive plate is larger than the stoma, the skin will become exposed to the harmful effects of the faeces and become irritated. Also, if the adhesive plate is cut too small, it may cause damage to the stoma. Check regularly to ensure the adhesive plate has a snug fit around the stoma.

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Page 9



Watch out for irritants - Leakage on to the skin, excessive removal of the adhesive plate and harsh skin cleansers can all cause irritation of the skin.

Bleeding - It is common to experience a small amount of bleeding around the stoma when cleaning it – no cause of alarm. If bleeding comes from inside the stoma, a doctor is to be contacted immediately.

(Coloplast).

[Picture Credit: Colostomy Bag]

### Diagnosis of Colorectal Cancer

Diagnosis of Colorectal Cancer may include:

- Obtaining a history from the patient
- A Physical examination
- A digital rectal examination
- The patient may then be referred for further examination - if the diagnosis uncertain or if symptoms suggest colorectal cancer.

#### *Possible further examination*

Two tests may also be used to confirm a diagnosis of bowel cancer:

*Sigmoidoscopy* - a device called a sigmoidoscope is used, which is a thin, flexible tube attached to a small camera and light.

known as a biopsy

A sigmoidoscopy is not usually painful, but can feel uncomfortable; most people go home after the examination has been completed



[Picture Credit: Sigmoidoscope]



*Colonoscopy* – it is similar to a sigmoidoscopy except a longer tube, called a colonoscope, is used to examine the entire large bowel

[Picture Credit: Colonoscope]

### Staging of Colorectal Cancer

Cancer staging is the process of determining the extent to which a cancer has developed by spreading. It also

assists in planning of treatment.

### Where Colorectal Cancer May Spread To

Should colorectal cancer spread in the body, it may spread as indicated in the table below:

Cancer Type:	Main Sites of Metastasis (Spread)
Bladder	Bone, liver, lung
Breast	Bone, brain, liver, lung
Colon	Liver, lung
Colorectal	Liver, lung, peritoneum (lining of abdomen)
Lung	Adrenal gland, bone, brain, liver, other lung
Melanoma	Bone, brain, liver, lung, skin, muscle
Ovary	Liver, lung, peritoneum (lining of abdomen)
Pancreas	Liver lung, peritoneum (lining of abdomen)
Prostate	Adrenal gland, bone, liver, lung

(National Cancer Institute).

### Treatment for Colorectal Cancer

Most people with early colorectal cancer may have surgery.

Surgery - In many people with early bowel cancer the surgeon is able to cut away all of the cancer without any further treatment required.

There are different types of surgery for colorectal cancer. Which type of surgery is best will depend on where the cancer is, its type and size, and whether it has spread (metastatised) or not. If the cancer is removed from the bowel lining it is called a local resection.

**Azzam, N., AlRuthia, Y., Alharbi, O., Aljebreen, A., Almadi, M., Alarfaj, M., Alsaleh, K., Almasoud, A., Alsharidah, M., Alseneidi, S., Alali, F. & Alalwan, M. 2020.**

**BACKGROUND:** Colorectal cancer is the third most common malignancy in Saudi Arabia. The best therapeutic regimen for colorectal cancer is a matter of ongoing debate and data on its treatment in Saudi Arabia are limited.

**PURPOSE:** The objective of this study was to explore the predictors of survival and to compare the risk of mortality among colorectal cancer patients treated with different therapeutic modalities.

**PATIENTS AND METHODS:** The study utilized data from the electronic colorectal cancer registry of a university-affiliated tertiary care hospital. The Kaplan-Meier survival analysis was used to estimate the survival rates over 36 months of follow-up across rectal and colon cancer patients as well as different sociodemographic and medical characteristics. Bivariate and multiple Cox proportional-hazards regressions were conducted to estimate the risk of mortality among rectal and colon cancer patients undergoing different treatments.

**RESULTS:** The number of patients in the registry who were followed up for 36 months was 143 patients. The majority of patients had colon cancer (74.13%). Rectal cancer patients had generally better survival estimates compared to their colon cancer counterparts. Colon cancer patients treated with chemotherapy had a significantly lower risk of mortality controlling for the use of surgery, radiotherapy, and other variables including age, gender, stage of cancer, and family history

of colorectal cancer (HR=0.33; P=0.03). Additionally, colon cancer patients with a family history of colorectal cancer had significantly higher risk of mortality (HR=3.40; P=0.02).

**CONCLUSION:** The findings of this study highlight the value of chemotherapy in managing colon cancer patients.

**Akagi, R. & Inomata, M. 2020.**

“Surgical resection and adjuvant chemotherapy are the only treatment modalities for localized colorectal cancer that can obtain a "cure." The goal in surgically treating primary colorectal cancer is complete tumor removal along with dissection of systematic D3 lymph nodes. Adjuvant treatment controls recurrence and improves the prognosis of patients after they undergo R0 resection. Various clinical studies have promoted the gradual spread and clinical use of new surgical approaches such as laparoscopic surgery, robotic surgery, and transanal total mesorectal excision (TaTME). Additionally, the significance of adjuvant chemotherapy has been established and it is now recommended in the JSCCR (the Japanese Society for Cancer of the Colon and Rectum) guideline as a standard treatment.”

Radiotherapy - Radiotherapy is not often used to treat cancer of the large bowel. It might be used before or after surgery for rectal cancer. It may include:

- External beam radiation therapy – radiation therapy from an external source
- Internal radiation therapy (also known as brachytherapy) where radioactive material is put into the rectum, and positioned close to the tumour. It is left in place for a predetermined period of time.

**Thompson, R., Cheung, P., Chu, W., Myrehaug, S., Poon, I., Sahgal, A., Soliman, H., Tseng, C.L., Wong, S., Ung, Y., Beatriz Kinupe Abrahão, A., Erler, D., Zhang, L., Ko, Y.J. & Chung, H.T. 2019.**

**BACKGROUND AND PURPOSE:** To review the clinical outcomes following the use of stereotactic body radiotherapy (SBRT) in patients with metastatic colorectal cancer (mCRC) from a large academic institution.

**MATERIALS AND METHODS:** Patients with mCRC treated with extracranial SBRT between 2008 and 2016 were identified from an institutional database. Treatment indications were oligometastases, oligoprogression, and local control of dominant tumors. Endpoints included local progression (LP), overall survival (OS), progression-free survival (PFS), and cumulative incidence of starting or changing systemic therapy (SCST). Univariate and multivariable analyses (MVA) were performed to identify predictive factors.

**RESULTS:** One hundred and sixty-five patients (262 lesions treated) were included. The 2-year cumulative incidence of LP was 23.8%. Lower SBRT doses and tumor location in the liver were significant predictors of LP on MVA. Median OS was 49.3 months, 19.3 months, and 9.0 months for oligometastases, oligoprogression, and local control of dominant tumors, respectively. Primary tumor not in situ, smaller tumors, fewer lines of previous systemic therapy, lower CEA, and oligometastases treatment indications were significant predictors of higher OS on MVA. For the entire cohort, median PFS was 9.9 months, while oligometastatic patients had a median PFS of 12.4 months. 2-year cumulative incidence of SCST was 41.7%.

**CONCLUSIONS:** Survival outcomes are favorable after SBRT for mCRC patients. A significant proportion of patients did not have a change in systemic therapy after SBRT. Higher doses are

required to obtain the best local control. Efforts should be made to better optimize SBRT delivery for liver metastases given their higher local failure rate.

**Chemotherapy** - Chemotherapy uses anti-cancer (cytotoxic) drugs to destroy cancer cells. It works by disrupting the growth of cancer cells. As it circulates in the blood, it can reach cancer cells almost anywhere in the body and kill them. Chemotherapy may be given before surgery for rectal cancer. Chemotherapy may also given as a treatment for colorectal cancer that has spread (metastasised).

**Biological Therapy** - biological therapies are drugs that help the body to control the growth of cancer cells.

**Immunotherapy** - Current immunotherapies for colorectal cancer fall into several broad categories: checkpoint inhibitors and immune modulators, monoclonal antibodies, therapeutic vaccines, adoptive cell therapy, oncolytic virus therapy, adjuvant immunotherapies, and cytokines. Most of these therapies are still in early-phase clinical testing for colorectal cancer, but their successful use in other types of cancers suggests that they may ultimately prove useful for colorectal cancer as well.

**Barreiro Dominguez, E., Sánchez Santos, R., Diz Juenguen, S., Piñeiro, Teijeiro, A. & Carrera Dacosta, E. 2019.**

**INTRODUCTION:** the aim of the study is to evaluate the effect of preoperative and postoperative oral nutritional therapy in the prevention of malnutrition and postsurgical complications in colorectal cancer Patients and methods: patients who underwent oncological colorectal surgery between June 2014 and December 2015 are included. An evaluation of preoperative nutritional status is performed. Patients received IMPACT® (2/day) for 5-10 days previous surgery. In the postoperative period, patients received IMPACT®/24h from 3rd to 7th postoperative day. Patients with low rates of albumin (< 2.5) or postoperative ileus received parenteral nutrition. Data were analyzed with the statistical package SPSS 21.0.

**RESULTS:** two hundred and twenty colorectal cancer patients were included. Twenty-eight patients did not take the preoperative oral supplements. Following the intake of nutritional supplements, an improvement of prealbumin and transferrin was noticed. One hundred and twenty-one patients received oral nutrition and 41 received parenteral nutrition in the postoperative period. There were more postoperative complications among patients without preoperative nutritional supplements (50% vs 28.1%;  $p = 0.019$ ), and hospital stay was higher  $14.64 \pm 11.86$  vs  $9.36 \pm 5.5$ ;  $p < 0.005$ ). There were more complications among patients without postoperative oral nutritional supplements (24% vs 18.2%;  $p < 0.005$ ), with more wound infection (1.9% vs 0.8%) and leaks (1.9% vs 0.8%). They also had a higher average stay ( $9.15 \pm 4.6$  vs  $7.57 \pm 2.5$  days;  $p = 0.021$ ).

**CONCLUSION:** in our study, patients that received oral nutritional supplements prior and following colorectal surgery had a lower rate of complications and a shorter hospital stay.

### **Treatment for Advanced Colorectal Cancer**

Advanced colorectal cancer means the cancer has spread to other parts of the body from where it started in the bowel (colon) or back passage (rectum). The cancer may be advanced when it is first diagnosed, or the cancer may recur some time after original treatment.

Chemotherapy and radiotherapy may be used to shrink a cancer and control symptoms. Surgery can be used in some situations to treat advanced colorectal cancer.

Specialised surgical treatments may be used to destroy bowel cancer that has spread to the liver (liver secondaries). These treatments may include hepatic artery chemoembolisation, radiofrequency ablation, cryotherapy, microwave ablation and laser therapy.

### **About Clinical Trials**

Clinical trials are research studies that involve people. They are conducted under controlled conditions. Only about 10% of all drugs started in human clinical trials become an approved drug.

Clinical trials include:

- Trials to test effectiveness of new treatments
- Trials to test new ways of using current treatments
- Tests new interventions that may lower the risk of developing certain types of cancers
- Tests to find new ways of screening for cancer

The [South African National Clinical Trials Register](http://www.sanctr.gov.za/) provides the public with updated information on clinical trials on human participants being conducted in South Africa. The Register provides information on the purpose of the clinical trial; who can participate, where the trial is located, and contact details.

For additional information, please visit: [www.sanctr.gov.za/](http://www.sanctr.gov.za/)

### **Medical Disclaimer**

This Fact Sheet is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in this Fact Sheet. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/estate/heirs) relating to the use of any information contained in this Fact Sheet.

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About Bowel Cancer - A Quick Guide

Treating Bowel Cancer - A Quick Guide

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#### **Coloplast**

<http://www.coloplast.com/ostomycares/topics/beforeoperation/usingthebag/>

#### **Colonoscope**

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### **Colostomy Bag**

[http://www.google.co.za/search?q=colostomy+pic&hl=en&tbo=u&rlz=1G1LENN\\_EN-GBZA513&tbm=isch&source=univ&sa=X&ei=EegZUcTnl8qp0AXmulDwBw&ved=0CCsQsA](http://www.google.co.za/search?q=colostomy+pic&hl=en&tbo=u&rlz=1G1LENN_EN-GBZA513&tbm=isch&source=univ&sa=X&ei=EegZUcTnl8qp0AXmulDwBw&ved=0CCsQsA)

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