The following colorectal cancer treatment and research updates extend from May 18th, 2023, to June 15th, 2023, inclusive and are intended for informational purposes only.

This content is not intended to be a substitute for professional medical advice. Always consult your treating physician or guidance of a qualified health professional with any questions you may have regarding your health or a medical condition. Never disregard the advice of a medical professional or delay in seeking it because of something you have read on this website.
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1. Phase II LEAP Clinical Trial For mCRC (Jun.10/23)

The purpose of this study is to determine the safety and efficacy of combination therapy with pembrolizumab (MK-3475) and Levantine (E7080/MK-7902) in patients with triple-negative breast cancer (TNBC), ovarian cancer, gastric cancer, colorectal cancer (CRC), glioblastoma (GBM), or biliary tract cancers (BTC). Participants will be enrolled in initial tumor-specific cohorts, which will be expanded if adequate efficacy is determined. The trial is available at the Odette Cancer Centre and at the Princess Margaret Cancer Centre in Toronto as well as the following Centres throughout Canada: Abbotsford, BC; Winnipeg, MB; CHU de Quebec.

For information, visit the link below.

https://clinicaltrials.gov/ct2/show/study/NCT03797326?term=A+Multicenter%2C+Open-label+Phase+2+Study+of+Lenvatinib+%28E7080%29+Plus+Pembrolizumab&show_locs=Y#locn

2. TRK Fusion Cancer and How to Test for It (Jun.13/23)

[Diagram of TRK fusion cancer and how to test for it]

Having TRK fusion cancer doesn’t change your original diagnosis, it just means that your tumour is driven by an NTRK gene fusion.

Testing is the only way to find out if NTRK gene fusion is driving your cancer.

Who should be tested for NTRK gene fusions?

Your doctor may consider testing in people:
- with solid tumours that are metastatic, and
- who are likely to experience severe complications from surgical resection, and
- when there are no satisfactory treatments options available.

It’s important to know what’s driving your cancer to help your doctor take action.

FastTRK is a clinical testing program for diagnosing NTRK gene fusions.

Sponsored by Bayer, TRK is a complimentary service for healthcare professionals to find out if their patients’ cancer has an NTRK gene fusion.

Talk to your doctor about which tests are recommended for you.
INTRODUCING

Tumour-Agnostic Therapies
Advances in precision medicine have brought therapies that specifically target what is driving a patient's cancer

Treatment with more traditional cancer therapies is based on where the tumour is located in the body

Tumour agnostic therapies target a specific genomic change in the cancer cells regardless of where the tumour is located in the body

Genomic changes in cancer cells are identified through diagnostic testing of the cancer cells. The results help clinicians decide on a treatment for each patient.

Advantages of tumour agnostic therapies
- Targets the genomic change that is the root cause of the cancer to suppress tumour growth
- Harnesses our growing understanding of cancer biology
- Offers an innovative, new and effective approach to treating cancer

Change required to adopt tumour agnostic therapies in Canada
- A shift in mindset: this is a new concept that differs from the traditional approach of treating cancer based on tumour location
- Access to genomic testing: identifying patients who would benefit from treatments requires robust testing infrastructure
- An evolved, more adaptive assessment of treatments for public coverage is required that includes recognition of smaller patient populations, new clinical trial methods, and ability to examine new data over time

https://www.bayer.ca/en/media/news/?dt=TmpBPQ==&st=1
3. A Phase II, Open-label, Multicenter, Study of an Immunotherapeutic Treatment for the MSI High CRC Metastatic Population (Jun.13/23)

The purpose of this study is to look at the effectiveness of the vaccine DPX-Survivac in combination with the drugs cyclophosphamide and the immunotherapy Pembrolizumab in patients with solid cancers who are identified to be MSI-High. All patients will receive combination therapy of DPX-Survivac, cyclophosphamide, and pembrolizumab. Patients participating will know which treatment they are receiving. The trial is currently hosted at the Odette Cancer Centre, and a new site is opening at Mt. Sinai Hospital.

4. Phase III Study at the Odette Cancer Centre Comparing Arfolitixorin vs. Leucovorin in Combination with 5FU, Oxaliplatin and Bevacizumab in Patients with Advanced CRC (Jun.12/23)

The purpose of this study is to look at the effectiveness of the drug Arfolitixorin in combination with 5-fluorouracil (5FU), oxaliplatin, and bevacizumab in patients with colorectal cancer (CRC). Patients with advanced/metastatic CRC who meet certain criteria may be able to participate. There will be two groups of patients participating in this study;

- one group will receive Arfolitixorin in combination with 5FU, oxaliplatin, and bevacizumab,
- while the other group will receive the drug Leucovorin in combination with 5FU, oxaliplatin, and bevacizumab (standard of care).

The doctor and study staff will not know which group a patient is in. Patients will be randomized to receive one treatment or the other.

About Arfolitixorin:

Arfolitixorin is Isofol’s proprietary drug candidate being developed to increase the efficacy of standard of care chemotherapy for advanced CRC. The drug candidate is currently being studied in a global Phase 3 clinical trial. As the key active metabolite of the widely used folate-based drugs, arfolitixorin can potentially benefit all patients with advanced CRC, as it does not require complicated metabolic activation to become effective.

Treating cancer patients with arfolitixorin – The goals:

- When treating CRC, for example, arfolitixorin is administered in combination with 5-FU to increase cell mortality in circulating cancer cells and in cancerous tumours.
- Arfolitixorin is administered in conjunction with rescue therapy after high-dose treatment with the cytotoxic agent, methotrexate, in order to suppress the cytotoxic affect in surrounding healthy tissue. The treatment is used for certain types of cancer, such as osteosarcoma, a type of bone cancer. This involves administering arfolitixorin separately, 24 hours after the chemotherapy.

5. Immunotherapy Combined with Targeted Therapy in Patients with BRAF V600E–Mutated CRC (Jun.15/23)

In one of the first clinical trials combining immunotherapy and targeted therapy for patients with BRAF V600E–mutated colorectal cancer (CRC), researchers discovered that a combination regimen of dabrafenib, trametinib, and spartalizumab resulted in long-lasting responses. The study successfully met its primary endpoint and achieved a confirmed response rate of 24.3%, compared with a response rate of 7% in a prior trial where patients were treated 7 with each of the same targeted therapies individually. The researchers also reported improved outcomes in one of the trial’s secondary endpoints: durability. Previously, patients with BRAF V600E–mutated CRC have seen only a short-lived clinical benefit after treatment with BRAF or MEK inhibitors. But the combination therapy resulted in an increased durability of response, with a median progression-free survival of 5 months compared with 3.5 months with BRAF or MEK inhibitors alone. The researchers noted that 57% of the patients continued with the treatment for more than 6 months and 18% continued for more than 1 year.

The findings suggested how targeted therapies in combination with immunotherapies may drive a greater immune response and improve treatment overall. This merits further clinical investigation and preclinical experiments to determine the best targeted approach to increase immune reactivity against [BRAF-mutated] CRC. The researchers acknowledged that the implications of their research may go well beyond CRC.

6. VITRAKVI (Larotrectinib) is Now Covered in Ontario, Quebec, Saskatchewan, Manitoba and New Brunswick (Jun.15/23)

Please find information below regarding public funding for VITRAKVI (Larotrectinib) in Ontario, Quebec, Saskatchewan, Manitoba and New Brunswick.

7. Highlighting Advances in Targeted Therapies for Advanced CRC (May.18/23)

Despite enormous progress in developing targeted therapies for patients with metastatic colorectal cancer (mCRC), there are still subsets of patients who harbor mutations for which no targeted treatments are available. An Education Session will recognize advances in the development of specific therapies for CRC as well as recent efforts to develop antibody-drug conjugates, which will take place at the 2023 ASCO Annual Meeting on June 3.

Expanding Molecular Targets

Several important available targeted therapies for patients with metastatic CRC interfere with the EGFR pathway—specifically, the anti-EGFR antibody cetuximab or panitumumab for patients with KRAS/NRAS/BRAF wild-type disease and encorafenib plus cetuximab for patients harboring the BRAF V600E mutation. In addition, the HER2 inhibitors trastuzumab and tucatinib recently became therapeutic options for patients with HER2-amplified mCRC. Christina Wu, MD, of Mayo Clinic in Arizona, will review these targeted therapies and highlight ongoing clinical trials that are targeting other genetic alterations during her presentation, “Molecular Targets in Colorectal Cancer: Moving Beyond EGFR, BRAF, and dMMR.”

Understanding the Role of PARP Inhibition

Many patients with CRC do not have microsatellite instability-high tumors and do not benefit from immunotherapy. For these patients, novel combinations of inhibitors of PARP, which is involved in DNA repair, may represent a promising class of medications. Data from new clinical studies of PARP inhibitors and lessons for future research will be the focus of the presentation by Dr. Alese, “Targeting DNA Repair Abnormalities in Microsatellite Stable Colorectal Cancer: An Effective Strategy?” “How we design clinical trials for microsatellite stable CRC has to change in terms of how we think about using PARP inhibitors, what combinations are rational, and how we utilize predictive biomarkers,” he said.

Building on Antibody-Drug Conjugate Research

Although antibody-drug conjugates (ADCs) are a treatment option for many types of blood cancers and solid tumors, they are so far not widely used in CRC. Currently the only effective ADC for this disease is trastuzumab deruxtecan, and it is only appropriate for patients with HER2-amplified mCRC. During the presentation “Antibody Drug Conjugates in Colorectal Cancer: We Need to Do Better,” Jennifer Rachel Eads, MD, of Penn Medicine, will discuss the concept of ADCs, which combine a monoclonal antibody with a cytotoxic drug to deliver chemotherapy more precisely to tumor sites, and the current state of ADC development for CRC. “If we can identify a target that is more broadly seen [in CRC], and an associated cytotoxic drug to go with it, that would allow for use of this kind of agent in a broader percentage of patients,” she said.

8. Perlmutter Cancer Center Surgical Oncologist Specializes in Treating Advanced CRC (May.11/23)

A nationally recognized expert in robotic colorectal surgery and complex gastrointestinal surgical cases, Bashar A. Safar, MD, a clinical professor in the Department of Surgery at NYU Grossman School of Medicine and a member of NYU Langone Health’s Perlmutter Cancer Center, focuses on treating people with colorectal cancer (CRC), benign colorectal disease, and other gastrointestinal (GI) conditions. In addition to using minimally invasive robotic-assisted surgery and laparoscopy whenever possible to manage colon and rectal tumors, Dr. Safar also performs transanal minimally invasive surgery (TAMIS) to remove tumors through the rectum.

One treatment approach that will be unique to Perlmutter Cancer Center is combining CRC surgery with organ transplant. Not all cancers are created equal, and not all cancers behave equally. Colon cancer tends to be a “well-behaving” type of cancer, and when the biology is favorable, colon cancer lends itself to a variety of approaches. However, historically, if colon cancer had spread to another organ, the patient would be given chemotherapy and told to settle their affairs. For decades, removing liver metastases has prolonged patient survival and quality of life. That approach has been extended a little bit, and now some studies in Europe have challenged the dogma for cases where
there is a lot of liver disease and it cannot be removed safely, because some liver needs to be left behind for the patient to survive. In those cases, liver transplant might be a way to significantly improve survival.

This transplant approach is a bit controversial for a few reasons. Where is the organ going to come from? Are these patients going to take some organs from people who need them more? Can you give immunosuppressants to a patient with cancer? While the answers are not 100 percent understood, Dr. Safar and his team have enough data to know that it is a viable alternative for those patients. They are enrolling patients with CRC metastases and a liver transplant protocol coming soon. For the most part, they will be using living donors—someone who is a relative or a friend—to donate a portion of their liver. From a surgical standpoint, the latest and greatest is robotic surgery, with a focus on minimally invasive techniques aimed at preserving function. Dr. Safar has access to very cutting-edge technology at NYU Langone as well as the expertise to employ this technology.


9. FDA Gives Priority Review to Fruquintinib in mCRC (May.26/23)

The FDA has accepted and granted priority review to a new drug application (NDA) for fruquintinib (Elunate) in the treatment of patients with previously treated metastatic colorectal cancer (mCRC). Supporting data for the NDA in this indication come from the phase 3 FRESCO-2 trial as well as the Chinese phase 3 FRESCO trial. In the FRESCO-2 trial, investigators highlighted a median overall survival (OS) of 7.4 months with fruquintinib plus best. Data from the FRESCO-2 trial also indicated a median progression-free survival of 3.7 months in the fruq uintinib arm vs 1.8 months in the placebo arm. There are significant needs for patients with [previously treated mCRC] in the U.S., and researchers believe fruquintinib has the potential to address these needs regardless of patients’ biomarker status.

https://www.cancernetwork.com/view/fda-gives-priority-review-to-fruquintinib-in-metastatic-colorectal-cancer

image Source: https://www.fiercepharma.com/pharma/argenx-hands-bluebird-102m-speedy-review-voucher

10. Hepatic Artery Infusion Pump (HAIP) Chemotherapy Program – Sunnybrook Odette Cancer Centre (Jun.1/23)

The HAIP program is a first-in-Canada for individuals where colon or rectal cancer (colorectal cancer) has spread to the liver and cannot be removed with surgery. The program involves a coordinated, multidisciplinary team approach to care, with close collaboration across surgical oncology, medical oncology (chemotherapy), interventional radiology, nuclear medicine, and oncology nursing. The Hepatic Artery Infusion Pump (HAIP) is a small, disc-shaped device that is surgically implanted just below the skin of the patient and is connected via a catheter to the hepatic (main) artery of the liver. About 95 percent of the chemotherapy that is directed through this pump stays in the liver, sparing the rest of the body from side effects. Patients receive HAIP-directed chemotherapy in addition to regular intravenous (IV) chemotherapy (systemic chemotherapy), to reduce the number and size of tumours. Drs. Paul Karanicolas and Michael Raphael are the program leads and happy to see patients who may be eligible for the therapy.

Presently at Sunnybrook Odette Cancer Centre, HAIP is being used in patients with colorectal cancer that has spread to the liver that cannot be removed surgically and has not spread to anywhere else in the body. Patients who have few (1-5) and very small tumors in the lungs may be considered if the lung disease is deemed treatable prior to HAIP. If you believe you may benefit from this therapy and/or would like to learn more about the clinical trial, your medical oncologist or surgeon may fax a referral to 416-480-6179. For more information on the HAIP clinical trial, please click on the link provided below.

http://sunnybrook.ca/content/?page=colorectal-colon-bowel-haip-chemotherapy
11. Living Donor Liver Transplantation for Unresectable CRC Liver Metastases (Jun.2/23)

Approximately half of all colorectal cancer (CRC) patients develop metastases, commonly to the liver and lung. Surgical removal of liver metastases (LM) is the only treatment option, though only 20-40% of patients are candidates for surgical therapy. Surgical therapy adds a significant survival benefit, with 5-year survival after liver resection for LM of 40-50%, compared to 10-20% 5-year survival for chemotherapy alone. Liver transplantation (LT) would remove all evident disease in cases where the colorectal metastases are isolated to the liver but considered unresectable.

While CRC LM is considered a contraindication for LT at most cancer centers, a single center in Oslo, Norway demonstrated a 5-year survival of 56%. A clinical trial sponsored by the University Health Network in Toronto will offer live donor liver transplantation (LDLT) to select patients with unresectable metastases limited to the liver and are non-progressing on standard chemotherapy. Patients will be screened for liver transplant suitability and must also have a healthy living donor come forward for evaluation. Patients who undergo LDLT will be followed for survival, disease-free survival, and quality of life for 5 years and compared to a control group who discontinue the study before transplantation due to reasons other than cancer progression.

https://clinicaltrials.gov/ct2/show/NCT02864485

12. In Vivo Lung Perfusion (IVLP) for CRC Metastatic to Lung (Jun.9/23)

A new study is investigating a technique called In Vivo Lung Perfusion (IVLP) for delivering chemotherapy directly into the lungs at the time of surgery. Delivering chemotherapy directly to the lungs could potentially kill any microscopic cancer cells that are present in the lungs at the time of surgery, while sparing other major organs in the body from the side effects of chemotherapy.

At the University Health Network, this IVLP technique has been used recently in a Phase I study in patients with sarcoma, and they are now expanding on that experience to include patients with colorectal metastases. The purpose of this study is to test the safety of the IVLP technique and find the dose that seems right in humans. Participants are given oxaliplatin into one lung via IVLP and are watched very closely to see what side effects they have and to make sure the side effects are not severe. If the side effects are not severe, then more participants are asked to join the study and are given a higher dose of oxaliplatin. Participants joining the study later on will get higher doses of oxaliplatin than participants who join earlier. This will continue until a dose is found that causes severe but temporary side effects. The other lung will not be infused with anything, so that researchers can limit unforeseen toxicity to a single lung and see if one lung does better than the other.

The estimated enrolment is 10 participants, each with a diagnosis of colorectal carcinoma. The primary outcome is safety as measured by acute lung injury findings and the estimated primary completion date is January 1, 2027.
13. Study Offered at the Odette Cancer Centre to Treat Recurrent Rectal Cancer (Jun.9/23)

Magnetic resonance-guided focused ultrasound (MRg-FU) is a less invasive; outpatient modality being investigated for the thermal treatment of cancer. In MRg-FU, a specially designed transducer is used to focus a beam of low-intensity ultrasound energy into a small volume at a specific target site in the body. MR is used to identify and delineate the tumour, focus the ultrasound beam on the target, and provide a real-time thermal mapping to ensure accurate heating of the designated target with minimal affect to the adjacent healthy tissue. The focused ultrasound beam produces therapeutic hyperthermia (40-42°C) in the target field, causing protein denaturation and cell damage. Currently, there is no prospective clinical data reported on the use of MRg-FU in the setting of recurrent rectal cancer. Recurrent rectal cancer is a vexing clinical problem. Current retreatment protocols have limited efficacy. The addition of hyperthermia to radiation and chemotherapy may enhance the therapeutic response. With recent advances in technology, the investigators hypothesize that MRg-FU is technically feasible and can be safely used in combination with concurrent re-irradiation and chemotherapy for the treatment of recurrent rectal cancer without increased side-effects. The study is being offered at the Odette Cancer Centre. Here is the link to the study protocol:

https://clinicaltrials.gov/ct2/show/NCT05611034?term=ivlp&draw=2&rank=1

14. Radiation can be Safely Omitted in Select Patients with Locally Advanced Rectal Cancer (Jun.4/23)

Patients with locally advanced rectal cancer with tumours that respond to chemotherapy can safely forego radiation therapy before surgery based on the findings of research that were presented at the 2023 Annual Meeting of the American Society of Clinical Oncology (ASCO). Omitting radiation therapy can reduce short- and long-term side effects that impact the quality of life while providing similar outcomes in disease-free survival and overall survival.

Patients were randomly assigned to receive one of two treatments before a sphincter-sparing low anterior resection with a total mesorectal excision, which is surgery to remove tumours in the rectum and surrounding lymph nodes. The control group received the standard treatment of chemoradiation at the time of the study (a combination of radiation therapy and either 5FU or capecitabine) prior to surgery. The experimental group received the chemotherapy combination mFOLFOX6. If the tumour responded well to mFOLFOX6 and shrank by 20% or more, patients immediately had surgery. If the tumour did not shrink by 20% or more or the patient was unable to continue with mFOLFOX6, they received the same chemoradiation as the control group prior to surgery.

After five years, there was no statistically significant difference between the two treatment groups in any of the endpoints studied, meaning that radiation therapy can be safely omitted before surgery if the tumour responds to treatment with mFOLFOX6 chemotherapy. Five years after randomisation, the results showed that:

1. Disease-free survival was 78.6% in the chemoradiation group and 80.8% in the mFOLFOX6 with the selective chemoradiation group.
2. Overall survival was 90.2% in the chemoradiation group and 89.5% in the mFOLFOX6 with the selective chemoradiation group.
3. Surgical resection rates (complete removal of the tumour and surrounding tissue) were 97.1% in the chemoradiation group and 98.8% in the mFOLFOX6 with the selective chemoradiation group.
4. Local recurrence rates were very low and similar for both groups (2%).

This study establishes preoperative therapy with FOLFOX and only selective use of chemoradiation for patients with locally advanced rectal cancer. Having this option is important for several reasons. First, in many parts of the world, radiation therapy is not readily accessible. An all-chemotherapy approach may make curative intent treatment accessible for patients in these resource-constrained settings. Additionally, given the rising rates of colorectal cancer in young patients, this provides an option for patients who wish to preserve fertility or avoid early menopause.

Trends in the Incidence of Young-Onset CRC with a Focus on Years Approaching Screening Age

With recent evidence for the increasing risk of young-onset colorectal cancer (yCRC), the objective of this population-based longitudinal study was to evaluate the incidence of yCRC in one-year age increments, particularly focusing on the screening age of 50 years. The study was conducted using linked administrative health databases in British Columbia, Canada including a provincial cancer registry, inpatient/outpatient visits, and vital statistics from January 1, 1986 to December 31, 2016. Researchers calculated the incidence rates per 100,000 at every age from 20 to 60 years and estimated annual percent change in incidence (APCi) of yCRC using joinpoint regression analysis. 3,614 individuals were identified with yCRC (49.9% women). The incidence of CRC steadily rose from 20 to 60 years, with a marked increase from 49 to 50 years. Furthermore, there was a trend of increased incidence of yCRC among women. Analyses stratified by age yielded APCi’s of 2.49% and 0.12% for women aged 30-39 years and 40-49 years, respectively and 2.97% and 1.86% for men. These findings indicate a steady increase over one-year age increments in the risk of yCRC during the years approaching and beyond screening age. These findings highlight the need to raise awareness as well as continue discussions regarding considerations of lowering the screening age.


Now Available in Canada: AVENIO 324 Gene CGP Panel Matched to FoundationONE CDx Panel

For more information, please visit the OncoHelix website.

LifeLabs Launches Signatera, Offering Canadians an Innovative and Personalized Approach to Managing Cancer

LifeLabs is pleased to share the launch of Signatera, a highly sensitive, personalized molecular residual disease assay (MRD) test developed by Natera for treatment monitoring and molecular residual disease (MRD) assessment in patients previously diagnosed with cancer. This innovative test uses circulating tumor DNA (ctDNA) and is personalized for each patient to help assess recurrence risk and identify relapse up to two years earlier than the current standard of care tools. The clinical utility of Signatera across cancer types has been validated by multiple studies. In those trials, Signatera demonstrated predictive values such as:
Signatera testing involves two phases with pre-supplied collection kits. The first phase is an initial test that analyzes both a tumour tissue and blood sample, and the second phase involves subsequent blood tests on an as-needed basis. It is a safe, non-invasive way to monitor ctDNA levels to help physicians understand treatment efficacy and detect relapse without the inconvenience of repeated tissue biopsies and/or imaging.


18. Natera Announces Publication of Prospective, Multi-Site CIRCULATE Study in Nature Medicine Demonstrating Signatera’s Ability to Predict Chemotherapy Benefit in CRC (Jun.1/23)

Natera, Inc., a global leader in cell-free DNA testing, announced the publication of a new study in *Nature Medicine*, which demonstrates the ability of the Signatera molecular residual disease (MRD) test to identify patients with stage II-IV colorectal cancer (CRC) who are at an increased risk of recurrence and predict who is likely to benefit from adjuvant chemotherapy (ACT).

The paper describes results from the GALAXY arm of the ongoing CIRCULATE-Japan trial, which is one of the largest and most comprehensive prospective studies of MRD testing in resectable CRC. The data builds on results previously presented at the 2022 ASCO Gastrointestinal Cancers Symposium (ASCO GI), now with median clinical follow-up extended to 16.74 months and DFS assessment at 18 months.

In the study, 1,039 patients with stage II-IV resectable CRC were monitored prospectively using the Signatera MRD test. Key takeaways include:

- **Post-surgical MRD status was predictive of chemotherapy benefit**
- **Post-surgical MRD status was the most significant prognostic risk factor for recurrence**, in a multivariate analysis that accounted for all clinicopathological risk factors currently used for prognostication (HR 10.82, p-value <0.001).
- **Pre-surgical detection rate of 95.9%** in patients with pathologic stage II-III disease and 93.1% in patients with stage II-IV disease.
- **Signatera dynamics are indicative of treatment response**

This study provides strong evidence that Signatera MRD-positive patients will benefit significantly from adjuvant therapy, while MRD-negative patients may be safely observed, regardless of clinical or pathological stage.


19. As CRC Rises Among Younger Adults, Some Seek Colonoscopies Earlier (May.26/23)

An unexplained rise in colorectal cancer (CRC) rates among younger adults is leading more people – including physicians – to get screened for the disease early, sometimes far ahead of the recommended age of 45 for those at average risk. Scientists are racing to find clues toward understanding why cases of CRC are climbing among younger people. One new study, to be presented at the annual meeting of the American Society of Clinical Oncology in June, suggests that a young adult’s microbiome – the collection of microbes, such as bacteria, fungi and viruses that naturally live in human bodies – may play a role.

The research has not yet been peer-reviewed or published in a medical journal, but an abstract posted online describes how researchers analyzed data on 36 CRC patients who were diagnosed before the age of 45 and 27 patients who were diagnosed after the age of 65. The researchers found “significant differences” in the bacterial and fungal species detected in the microbiomes of the younger patients versus the older patients, which they wrote, warrants “larger, prospective studies to elucidate the role the intratumoral microbiome plays” in developing cancer.
As the search for answers continues, some younger adults in the United States have sought CRC screenings at a time when the disease is on the rise for their age group. But there is also concern that this trend could lead to the overuse of colonoscopies.


20. A New Blood Test to Screen for CRC Shows Promise (May.30/23)

A new screening test can detect colorectal cancer (CRC) with a simple blood draw in people with an average risk of the cancer. The new blood-based test, called Signal-C, appears to be as accurate or more accurate than most sample-based screening tests. The test can detect early-stage CRC with a sensitivity of 93%, according to mid-stage data shared by the test maker, Universal DX, in May. The test can also detect the pre-cancerous growths with 54% sensitivity.

To complete the Signal-C test, patients will get a blood draw at their annual physical or at a local lab. The sample is sent to the company’s lab, where they analyze it for early signs of cancer or adenomas using tools including a machine learning model. The company will report back a positive or negative result. People with a positive test should schedule a colonoscopy, while those with a negative result can await their next screening.

Colonoscopies require patients to do some prep-work. This often includes a period of fasting, drinking a liquid laxative to clear the bowels, and stopping certain medications before the procedure. Some people may opt for a blood-based screening test over a routine colonoscopy due to the discomfort associated with the procedure. Others may choose it for the convenience. Universal DX considered creating a test that screens stool and urine samples, but they found that people were most comfortable submitting blood. Besides, only certain kinds of cancers can be detected in a stool sample, while it’s possible to find cell-free DNA from most cancer types in blood. Developing a CRC blood test could lay the groundwork for other, more universal cancer tests.

Image Source: https://vitalurgentcare.ca/lab-service/

21. Young Adult CRC Clinic Available at Sunnybrook (Jun.5/23)

A recent study led by the University of Toronto doctors has observed a rise in colorectal cancer (CRC) rates in patients under the age of 50. The study mirrors findings from the U.S., Australia and Europe. The growing CRC rates in young people come after decades of declining rates in people over 50, which have occurred most likely due to increased use of CRC screening (through population-based screening programs) which can identify and remove precancerous polyps. Patients diagnosed under the age of 50 have a unique set of needs, challenges and worries. They are unlike those diagnosed over the age of 50. Dr. Shady Ashamalla (colorectal cancer surgical oncologist), along with Dr. Petra Wildgoose (Hepatobiliary and Colorectal Oncology Surgical Assistant), and their team at the Sunnybrook Health Sciences Centre understand the needs of this patient population.
Both belong to a multidisciplinary team of experts in the **Young Adult Colorectal Cancer Clinic** who work with young CRC patients, regardless of disease stage, to create an individualized treatment plan to support each patient through their cancer journey. Patients’ needs and concerns will be addressed as they relate to:

- Fertility concerns and issues
- Young children at home
- Dating/intimacy issues
- Challenges at work
- Concerns about hereditary cancer
- Relationships with family and friends
- Psychological stress due to any or all of the above

The team of experts consists of:

- Oncologists (medical, surgical, radiation)
- Social workers
- Psychologists
- Geneticists
- Nurse navigator

Should a patient wish to be referred to Sunnybrook, they may have their primary care physician, or their specialist **refer them to Sunnybrook via the e-referral form, which can be accessed through the link appearing below**. Once the referral is received, the **Young Adult Colorectal Cancer Clinic** will be notified if the patient is under the age of 50. An appointment will then be issued wherein the patient will meet with various members of the team to address their specific set of concerns.

http://sunnybrook.ca/content/?page=young-adult-colorectal-cancer-clinic

**22. CCRAN’s Partnership with “Count Me In” (Jun.1/23)**

CCRAN is proud to partner with Count Me In, a nonprofit research initiative, on The Colorectal Cancer Project. This new project is open to anyone in the United States or Canada who has ever been diagnosed with colorectal cancer (CRC). Patients can find out more and join at [JoinCountMeIn.org/Colorectal](http://JoinCountMeIn.org/Colorectal).

Through the project, patients are asked to complete surveys to share information about their experience with CRC, to share biological sample(s), and to allow for the research team to request copies of their medical records. The project team then de-identifies and shares data from these with the entire research community.

Every patient’s story holds a piece of the puzzle that can help us better understand CRC. By discovering more about what drives cancer and sharing this data, CCRAN and the Colorectal Cancer Project believe insights can be gained to develop more effective therapies. One of the aims of the project is to reach populations that have been understudied, including individuals who are diagnosed with CRC at a young age, individuals from marginalized communities who have historically been excluded from research, and patients with metastatic CRC. Together, we can accelerate our understanding of CRC. To learn more or sign up to participate, visit [JoinCountMeIn.org/Colorectal](http://JoinCountMeIn.org/Colorectal).

“**Count Me In**”, a nonprofit cancer research initiative, is inviting all patients across the United States and Canada who have ever been diagnosed with colorectal cancer (CRC) to participate in research and help drive new discoveries related to this disease. The Colorectal Cancer Project will enable patients to easily share their samples, health information and personal lived experiences directly with researchers in order to accelerate the pace of research. Patients who have been diagnosed with CRC at any point in their lives can join the project by visiting [JoinCountMeIn.org/colorectal](http://JoinCountMeIn.org/colorectal). From there, patients will be invited to share information about their experience through surveys and to provide access to medical records as well as saliva samples and optional blood, stool, and/or stored tissue samples for study and analysis. Researchers from the Broad Institute of MIT and Harvard and Dana-Farber Cancer Institute use this information to generate databases of clinical, genomic, molecular, and patient-
reported data that is then de-identified and shared with researchers everywhere. To date, more than 9,000 patients with different cancers have joined Count Me In and shared their data. "We still do not know why there is an alarming rise in CRC in young adults", said Andrea Cercek, MD Co-Director, Center for Young Onset Colorectal and Gastrointestinal Cancers Memorial Sloan Kettering Cancer Center and co-scientific leader of the Colorectal Cancer Project. "What we do know is that this is a global phenomenon that affects otherwise healthy individuals with no known risk factors. The Colorectal Cancer Project will provide researchers important information that will lead to a better understanding of this disease."

Over 250 patients have joined the Colorectal Cancer Project since the launch in fall 2021. Every patient that joins the Colorectal Cancer Project enables us to learn more about colorectal cancer. Pts diagnosed at any age, whether newly diagnosed or years from their diagnosis, can enroll. If you have ever been diagnosed with colorectal cancer, you can visit JoinCountMeIn.org/Colorectal to enroll and have a direct impact on research and future treatment strategies.

Every colorectal cancer patient’s story holds a piece of the puzzle that can help us better understand how to treat this disease. Join our partners at @joincountmein to help generate more data for CRC by sharing your medical records, samples, and unique experiences with researchers everywhere.

Learn more at JoinCountMeIn.org/colorectal

23. Patients and Caregivers Needed to Help Shape Early Research for a CRC Therapy (Jun.10/23)

The Project:
Site specific immunomodulators (SSIs) are a new class of therapy, made from dead bacteria. This therapy is designed to help the body’s own defense system (‘immune cells’) fight cancer. SSIs may be a potential new treatment for colorectal cancer and have already been shown to be safe in cancer patients. Our team of scientists and clinicians are planning a clinical trial to determine if SSIs can increase the number of patients who survive colorectal cancer metastatic to the liver. The trial will start this Fall and is being led by Dr. Rebecca Auer (Ottawa) and Dr. Paul Karanicolas (Sunnybrook).

Why do we need your help?
We want patients and family members to help us shape our research, which aims to improve the experience of trial participants.
We are currently looking for patients, caregivers, or family members to join our team. As a part of our team, you will:
- Participate in group meetings (online and/or in person) with the research team from May 2022 to March 2024
- Help brainstorm and draft resources and documents for future trial participants
- Provide input on research to evaluate the usefulness of the developed resources

Who can apply?
We are looking for individuals with any of the following:
- A patient, family member, or a caregiver, with lived experience of colorectal cancer, liver metastases, and/or liver surgery
- Interested in helping shape research to assess a new therapy for colorectal cancer

No previous experience with SSIs or research is necessary. An orientation session will provide more information about the research project, and we encourage you to ask any questions you have at any time.

In appreciation for your time, partners will receive compensation for attendance at meetings and activities.

If you are interested in joining our team or would like more information:
Please contact Meredith Conboy, Research Assistant, The Ottawa Hospital Research Institute
Email: mconboy@ohri.ca
24. Under 50 National Colorectal Cancer Information/Support Group Now Available at CCRAN! (Jun.2/23)

ARE YOU AN EARLY AGE ONSET (<50 YEARS) COLORECTAL CANCER PATIENT OR CAREGIVER LOOKING FOR INFORMATION OR SUPPORT?

Meet Hayley Painter R.N. and proud survivor of metastatic colorectal cancer!

Hayley will be assuming the lead on CCRAN’s Monthly National Under 50 Colorectal Cancer Information/Support Group Meetings!

When: Every third Sunday of the month
Time: 7:00 – 9:00 p.m.
Where: Via Zoom
To Register: hayley.p@ccran.org

Please join Hayley as she will deliver important treatment updates and provide optimal support to each patient in their colorectal cancer journey at these support group meetings. To register for the meeting, please contact Hayley at hayley.p@ccran.org.

25. CaringVirtually: A Virtual Care Oncology Patient Study (May 27/23)

Majd Ghadban and Julia Stoneman are co-leading a study to understand cancer patient experiences with using virtual care as a method of healthcare delivery during the COVID-19 pandemic. The study is being undertaken by a network of national oncology patient organizations in Canada known as CONECTed: Collective Oncology Network for Exchange, Cancer care innovation, Treatment access and Education.

More information about CONECTed can be found on its website: https://conected.io/

In addition to Majd Ghadban and Julia Stoneman, the study team includes Jessica Finucane, Ed.S., Dr. Ambreen Sayani, Postdoctoral Fellow – CIHR Patient-Oriented Research, Leadership Stream at the Women’s College Research Institute, Women’s College Hospital, Louise Binder, Health Policy Consultant, Save Your Skin Foundation and member of CONECTed’s Steering Committee, and Dr. Tim Ramsay, Scientific Director, Ottawa Methods Centre.

Study Purpose
The purpose of this study is to understand cancer patient experiences using virtual care during the COVID-19 pandemic, and to develop recommendations that will help to ensure adoption and adaptation of equitable, equal, consistent, and comprehensive virtual care best practices across Canada. To achieve the objectives of this project, one-on-one interviews will be conducted with cancer patients who have used virtual care during the COVID-19 pandemic as part of their cancer care. These interviews are offered in both English and French, for which an honourarium will be provided. Study findings will be used to develop reports, which will be made public. The findings will also be used to inform future studies in the area of virtual care and oncology.

For more information, please click on the PDFs below.
We want to hear from you!

Participate in an interview on Cancer Pain

What is the opportunity?
Ontario Health is currently reviewing Intrathecal Drug Delivery Systems (Pain Pumps) for people with cancer-related pain for public funding.

What is an Intrathecal Drug Delivery System?
Intrathecal Drug Delivery System, also known as a pain pump, uses a small pump to deliver pain medication directly to the spinal cord.

How you can help:
We are looking to speak to:
- Adults and children struggling with cancer-related pain
- Adults and children with cancer-related pain trying to find pain management solutions
- Adults and children who are using or have used a pain pump/intrathecal drug delivery system for their cancer-related pain
- Caregivers or family members of those above

What do we need from you?
Time Commitment: 30 - 40 minutes interview
Location: By phone

If you are interested in participating, please contact:

Jigna Mistry, Patient and Public Partnering, Jigna.Mistry@ontariohealth.ca or 1-647-953-0598.
Please let us know you are interested by May 19th, 2023

If you are sending us personal information by email, please be aware that electronic communication is not always secure and can be vulnerable to interception.

27. CRC Spike in Young People Could be Caused by Fungus (May.27/23)

Researchers have found a possible reason for a spike in the rate of colorectal cancer (CRC) cases among patients under 50: a fungus that usually blamed for nail and skin infections. Doctors at Georgetown University came up with the novel theory while tracking changes in the gut microbiomes of cancer patients. The Washington, D.C. university looked at microbial DNA samples from the tumors of CRC patients who were either under 45 or over 65 when diagnosed. They found that tumors from younger patients were more likely to contain the fungus Cladosporium sp., which is typically rarely found in the gut, and causes skin and nail infections. It’s still not clear how the pathogen could lead to the cancer, but one theory is it could be responsible for damaging cell DNA. The research will present their findings to the American Society of Clinical Oncology next week.

28. Multiple Factors at Play in the Rise of Early-Onset CRC (May.23/23)

Despite the growing number of early-onset colorectal cancer (CRC) diagnoses, there remains an awareness deficit with healthcare providers and the younger public on early onset CRC. A dangerous assumption often made here is that any young person presenting with symptoms - hematochezia, abdominal or pelvic pain, bloating or a change in bowel habits - likely has a benign explanation. This makes patients loath to pursue medical care and wrongly reassures health care providers that any serious testing is not warranted. But swift recognition is important here. Studies have shown that patients with early-onset CRC have more advanced disease at diagnosis (stage 3 or 4) than those with later-onset disease.

Though no primary risk factor has been identified to account for this worldwide rise of early-onset CRC in the developed world, it is likely to be multifactorial - Western-style diet, smoking, physical inactivity and overweight and obese body types.6 Over decades, diet, lifestyle and antibiotic use can affect the gut microbiome, which has a role in the body's antitumor response. Alterations in this microbiome, coupled with chronic gut inflammation from similar risks, can increase the risk of CRC. While early-onset CRCs are largely sporadic, hereditary syndromes account for 25% of these cases7 and make germline testing necessary at the time of diagnosis to capture patients with Lynch syndrome.

There will need to be greater awareness and education for both primary care providers and young patients about the existence of early-onset CRC, the importance family history for initiating early screening, concerning symptoms and screening options that may soon include an assessment of circulating tumor DNA in blood plasma for finding early-stage CRC. This will need to include efforts that grapple with access to care, healthcare inequities and screening barriers.


29. Study Finds Wide Variations in Intratumoral Microbiome of Patients with Early- vs Late-Onset CRC (Jun.2/23)

Researchers at Georgetown University’s Lombardi Comprehensive Cancer Center studied the microbiome of people with colorectal cancer (CRC) and found the make-up of the bacteria, fungi and viruses in a person’s tumour varied significantly depending on whether they were diagnosed with early-onset disease (age 45 or younger) or late-onset disease (age 65 or older). The results of the study may help researchers better understand why more individuals aged 45 years and younger are developing CRC, particularly those who have no known identifiable risk factors for the disease.

In the study, the researchers sought to better understand the role of the microbiome and how its influence may vary depending on the age of cancer onset by analyzing the DNA and tumor microbiomes of 36 patients with CRC who were diagnosed with early-onset disease before the age of 45 as well as those of 27 patients who were diagnosed with late-onset disease after the age of 65.

In both groups, the researchers identified 917 unique bacterial and fungal species in the tumors. One of the most common bacteria they found was F nucleatum, which appeared equally in about 30% of both patients with early- and late-onset disease. Additionally, the researchers discovered differences between the two groups—including that Cladosporium sp. was found more commonly in early-onset disease, whereas Pseudomonas luteola, Rabstoania sp., and Moraxella osloensis were seen more commonly in late-onset disease. In terms of composition, Clostridium perfringens, Escherichia coli, Leptotrichia hofstadii, Mycosphaerella sp., Neodevriesia modesta, Penicillium sp., and Leptosphaeria sp. each made up 11% of the microbiome in patients with late-onset disease; however, these organisms were not detected in patients with early-onset disease.

The researchers hope that with the current data, and with future efforts to collect more samples, they can expand their research efforts to continue exploring the relationship between the microbiome and other factors that contribute to CRC.

30. Study May Provide Clues to Treating CRC More Effectively in Younger Patients (Jun.3/23)

A novel study led by medical oncologists Deepak Vadehra, DO, and Sarbjit Mukherjee, MD, MS, of the Gastrointestinal Center at Roswell Park Comprehensive Cancer Center is shedding light on factors that may affect treatment response in younger people with colorectal cancer (CRC). That information could guide the development of new treatments for younger patients, who typically have poorer outcomes.

Working with data from a total of 857 patients who had either colon adenocarcinoma or CRC, the investigators compared the transcriptional profiles of patients over 50 against those of patients 50 or younger. Transcriptional profiling helps determine the degree to which genes influence the behavior of cells. The research team used this method to identify differences in metabolic flux and transcriptional dysregulation — processes that interfere with the normal functioning of various genes.

In younger patients, the data showed enriched NRAS and MYC oncogenes. Mutations of both oncogenes are associated with the proliferation and metastasis of CRC. Younger patients also were found to have enriched metabolic pathways for amino acids and lipids, which can contribute to the development and progression of cancer and enriched cellular processes. The investigators found that older patients had upregulated pathways that increase both steroid hormone metabolism and kynurenine metabolism, which can contribute to the growth of cancer cells. But patients over 50 also had upregulated pathways associated with response to CTLA-4 and PD-L1 treatments — immune checkpoint inhibitors — which are commonly used for the treatment of metastatic colon cancer. This may indicate that older patients are more responsive to those therapies than younger patients. The team hopes the results of their study will help future studies zero in on new ways of treating CRC in younger patients.

https://www.roswellpark.org/newsroom/202306-roswell-park-study-may-provide-clues-to-treating-colorectal-cancer-more-effectively

31. This Disease Puts You at a Higher Risk for Colon Cancer (Jun.6/23)

People with inflammatory bowel disease (IBD) — including ulcerative colitis and Crohn’s disease — are at twice the risk of developing colon cancer. But what’s the connection? And can anything be done?

How it works.
Chronic colitis is associated with an increased risk of dysplasia, or precancerous changes in the colon. It’s well recognized that that risk is dependent on several factors, including the extent, severity and duration of the chronic inflammation. And while there are lifestyle changes that can help you with inflammatory bowel disease, there aren’t such proactive measures to prevent colon cancer.

There are some options available.
What those people can do is have their colonoscopies when their doctor tells them to. And if they smoke, quit.
Additionally, there are certain patient populations that are at exceptionally high risk. These include those with primary sclerosing cholangitis (PSC), a chronic liver disease. Many people with PSC also have IBD. For those reasons, a thoughtful and conservative dysplasia surveillance strategy should be pursued in patients with chronic colitis. In some cases that can mean an annual colonoscopy. The guideline is for colonoscopies to begin eight years from the onset of IBD symptoms, regardless of your age. In the end it’s all about early detection. The most important message is: get your colonoscopy.

https://healthnewshub.org/this-disease-puts-you-at-a-higher-risk-for-colon-cancer/
Image Source: https://www.ibdrelief.com/learn/what-is-ibd

32. Challenges in Recovery from CRC Surgery Specific to Older Patients (Jun.8/23)

Resources such as support from social networks and healthcare services as well as patients’ own coping ability are significant factors in recovery from colorectal cancer (CRC) treatment for older patients, but other barriers still remain. Researchers conducted a qualitative study to explore the experiences of 18 patients aged 80 and older during recovery from surgery with curative intent for CRC. The main theme revealed in analyses of patient responses was “Recovery among the old is a complex process.” A patient’s general health, social relationships, and changes to everyday life caused by cancer or treatment influence their recovery. Within the main theme, 2 sub-themes emerged: individual factors affect CRC recovery, and external support systems facilitate and impede recovery from CRC treatment.
A patient’s inner strength provides notable benefits. Specifically, positive thinking and sheer determination seemed to help some patients cope with adversity, noted the researchers. External support from a supportive network of family and close friends was essential for older patients’ recovery. Healthcare services tended to be a mixed bag for older patients. It was deemed helpful, but misalignment between expectations of support and reality occur. For example, some participants described when requests for aid, such as assistance with food preparation due to fatigue or installation of a door opener due to reduced physical function, were denied. Miscommunication and lack of collaboration within and between specialist and primary care healthcare services also impeded recovery. Home care nursing may not match what nurses in the hospital promised, or hospital follow-up is not what their general practitioner described. These findings suggest that older people recovering from CRC treatment are a vulnerable group with complex healthcare conditions that can influence and sometimes hamper their recovery.


33. Germline Genetic Testing After Cancer Diagnosis (Jun.5/23)

An observational study intended to describe the prevalence of germline genetic testing among patients diagnosed with cancer in California and Georgia between 2013 and 2019. The patients were linked to genetic testing results from 4 laboratories that performed most germline testing for these states. Among patients diagnosed with cancer in California and Georgia between 2013 and 2019, only 6.8% underwent germline genetic testing. Compared with non-Hispanic White patients, rates of testing were lower among Asian, Black, and Hispanic patients. Germline genetic testing is recommended by practice guidelines for patients diagnosed with cancer to enable genetically targeted treatment and identify relatives who may benefit from personalized cancer screening and prevention.

https://jamanetwork.com/journals/jama/article-abstract/2805796

34. Unmet Needs and Future Perspectives on CRC (Jun.5/23)

A panel of expert oncologists offer closing thoughts on the future treatment landscape and unmet needs in colorectal cancer (CRC). Please follow the link below to watch the video.

https://www.cancernetwork.com/view/unmet-needs-and-future-perspectives-on-colorectal-cancer

35. Large Study of Early-Onset CRC Patients IDs Unique, Potentially Actionable Mutations (Jun.4/23)

Whole-exome sequencing analysis of a large cohort of patients who developed colorectal cancer (CRC) before they were 50 years old revealed unique genomic alterations that were distinct from the abnormalities seen in older patients. Nearly 3,000 patients in the study had early-onset disease and approximately 10,200 had average-onset CRC, which makes this the largest analysis of its type. The researchers focused on sporadic CRC, which comprise 84 percent of early-onset cases. The research team uniquely decided to stratify their genomic analyses according to whether patients had high or low tumor mutation burden (TMB) and had high microsatellite instability (MSI-high) or were microsatellite stable (MSS).

Most of the clinically meaningful tumor mutational differences between early-onset and average-onset patients were in the MSI-high/TMB-high and MSS/TMB-high subgroups. For example, MSI-high/TMB-high early-onset patients tended to have a higher prevalence of alterations in KRAS, CTNNB1, PIK3CA, and HER2/3, as well as more mutations in the WNT and PI3K oncogenic pathways. Lander highlighted that in this subgroup 15.8 percent had HER2 mutations and 13.1 percent had HER3 mutations.

In comparison, average-onset patients with MSI-high/TMB-high tumors tended to have more BRAF and RNF43 mutations and RTK-RAS pathway mutations. In the MSS/TMB-high cohort, POLE mutations were present in almost 65 percent of early-onset patients, comprising 3.3 percent of all MSS tumors. POLE-driven tumors tend to be
hypermutated, but if clinicians aren’t testing patients for TMB, then this mutational state may be missed. Patients with higher mutational burden tend to fare well with immunotherapy. In comparison, average-onset patients who were MSS/TMB-high tended to have mutations in BRAF, RNF43, and ACVR2A. Meanwhile, in the MSS/TMB-low cohort, researchers found some mutational differences between early- and average-onset CRC patients, but none that were clinically relevant.

From this, we might draw the conclusion that patients with early-onset disease are being exposed to something or multiple things earlier in life, leading to a similar chromosomal instability pathway of disease as average-onset patients have traditionally experienced. Some of the mutational features identified in these younger CRC patients deserve further study, especially since they might offer opportunities for precision treatment and underscore the need to genomically profile all early-onset CRC patients.

https://www.precisionmedicineonline.com/precision-oncology/large-study-early-onset-colorectal-cancer-patients-id-unique-potentially/yubode_mic=MCMD%0D%0A229595303433170438593180702655%7CMCORGID%0D%0A14EFF25446E720A4C98C6%2540AdobeOrg%7CTS%0D%0A8605754%7CSAuthResp=J3A%3A241158%3A2733%3A24%3Asuccess%3AA7A4F27A3E0B95690C9359C4698BB39

36. Mystery Epidemic of Colon Cancer in Young People Laid Bare (Jun.5/23)

Colon cancer deaths among young people are expected to double by 2030, experts warn. The cancer, which is especially hard to treat due to late diagnosis and broad symptoms, is also expected to become the number one cause of cancer deaths in people under 50 by the end of the decade. Based on data from JAMA Surgery, between 2010 and 2030, colon cancer will have increased by 90% in people ages 20 to 34. Rectal cancer will have spiked by 124% in the same age group.

Experts have commonly blamed unhealthy diets, alcohol consumption, and sedentary lifestyles on this shift, though some research suggests otherwise. A 2021 study, for example, found that early-onset cancer patients were less likely to be obese or be smokers than their older counterparts. Dr Christopher Lieu of the University of Colorado Medicine pointed to health impacts and exposures that young patients were less likely to have as early as birth.

A study published in April examined how being born via c-section influenced the chance of developing early-onset CRC. The researchers found that females born via c-section were more likely to develop CRC earlier in life than those born vaginally. Additionally, antibiotic use has been shown to impact this risk. One study in the journal Gut found that prolonged antibiotic use increased risk of early-onset colon cancer. However, it was also associated with a lower risk of rectal cancer. And research presented at the American Society of Clinical Oncology’s annual meeting this weekend showed that the fungus Cladosporium sp. was more common in the tumors of young patients than the older individuals. Dr Lieu said in a call to action that educating physicians and patients on what signs to look out for and expanding risk assessments and genetic testing could help researchers better understand what is causing this increase. Awareness is key.

Image Source: https://www.theadvocate.com/health/news/article_1e5d29b5-83f0-572f-b9e4-a64a7a26fbb6.html

37. EXercise for Cancer to Enhance Living Well (EXCEL) Study (Jun.11/23)

Exercise for Cancer to Enhance Living Well (EXCEL) is a 5-year Canada-wide project, which offers free, 12-week exercise classes designed specifically for individuals undergoing or recovering from cancer treatment. Classes are online through a secure video-conferencing platform, and where possible, in-person (post-COVID). Physical activity can help overcome treatment-related side effects such as fatigue and pain, improve mental health by reducing anxiety and depression, and improve overall quality of life for individuals living with and beyond cancer. Studies show that physical activity may even reduce the risk of recurrence for some cancers. Many urban centres in Canada offer cancer-specific exercise programs, however, rural and remote areas tend to lack exercise resources to support cancer survivors, resulting in lower activity levels, poorer health, and diminished quality of life. Thus, EXCEL targets cancer survivors living in rural and remote regions across Canada, empowering them to move more and providing opportunities to benefit from physical activity.

To learn more about the EXCEL study:
38. Curcumin can Suppress Metastasis of CRC Cells by Activating a Specific Signaling Pathway (May.25/23)

Colorectal cancer (CRC) is one of the most common types of cancer worldwide. In over half of all cases, an important protective mechanism in cells is inactivated by mutations - the tumor suppressor gene p53. The product of this gene, a transcription factor, induces a microRNA molecule called miR-34, which plays a critical role in tumor suppression.

A team led by Heiko Hermeking, Professor of Experimental and Molecular Pathology at LMU, has now demonstrated in cell cultures and in a mouse model that curcumin, a natural substance found in the spice turmeric, can bridge this silenced protective mechanism by activating an alternative, specific signaling pathway that induces the expression of miR-34. Using genetically-modified human CRC cell lines, the researchers have now demonstrated that curcumin increases the production of so-called reactive oxygen species (ROS) in tumor cells. These ROS activate a signaling pathway that leads to the production of miR-34 via the transcription factor NRF2 - which then induces premature aging of the tumor cells and programmed cell death. Furthermore, the ability of tumor cells to migrate and invade into surrounding tissue is impaired. In addition, curcumin made tumor cells more sensitive to the chemotherapeutic substance 5-FU by means of miR-34. According to the authors, the results of the study could give rise to interesting approaches for new therapeutic options, which should be pursued in further studies.


39. Red Meat, Sugar May Play a Role in Young Adults Getting CRC, Research Says (Jun.6/23)

A new study suggests dietary and environmental exposures may play a role in the rise of young adults being diagnosed with colorectal cancer (CRC). The study compared people who were young that had CRC and those who developed CRC at a more average age. One of the biggest differences when researchers compared the two age groups was that those who are younger than 50 years old with CRC had lower levels of citrate. Citrate is created when the body converts food into energy.

Researchers also found differences in the breakdowns of protein and carbohydrates, which they say could suggest that red meat and sugar intake may be linked to getting CRC at a younger age. Thus, they said the key takeaway is to modify your diet by doing the things we know we should be doing, for instance, increasing leafy green vegetables, limiting sugar, limiting processed foods, limiting red meat and getting more of our protein from lean meats or poultry or beans, lentils.

Researchers said they hope this study paves the way for future research to further understand the causes of this disease and to hopefully be able to create better therapies for those young adults who are diagnosed with it.


40. Consumption of Thermally Processed Meat Containing Carcinogenic Compounds versus a Risk of Some Cancers in Humans (Apr.14/22)

Thermal treatment of high-protein food may lead to the formation of mutagenic and carcinogenic compounds, e.g., polycyclic aromatic hydrocarbons (PAHs) and heterocyclic aromatic amines (HAAs). Frequent consumption of processed meat was classified by the International Agency for Research on Cancer as directly carcinogenic (cancer causing) for humans. Following a literature review carried out on consuming thermally processed meat containing carcinogenic compounds versus a risk of cancers in humans, several methods to limit carcinogenic compound synthesis have been suggested.

For instance, an effective way to lower the PAH concentration in grilled dishes is to marinate the meat. Marinades containing lemon juice, as well as vitamins E and C, decreased the PAH levels by even 70%. Marinating with beer...
significantly lowered the PAH contents in grilled meat, and it was found that black beer had the highest inhibitory effect on the formation of PAH8 (53%) in charcoal-grilled pork, while pilsner alcoholic beer had the lowest (13%). A significant inhibitory effect of fruit/wine vinegars (sprayed on meat before grilling) on the formation of PAHs in charcoal-grilled pork was also shown. The influence of green tea and yerba mate marinades on BaP formation in grilled and roasted meat was also investigated. Although benzo(a)pyrene was found in all samples, the tea marinades reduced the activity of the radicals and lipid oxidation. It was also proven that the addition of onion or garlic to pork meat being fried was able to decrease the PAH concentration. Recent studies have shown that garlic and garlic essential oil added to charcoal-grilled pork sausages significantly decreased the BaP concentration. The addition of spices of high antioxidant capacity (i.e., paprika, ginger and black pepper) to thermally processed meat can decrease PAH and HAA contents, irrespective of the kind of meat. It was also proven that the use of curcuma, lemon grass and curry leaves during meat roasting causes PAH and HAA concentrations to decrease. In addition, a meta-analysis of the results showed that the garlic and onion, pepper and other spices with phenolic compounds inhibited the formation of HAAs and PAHs due to the antioxidant and electron transfer mechanism. An effective way to lower the HAA concentrations in meat products is the use of natural additives containing flavonoids, vitamins C and E and catechin.

Therefore, the investigations showed that simple cooking processes when some additives rich in phenolic compounds are added to the food are a natural and effective way for the inhibition of the harmful compound formations, including PAHs and HAAs, in thermally treated meat.

https://www.mdpi.com/1660-4601/19/6/4781

COVID-19 Updates

41. Frequently Asked Questions for COVID-19

Q: What is COVID-19 (or novel Coronavirus Disease - 19)?

A: Coronaviruses are a large family of viruses that can cause illnesses in humans and animals. Coronaviruses can cause illnesses that range in severity from the common cold to more severe diseases such as Severe Acute Respiratory Syndrome (SARS) and most recently, COVID-19. COVID-19 or novel coronavirus originated from an outbreak in Wuhan, China in December 2019. The most common symptoms associated with COVID-19 can include fever, fatigue, and a dry cough. Though additional symptoms have now been linked with the disease, which may include aches and pains, nasal congestion, runny nose, sore throat, diarrhea, skin rash and vomiting. It is also possible to become infected with COVID-19 and not experience any symptoms or feeling ill. The spread of COVID-19 is mainly through the transmission of droplets from the nose or mouth when a person coughs, exhales or sneezes. These droplets land on surfaces around a nearby person. COVID-19 can be transmitted to that nearby person who may end up touching the surface contaminated with COVID-19 and then end up touching their nose, mouth, or eyes. A person can also contract COVID-19 through inhaling these droplets from someone with COVID-19. Although research is still ongoing, it is important to note that older populations (over the age of 65), those with a compromised immune system and those with pre-existing conditions including heart disease, high blood pressure, lung disease, diabetes or cancer may be at a higher risk of severe illness due to COVID-19.

https://www.who.int/news-room/q-a-detail/q-acoronaviruses

Q: What can I do to avoid getting Coronavirus?

A: There are various ways in which we can reduce our risk of contracting COVID-19. Below are some measures suggested by the World Health Organization

1. Keep at least 2 metres (or 6 feet) between yourself and other people. This will reduce the risk of inhaling droplets from those infected with COVID-19.
2. Regularly clean your hands for at least 20 seconds with warm water and soap, or an alcohol-based hand rub. This will kill any viruses on your hands.
3. Avoid touching your eyes, nose and mouth. If the virus is on your hands, it can enter the body through these areas.
4. Follow good respiratory hygiene by covering your mouth and nose with a tissue or elbow when you cough and sneeze. This prevents the droplets from settling on surfaces or being released into the air around you.
5. Stay home as much as possible, especially if you are feeling unwell. If you think you may have the Coronavirus, please see “What should I do if I think I have Coronavirus?” section.
6. Please wear a face covering or mask in public when physical distancing is not possible.

https://www.who.int/news-room/q-a-detail/q-a-coronaviruses

Q: Are there special precautions that people with cancer can take?
A: People with cancer (and other chronic ailments such as heart disease, diabetes, high blood pressure and lung disease) are at a higher risk of severe illness due to COVID-19 as cancer is considered a pre-existing health issue. Some cancer treatments including chemotherapy, radiation and surgery can weaken the immune system, making it harder for the body to fight infections and viruses, such as Coronavirus. It is important to diligently follow the World Health Organization’s recommendations above to reduce the risk of contracting COVID-19. If you have any concerns about your risk, it is best to contact your doctor or healthcare team.

Q. Will anything change with regards to my cancer related medical visits?

As each patient and treatment plan is unique, it is always best to contact your health care provider for updated information about your treatment plan. In some cases, it is safe to delay cancer treatment until after the pandemic risk has decreased. In other cases, it may be safe to attend a clinic that is separate from where COVID-19 patients are being treated. Oral treatment options could be prescribed by your care provider virtually, without the need to attend the clinic. Finally, some follow-up appointments or discussions could be held virtually (via skype or zoom for example) or over the phone to minimize your risk. As we know, conditions and protocols are changing daily due to the nature of the COVID-19 outbreak, and vary based on location, therefore, the best first step is to reach out to your care provider for guidance.

https://www.cancer.gov/contact/emergencypreparedness/coronavirus

Should you wish to contact your local public health agency, please see below.

**Alberta**
COVID-19 info for Albertans
Social media: Instagram @albertahealthservices, Facebook @albertahealthservices, Twitter @GoAHealth
Phone number: 811

**British Columbia**
British Columbia COVID-19
Social media: Facebook @ImmunizeBC, Twitter @CDCofBC
Phone number: 811

**Manitoba**
Manitoba COVID-19
Social media: Facebook @manitobagovernment, Twitter @mbgov
Phone number: 1-888-315-9257

**New Brunswick**
New Brunswick Coronavirus
Social media: Facebook @GovNB, Twitter @Gov_NB, Instagram @gnbca
Phone number: 811

**Newfoundland and Labrador**
Newfoundland and Labrador COVID-19 information
Social media: Facebook @GovNL, Twitter @GovNL, Instagram @govnlsocial
Phone number: 811 or 1-888-709-2929

**Northwest Territories**
Northwest Territories coronavirus disease (COVID-19)
Social media: Facebook @NTHSSA
Phone number: 811

**Nova Scotia**
Nova Scotia novel coronavirus (COVID-19)
Social media: Facebook @NovaScotiaHealthAuthority, Twitter @healthns, Instagram @novascotiahealthauthority
Phone number: 811

**Nunavut**
Nunavut COVID-19 (novel coronavirus)
Social media: Facebook @GovofNunavut, Twitter @GovofNunavut, Instagram @governmentofnunavut
Phone number: 1-888-975-8601

**Ontario**
Ontario: The 2019 Novel Coronavirus (COVID-19)
Social media: Facebook @ONThealth, Twitter @ONThealth, Instagram @ongov
Phone number: 1-866-797-0000
**Prince Edward Island**
Prince Edward Island COVID-19
Social media: Facebook @GovPe, Twitter @InfoPEI,

**Quebec**
Coronavirus disease (COVID-19) in Québec
Social media: Facebook @GouvQc, Twitter @sante_qc
Phone number: 1-877-644-4545

**Saskatchewan**
Saskatchewan COVID-19
Social media: Facebook @SKGov, Twitter @SKGov
Phone number: 811

**Yukon**
Yukon: Find information about coronavirus (COVID-19)
Social media: Facebook @yukonhss, Twitter @hssyukon
Phone number: 811