Alberta Health Services

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Colorectal Cancer Control
A Focus on Screening

Cancer Screening Programs
Population and Public Health
Alberta Health Services

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Executive Summary

Colorectal cancer (CRC) is a major public health concern, ranking among the leading causes of cancer diagnosis and death in both men and women. On an average day in 2010, five Albertans were diagnosed and two died from colorectal cancer. Based on current projections, this pattern will continue—in 2015, six Albertans will be diagnosed with colorectal cancer each day and two will die. Most of these Albertans are over the age 50 years.

Because of this burden, Alberta Health Services (AHS) is continually looking at ways to control the disease. Comprehensive cancer control is concerned with preventing cancer, curing cancer, reducing the suffering associated with cancer and increasing the survival and quality of life for those who develop cancer.

Organized screening programs are a critical component of a strong cancer control system and involve checking or testing for indicators of current or future disease in a group of people who do not currently show any symptoms. Early detection and treatment typically mean less pain and suffering for individuals impacted by cancer and also increase the likelihood of cancer survival. In addition, preventing and treating cancer in the earliest stages supports a sustainable and accessible health care system for all Albertans. Fortunately, screening tests for colorectal cancer are available and are highly effective in detecting the cancer before it progresses. In fact, the importance of screening in preventing, detecting and curing colorectal cancer cannot be overstated and organized screening programs make a difference: they increase awareness, understanding and the likelihood of getting screened.

Get Screened

In 2011, 57% of Albertans aged 50-74 reported that they were current with their colorectal screening. But, consider that if 80% of people aged 50-74 years across Alberta had up-to-date colorectal cancer testing by 2015, then by 2032 (Canadian Partnership Against Cancer, 2013):

- approximately 1000 deaths from colorectal cancer could be avoided,
- an estimated 2000 cases of colorectal cancer could be avoided,
- a cumulative increase of $81 million in earnings would be gained[1], and
- there would be a cumulative increase of $249 million in total income[2].

Make Healthy Lifestyle Choices

In addition to following recommended screening guidelines, Albertans can reduce the risk of developing or dying from colorectal cancer by maintaining a healthy body weight, getting regular physical activity, limiting intake of red and processed meats, and by not smoking.

[1] This includes earnings from both paid employment (wages and salaries) and self-employment.

[2] Total income refers to income from all sources including government transfers before deduction of federal and provincial income taxes.

Combining the Efforts of Albertans

A future free of colorectal cancer is possible for most Albertans, but the combined efforts of the health care system and its providers in partnership with individual Albertans is required. AHS is committed to reducing the burden of colorectal cancer through the Alberta Colorectal Cancer Screening Program by increasing awareness, accessibility and quality of screening for all Albertans. Additionally, excellence in treatment, care and research across AHS will continue to support those who develop the disease. Albertans and their primary health care providers together can make a large impact on the burden of colorectal cancer by ensuring that individual risks are identified, healthy lifestyle choices are supported and regular screening occurs.

Colorectal Cancer Control – A Focus on Screening

Colorectal cancer represents a significant health concern. It is one of the most commonly diagnosed cancers and, in Alberta, affects about 1 in 13 men and 1 in 16 women in their lifetime (Cancer Surveillance, 2012).

In order to reduce the burden of colorectal cancer, Alberta Health Services (AHS) is continually looking at ways to control the disease. Comprehensive cancer control is concerned with the whole population and is responsive to the needs of different groups at risk. The goals of comprehensive cancer control are to prevent cancer, detect cancer, treat and cure cancer, reduce the suffering associated with cancer, and increase survival and quality of life for those who develop cancer.

Organized screening programs are a critical component of a strong cancer control system and involve checking or testing for indicators of current or future disease in a group of people who do not currently show any symptoms. Early detection and treatment typically mean less pain and suffering for individuals impacted by cancer and also increase the likelihood of cancer survival. In addition, preventing and treating cancer in the earliest stages supports a sustainable and accessible health care system for all Albertans. Fortunately, screening tests for colorectal cancer are available and highly effective in detecting the cancer before it progresses.

Despite the strong evidence that supports screening as one of the most powerful weapons for preventing colorectal cancer, only about 57% of Albertans aged 50-74 report being up-to-date[3] with screening (Canadian Partnership Against Cancer, 2012). The rate of colorectal cancer screening also lags behind breast and cervical screening (Canadian Partnership Against Cancer, 2010). The purpose of this report is to promote informed decision making about colorectal cancer screening. Key facts about colorectal cancer and its impact on Albertans are presented to provide context for understanding the rationale for, and process of, colorectal cancer screening. The final section focuses on concrete actions for reducing the impact of colorectal cancer in Alberta.

Key Facts about Colorectal Cancer

Colorectal cancer is cancer that develops on the inner wall of the colon and rectum (also known as the large bowel or large intestine). The colon and the rectum are part of the digestive system and colorectal cancer is used to refer to both cancers of the colon and/or the rectum.

Colorectal cancer can develop from polyps, or small growths, on the inner wall of the colon and rectum. Not all polyps have the potential to grow into a cancer but those that do usually will grow slowly and turn into a cancer over a long period of time, without causing any symptoms. Colorectal cancer is preventable and highly treatable when caught at an early

[3] According to the Canadian Partnership Against Cancer's Colon cancer Screening in Canada Survey, up to date for screening describes individuals reporting they have completed an FOBT in the last two years or have had a flexible sigmoidoscopy or colonoscopy in the last five years.

stage. Symptoms may only appear when the colorectal cancer is at a later stage. Some symptoms of colorectal cancer may include anemia, significant or abrupt change in bowel movements (persistent constipation or diarrhea), narrow or bloody stools, abdominal cramps, unexplained weight loss, or constant fatigue and weakness. Since these symptoms are not unique to colorectal cancer and usually occur late in the course of colorectal cancer, it is very important for those who experience symptoms to discuss them with their primary care providers.

There is no single cause of colorectal cancer but a number of risk factors have been identified (Cancer Care Ontario, 2013; Canadian Cancer Society's Steering Committee on Cancer Statistics. 2011; American Cancer Society, 2011).

Non-Modifiable Risk Factors

Some risk factors are beyond individual control and are non-modifiable. These factors help health care providers decide who should be screened and what test might be most appropriate. Non-modifiable risk factors for colorectal cancer include:

Age – Age is the most common risk factor for colorectal cancer; most people who develop colorectal cancer are over age 50 because, by age 50, polyps are much more common.

Gender – Men and women have an equal chance of developing colon cancer. However, men are twice as likely to develop rectal cancer.

Ethnicity—African Americans have been found to have a higher incidence and mortality of colorectal cancer than other racial groups in the U.S. but the reason is not well understood. Jews of Eastern European descent (Ashkenazi Jews) have one of the highest risks of colorectal cancer and several gene mutations have been found to increase their risk.

Family history – The risk for colorectal cancer is higher if a parent, sibling or child has the disease, especially if that person is younger than 60. The risk is even greater if more than one family member has colon cancer or rectal cancer.

Personal history –A history of colorectal cancer or polyps increases the risk of colorectal cancer in the future. Chronic inflammatory diseases of the colon, such as ulcerative colitis and Crohn's disease can also increase the risk of colorectal cancer because the colon is inflamed over long period of time.

Heredity —Genetic syndromes can increase the risk of colorectal cancer. These syndromes include familial adenomatous polyposis and hereditary nonpolyposis colorectal cancer, which is also known as Lynch syndrome.

Modifiable Risk Factors

Other risk factors are modifiable and under the control of the individual. There is evidence that the following lifestyle factors are related to colorectal cancer:

Diet—Development of colorectal cancer may be associated with high dietary consumption of fatty red and processed meats and low consumption of whole grains, fruits, and vegetables.

Body composition–Being overweight or obese increases the risk of colorectal cancer in both men and women, but the link seems to be stronger in men. Having more belly fat or a larger waistline has also been linked to colorectal cancer.

Alcoholic beverages – Evidence suggests a link between more alcoholic beverages and a higher risk of colorectal cancer.

Exercise—An inactive or sedentary lifestyle has been found to be associated with an increased risk of developing colorectal cancer. In contrast, people who exercise regularly may have a decreased risk of developing colorectal cancer.

Smoking—As with many other types of cancer, cigarette smoking, particularly long-term smoking, increases the risk of colorectal cancer.

The Impact of Colorectal Cancer in Alberta

This section presents some key statistics that reflect the impact of invasive colorectal cancer on Albertans. Invasive colorectal cancer refers to cancer with a potential to spread beyond its point of origin. The data includes the most recent actual data (2010) as well as estimated data. Primary data sources are Alberta Cancer Registry and Alberta Health and data have been provided by Surveillance and Reporting, CancerControl Alberta, AHS. Results are presented for population based incidence and mortality.

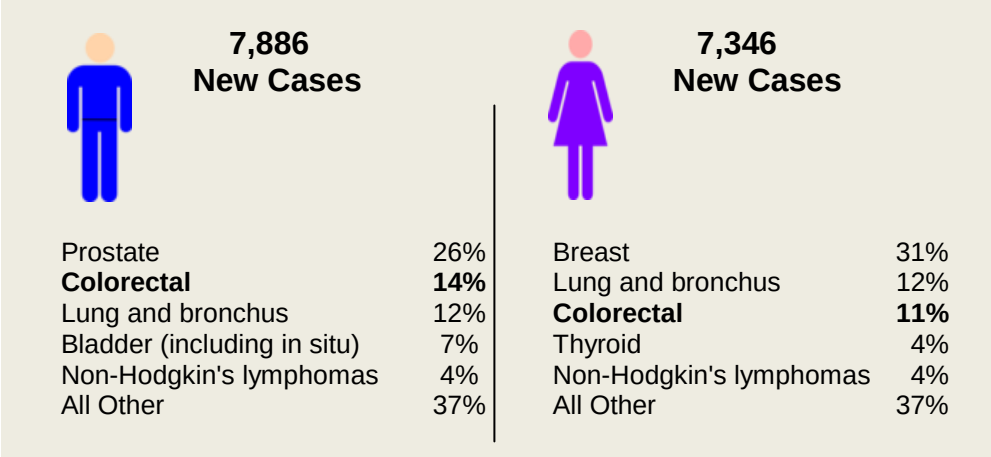
Understanding the Numbers

- Incidence counts provide an estimate of how many Albertans will be diagnosed with colorectal cancer during the year. Incidence rates are the number of new colorectal cancer cases diagnosed per 100,000 population in a calendar year.
- Mortality counts describe the number of Albertans whose deaths are attributed to colorectal cancer during a year. Mortality rates are the number of deaths per 100,000 population in a calendar year.
- When comparing incidence or mortality over time or in different geographical areas, age standardized incidence and mortality rates are used. Age standardization results in more meaningful comparisons in cancer risk over place and time because it adjusts for differences in age distributions and growth of populations. The incidence and mortality rates reflect the overall rate that would be expected if the population had an age structure identical to the standard population (1991 Canadian population). The age standardized rates are usually expressed as the number of cancer cases or deaths per 100,000 people and reflect the risk of developing colorectal cancer (age-standardized incidence) and the risk of dying from colorectal cancer (age-standardized mortality rates).
- When examining trends, three year moving averages are used to smooth out year-to-year fluctuations so the underlying trend is more readily observed. They are calculated based on aggregating three years of data by age group. Age standardized incidence and age standardized mortality are presented as three-year moving averages.

How Many People Will Be Diagnosed With Colorectal Cancer - Incidence

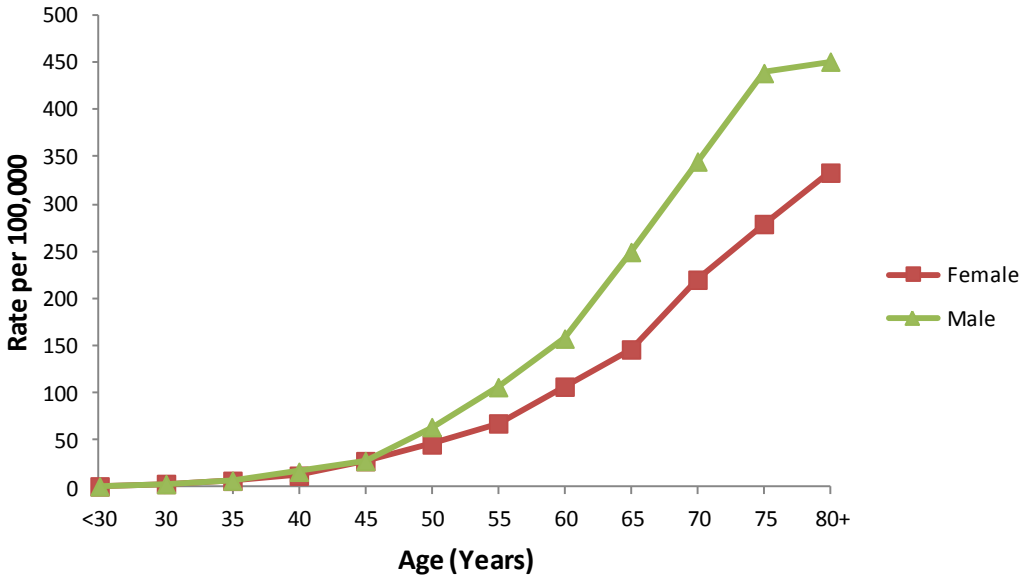
- In 2010, colorectal cancer was the second most frequently diagnosed cancer for men and the third most diagnosed cancer for women (see Figure 1).

Figure 1: Most Frequently Diagnosed Cancers, Alberta, 2010



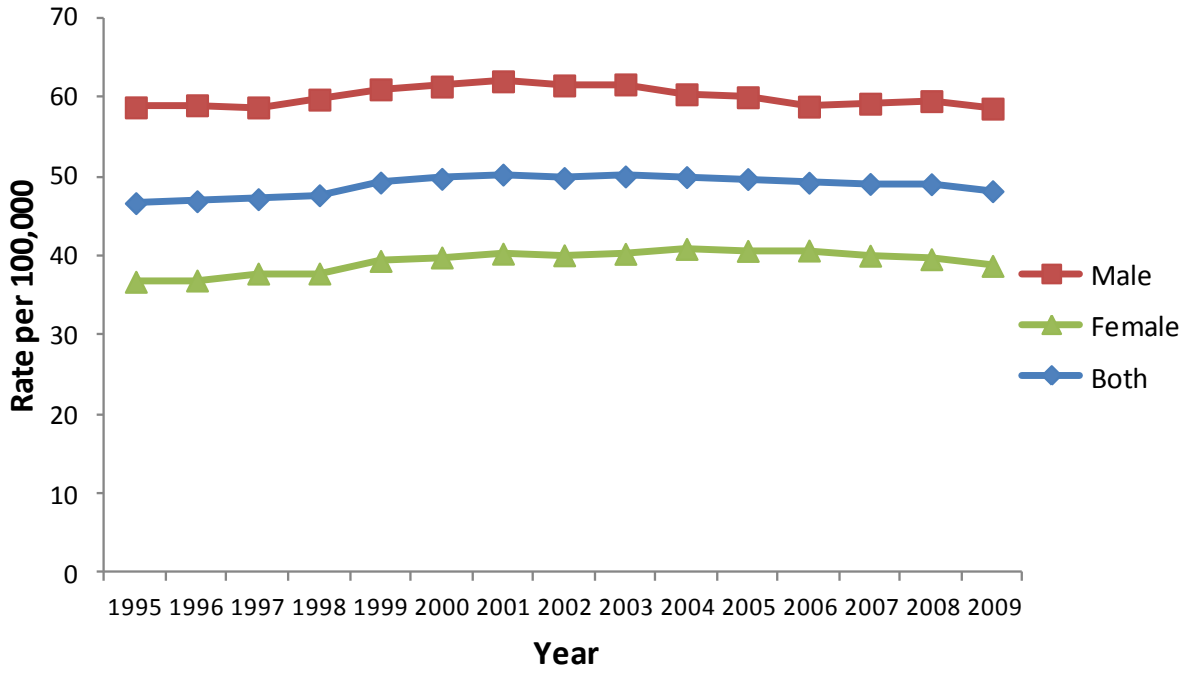
- There were 1,902 new cases of colorectal cancer in Alberta in 2010; on average, five Albertans were diagnosed with colorectal cancer a day.
- It is estimated that there will be approximately 2,266 cases of colorectal cancer in 2015 or, on average, six Albertans will be diagnosed with colorectal cancer a day.

Figure 2: Age-Specific Incidence Rate for Colorectal Cancer by Sex, Alberta, 2006-2010



- Both males and females have low colorectal cancer rates until about age 40, after which rates begin to increase (see Figure 2). Males have higher rates than females after age 45 and the gap between the sexes increases with age. The highest colorectal cancer incidence rates occur in the older age groups; about 90% of the cases were diagnosed in people over 50.

Figure 3: Age-Standardized Incidence Rates*† for Colorectal Cancer by Sex, Alberta, 1995-2009

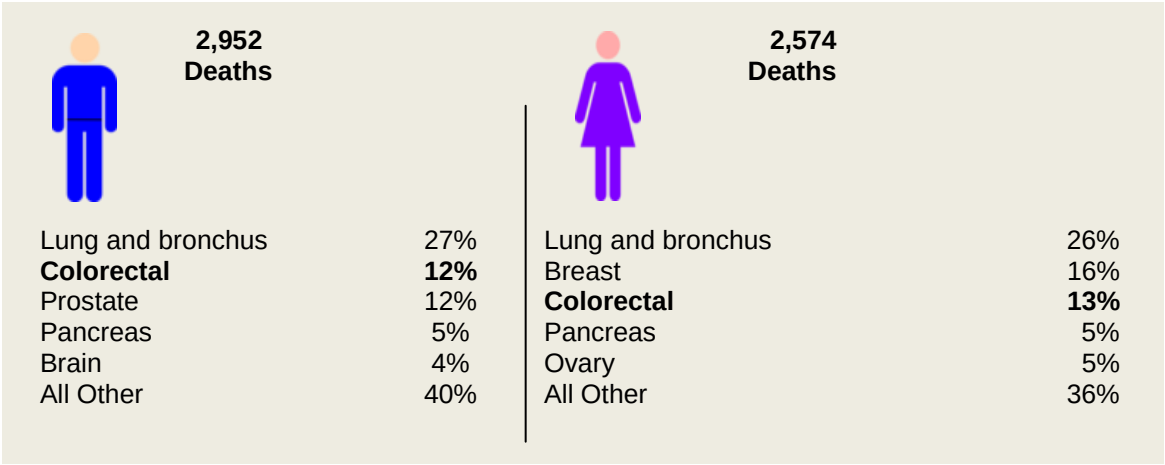


- Colorectal cancer incidence rates have remained stable from 2001 to 2010 (see Figure 3). Age standardized incidence rates for males are higher than the rates for females and this pattern has remained consistent over time.

How Many People Die From Colorectal Cancer - Mortality

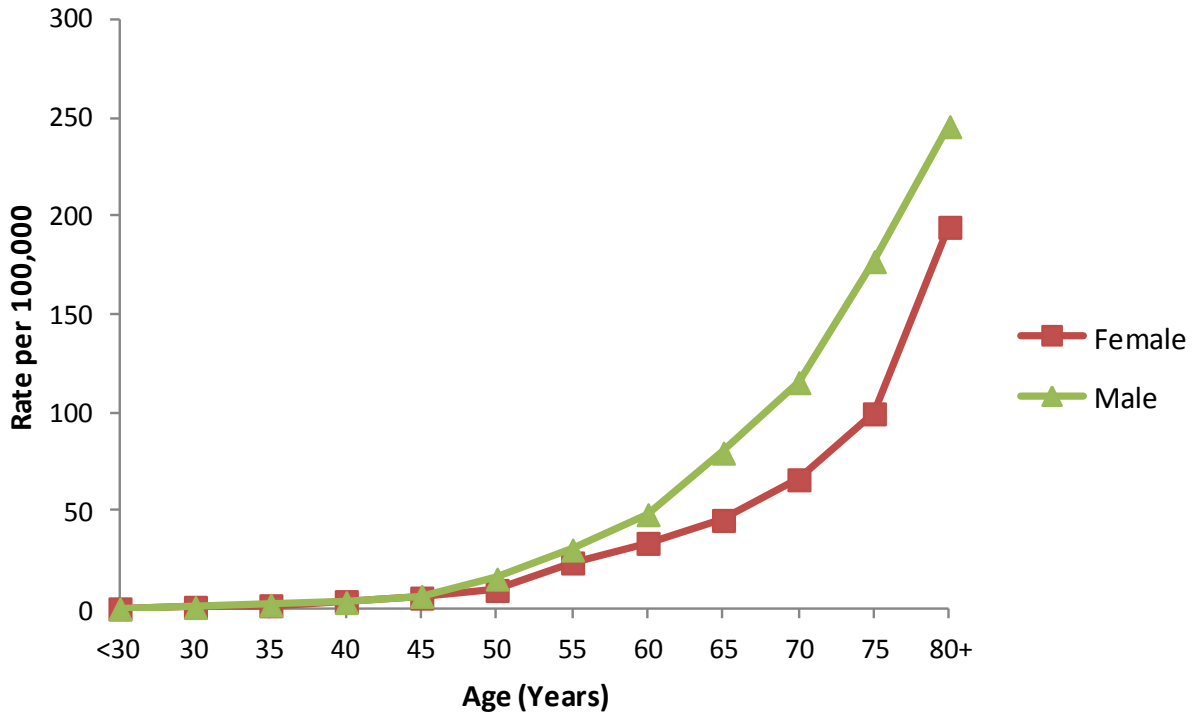
- Colorectal cancer was the second leading cause of cancer death for men and the third leading cause of cancer death for women (see Figure 4).

Figure 4: Leading Cause of Cancer Deaths, Alberta, 2010



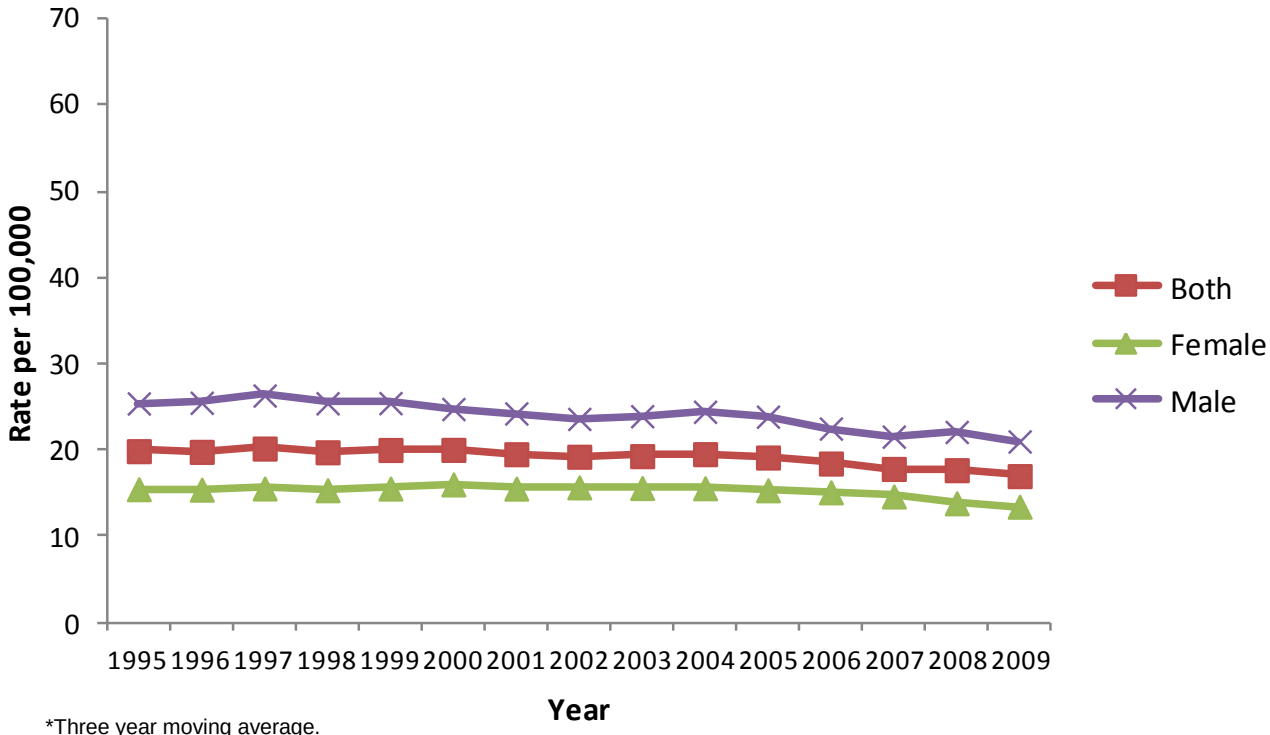
- There were 695 deaths due to colorectal cancer in 2010; on average, two Albertans died each day from colorectal cancer during that year. It is estimated that there will be approximately 800 deaths due to colorectal cancer in 2015 meaning that the trend will continue – two Albertans a day will die from colorectal cancer.

Figure 5: Age-Specific Mortality Rates for Colorectal Cancer by Sex, Alberta, 2006-2010



- Both males and females have low colorectal cancer mortality rates until about age 40, after which rates begin to increase (see Figure 5). Males have higher rates than females after age 45. The highest colorectal cancer mortality rates occur in the older age groups. Almost 95% of the deaths occurred after age 50.

Figure 6: Age Standardized Mortality Rates*† for Colorectal Cancer by Gender, Alberta 1995-2010



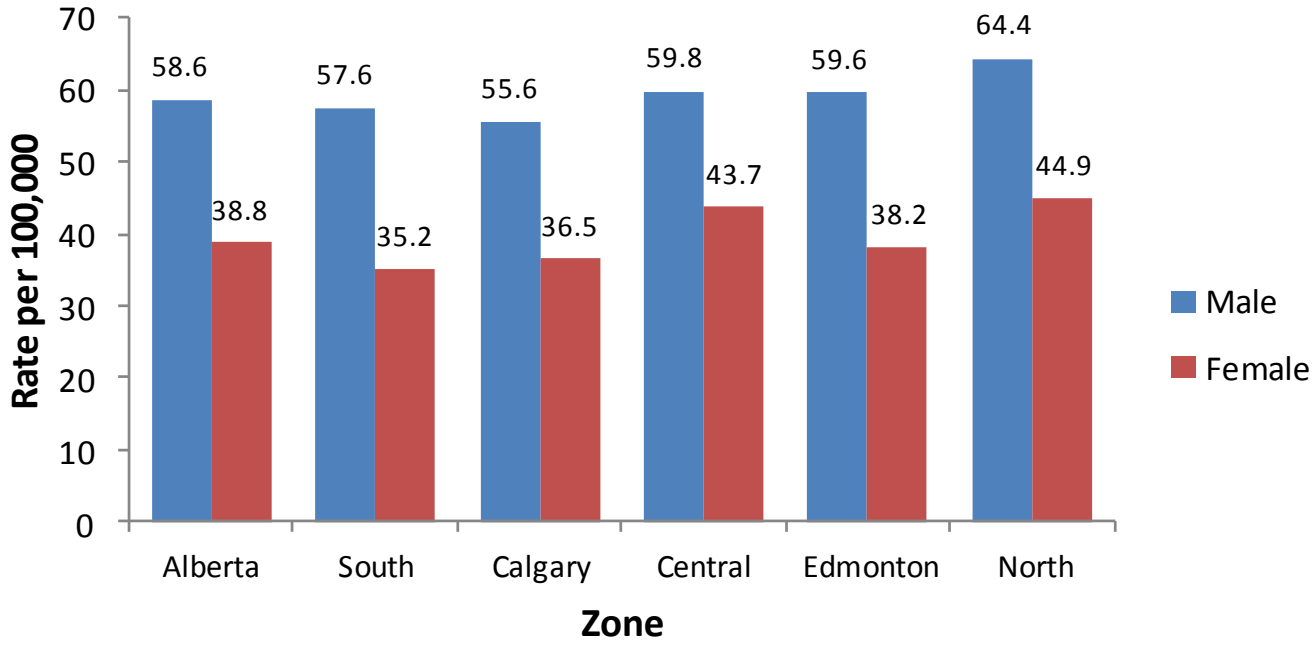
*Three year moving average.
†Standardized to 1991 Canadian Population

- Mortality from colorectal cancer has declined slowly since 1995. Consistent with colorectal cancer incidence, mortality rates for males are higher than females over time. Long term declines in mortality likely reflect a combination of changes in risk and protective factors, earlier diagnosis due to more screening and improvements in treatment (Cancer Surveillance, 2012).

Geographic Variation

- The colorectal cancer incidence rates for both males and females are generally lower in Alberta than in those in Canada (Cancer Surveillance, 2012). Similarly, colorectal mortality rates are also lower in the province compared to the country. Geographical variation is also due to differences in risk and protective factors as well as prevention, screening and treatment.

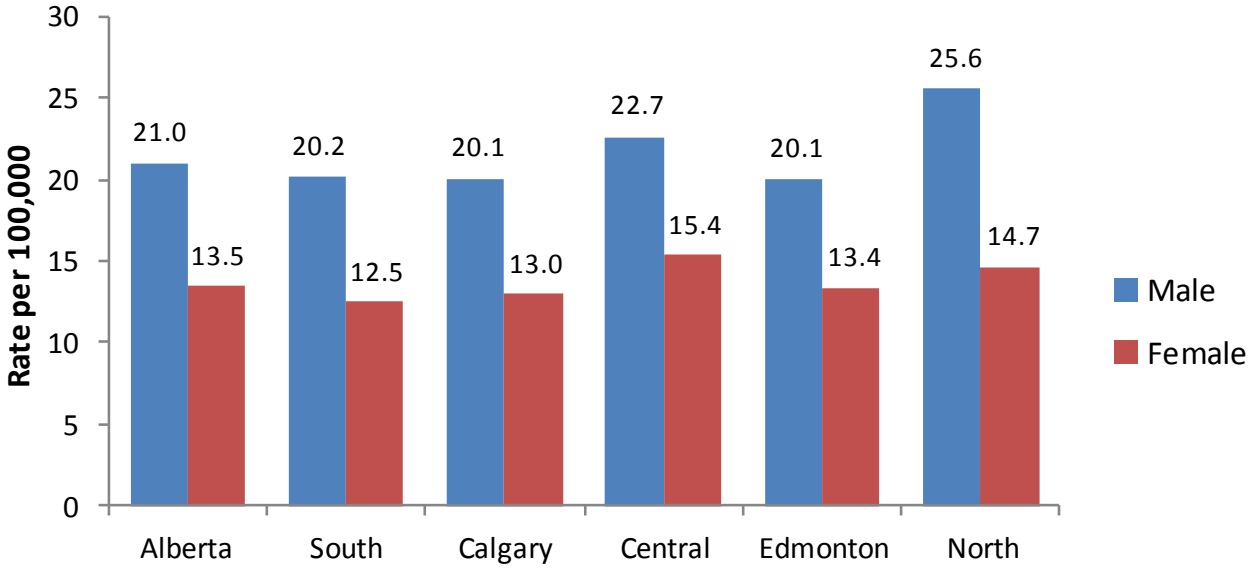
Figure 7: Age-Standardized Incidence Rates*† for Colorectal Cancer by Gender Zone, Alberta 2008-2010



*Three year moving average.
†Standardized to 1991 Canadian Population

- Figure 7 shows how the colorectal cancer rates vary in comparison to the provincial rate. Despite some minor variation across zones, the zone colorectal cancer rates for both males and females do not vary significantly from the provincial rate.

Figure 8: Age-Standardized Mortality Rates*† for Colorectal Cancer by Gender and Zone, Alberta 2008-2010



*Three year moving average.
†Standardized to 1991 Canadian Population

- While there is some variation in colorectal mortality rates by zone (see Figure 8), there is no evidence that colorectal cancer rates for either males or females in any zone is significantly lower or higher than the provincial average.

Colorectal Cancer Screening

Screening is the process of looking for cancer in people who have no symptoms of the disease. Screening tests help find colorectal cancer before any symptoms develop. Colorectal cancer can grow for years before causing any symptoms but it is preventable and highly treatable when caught at an early stage, and before it has had a chance to spread. Early detection improves the chances of beating colorectal cancer significantly - 9 out of 10 cases of colorectal cancer can be treated successfully if found early because diagnosis and treatment can occur promptly (American Cancer Society, 2011). In many cases, screening can also prevent colorectal cancer because some polyps, or growths, can be found and removed before they have the chance to turn into cancer.

Who Should Get Screened

An individual's risk for colorectal cancer determines when screening should be initiated and what test and frequency are appropriate. Screening is not recommended for individuals under age 50 with no family history or relevant medical history because polyps are much

more common after age 50. Individuals at average risk are 50 years and older, and have no personal history of polyps or colorectal cancer or inflammatory bowel disease. Individuals at average risk should begin colorectal cancer screening at age 50 and continue until age 74.

How to Get Screened

Home Stool Tests

A home stool test, is the recommended screening test for colorectal cancer for people at average risk aged 50 or over in Alberta. This includes the majority of Albertans, and it is recommended that a home stool test is taken every year. The screening test is performed on a sample of stool to detect occult blood (blood that is not visible to the naked eye) in otherwise normal stool. A doctor arranges for a test kit and the stool sample is collected at home. After the test is completed, it will need to be returned to a laboratory for analysis within a specific number of days after the stool samples are collected.

If the test result is normal, it is recommended to take a home stool test every year as part of a normal health routine. If the stool test result is abnormal, it doesn't necessarily mean cancer. Traces of blood can be present in the stools for a variety of reasons. But if someone is 50 years or older, and their stool sample shows any traces of blood, the next step is to have a colonoscopy to determine the source of the bleeding.

Benefits and Risks of Home Stool Tests

Home stool tests are noninvasive, safe and easily done at home. Alberta has now adopted the Fecal Immunochemical Test (FIT) as the primary colorectal cancer screening test in Alberta for individuals of average risk. The FIT is a type of home stool test that is better at detecting colorectal cancer and high risk polyps than other types of stool tests and does not require diet or medication changes.

A home stool test may miss detecting blood in the stool, because a polyp or cancer may not be bleeding at the time the test is taken so regular, yearly testing is required. If blood is present, the test cannot determine whether the blood is from the colon or from other areas of the body so further testing is required.

Colonoscopy

A colonoscopy is the follow-up test for people who have an abnormal result from a home stool test and it is also the screening test used for people who have been identified as being at higher risk for developing colorectal cancer. The procedure takes place in a health care facility. During the procedure, a thin flexible tube is inserted into the rectum and colon and allows the doctor to have an inside look at the colon and rectum to examine for polyps or cancer. The procedure requires thorough cleansing of the colon in advance and takes about 30 minutes to complete. If polyps are found, they can usually be removed during the procedure. Growths that are too large to be removed and/or appear to be cancer are removed surgically at a later date. Biopsies are also taken to get a sample of the cells for further diagnostic information.

Primary care providers follow up to discuss the results of colonoscopies. If the results are normal, further screening tests are not required for 10 years. After 10 years, if risk is average, the individual usually goes back to having a home stool test. If the results indicate polyps, primary care providers will discuss next steps and when screening should occur again. If the results of the colonoscopy indicate colorectal cancer, treatment options will be discussed.

Benefits and Risks of a Colonoscopy

As with home stool tests, the biggest benefit of a colonoscopy is the potential to find colorectal cancer early. Colonoscopies also have the potential of preventing cancer from developing because, if polyps are discovered, they can be removed before they become cancerous.

Overall, colonoscopy is a very safe procedure, but as with any medical procedure, complications can occur. During colonoscopies where a polyp is removed, the risk of complications is higher, although still very uncommon. The risk of developing colon cancer is higher than the risk of complications (Arora, Mannalithara, Singh, Gerson & Triadafilopoulous, 2009). The complications can include perforation, bleeding, postpolypectomy syndrome, reaction to the anesthetic, and infection.

Other Tests

Other tests may be recommended by primary care providers including a flexible sigmoidoscopy or CT colonography. A flexible sigmoidoscopy uses a flexible videoscope to examine the lower third of the large bowel. This test is usually done every five years. A CT colonography is a procedure which uses x-rays and computers to produce images of the colon after bowel cleansing to get an accurate picture of the lining of the rectum and colon. This test is usually done at private radiology clinics and is not covered by Alberta Health Care Insurance.

Reducing the Impact of Colorectal Cancer in Alberta

While the burden of colorectal cancer in Alberta is high, action can be taken to reduce the number of Albertans who are affected by the disease. The importance of screening in preventing, detecting and curing colorectal cancer cannot be overstated and organized screening programs make a difference — they increase awareness, understanding and the likelihood of getting screened.

The Alberta Colorectal Cancer Screening Program (ACRCSP)

The ACRCSP is an organized provincial colorectal cancer screening program coordinated by AHS in partnership with health care providers. The program goal is to strengthen cancer screening for men and women and reduce the number of cancer-related deaths by:

- coordinating and facilitating increased access to cancer screening services across the province,

- providing home stool test screening result letters to eligible Albertans,
- working with health care providers to ensure that patients with abnormal screening results get the follow-up care they need,
- offering timely and accurate information and resources to the public and health care providers, and
- partnering with services to ensure quality at every stage in the screening process.

Men and women between the ages of 50 and 74 are automatically included in the program. As soon as people complete their first home stool test the program sends a result letter if the result is normal or abnormal.

What Albertans Can Do to Reduce the Impact of Colorectal Cancer

Build screening into a regular health routine.

If 80% of people aged 50-74 years across Alberta had up-to-date colorectal cancer testing by 2015, then by 2032 (Canadian Partnership Against Cancer, 2013):

- approximately 1000 deaths from colorectal cancer could be avoided,
- an estimated 2000 cases of colorectal cancer could be avoided,
- a cumulative increase of 81 million in earnings would be gained[4], and
- there would be a cumulative increase of 249 million in total income[5].

Consider healthy lifestyle choices:

In addition to following recommended screening guidelines, people can reduce the risk of developing or dying from colorectal cancer by maintaining a healthy body weight, getting regular physical activity, limiting intake of red and processed meats, and by not smoking.

What Can the Future Look Like?

A future free of colorectal cancer is possible for most Albertans, but will require the combined efforts of the health care system and its providers in partnership with individual Albertans. AHS is committed to reducing the burden of colorectal cancer through the ACRCSP by increasing awareness, accessibility and quality of screening for all Albertans. Excellence in treatment, care and research across AHS will continue to support those who develop the disease. Albertans and their primary health care providers together can make a large impact by ensuring that individual risks are identified, healthy lifestyle choices are supported and regular screening occurs.

Additional information about colorectal cancer and the Alberta Colorectal Cancer Screening Program can be found at www.screeningforlife.ca.

[4] This includes earnings from both paid employment (wages and salaries) and self-employment.

[5] Total income refers to income from all sources including government transfers before deduction of federal and provincial income taxes.

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