Organized Cancer Screening in Alberta 2024

Population-based cancer screening performance report

Alberta Health Services

Land acknowledgement

Our work takes place on historical and contemporary Indigenous lands, including the territories of Treaty 6, Treaty 7 and Treaty 8 and the homeland of the Métis Nation of Alberta and 8 Métis Settlements. We also acknowledge the many Indigenous communities that have been forged in urban centres across Alberta.

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For more information, visit screeningforlife.ca or call Screening Programs toll-free number at 1-866-727-3926.

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Message from our leaders

We are pleased to present the Organized Cancer Screening in Alberta 2024 report which profiles the population-based cancer screening programs coordinated by Alberta Health Services (AHS) Screening Programs. The report provides an overview of cancer screening performance indicators along with program milestones, successes and key initiatives for the period of 2015 to 2023. It also reflects contributions to cancer screening from multiple stakeholders and helps inform further growth. This report is intended for program partners and organizational leadership along the cancer screening pathway. All Alberta indicators are sourced from the Provincial Cancer Screening databases within AHS Screening Programs.

Cancer remains the leading cause of mortality with approximately 1 in 4 males and 1 in 5 females expected to die from cancer in Alberta. Cancer screening plays a key role in the cancer control continuum. Population-based cancer screening programs aim to diagnose pre-cancers and cancers accurately and at an earlier stage. Organized cancer screening is cost-effective in improving health outcomes and quality of life by preventing or detecting cancer using a consistent, coordinated approach.

This report demonstrates our commitment to and alignment with Alberta's comprehensive cancer plan, *Changing Our Future: Alberta's Cancer Plan to 2030*, which provides the blueprint for Alberta's action on cancer over the next decade and beyond. Screening and early detection are a core strategy within the plan and are an important part of Alberta's cancer control system. Cancer screening has also been identified as an organizational priority and is reflected in the Zone Public Health | Provincial Population & Public Health Action Plan 2023–2028.

Screening Programs is a division within AHS Provincial Population & Public Health that leads 3 population-based cancer screening programs – the Alberta Breast Cancer Screening Program, the Alberta Cervical Cancer Screening Program and the Alberta Colorectal Cancer Screening Program. Additionally, in collaboration with multidisciplinary healthcare providers, Screening Programs launched the Alberta Lung Cancer Screening Program pilot in 2022. More information and resources about cancer screening and these programs are available on our website at screeningforlife.ca.

We welcome feedback on this report as it strengthens collaboration on cancer screening priorities in Alberta. For more information, visit screeningforlife.ca. To provide feedback, call Screening Programs toll-free number at 1-866-727-3926.

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Executive summary

Cancer is a significant cause of morbidity and mortality in Alberta. Cancer screening plays a key role in early cancer detection and cancer prevention. Screening Programs coordinates program operations and delivery of population-based screening programs in collaboration with multiple partners and stakeholders.

The purpose of this report is to present organized cancer screening data in Alberta and highlight some of the program activities that enhance screening in the province. Specifically, this report provides an overview of each organized provincial cancer screening program and the key indicators to highlight the performance of each program. Although the timeframe highlighted in this report is from 2015 to 2023, the years reported are based on data availability which varies per program and metric. Also included in this report is the Alberta Lung Cancer Screening Program pilot. This pilot program was funded through AHS and the Canadian Partnership Against Cancer. The report for the pilot program presents performance indicators from September 2022 to December 2023.

This report is divided into four main sections:

1. Alberta Breast Cancer Screening Program
    a. Screen Test
2. Alberta Cervical Cancer Screening Program
3. Alberta Colorectal Cancer Screening Program
4. Alberta Lung Cancer Screening Program

Each section provides an overview of the program, its basic functions, activities and program performance indicators.

Key findings

The following are key findings for each cancer screening program. Refer to the program-specific sections for detailed information.

Alberta Breast Cancer Screening Program

- The COVID-19 pandemic reduced the number of screening mammograms in 2020. Efforts were made throughout the province to increase screening numbers to above pre-pandemic levels.
- Between 2017 and 2022, the wait times for 90% of patients with abnormal results who required a biopsy were less than 7 weeks, which surpassed the national target.
- Indicators such as the positive predictive value and invasive breast cancer detection rate have remained above the national targets.
- The updated breast cancer screening Clinical Practice Guideline for Alberta, released in 2022, lowered the recommended screening starting age for average-risk individuals from 50 to 45 years. Alberta was the first province in Canada to make this change, expanding the benefits of routine screening to more individuals.
- Between 2017 and 2022, the percentage of early-stage breast cancers detected remained consistently higher than the national target.

Screen Test

- Screen Test continues to support breast cancer screening participation with mobile clinics in all zones in rural and many Indigenous communities.
- Screening participation with mobile clinics decreased at the start of the pandemic. However, post-lockdown efforts increased screening to 78% (in 2023) of pre-pandemic (2019) levels. In 2023, ongoing logistic issues and wildfires led to the cancellation of some community visits as services tried to return to normal.
- The number of Indigenous communities served by Screen Test increased from 24 to 28 between 2016 and 2022.
- From December 2020 to December 2021, Screen Test collaborated with the breast, cervical and colorectal cancer screening programs to implement the Integrated Access to Cancer Screening project. The project offered cervical and colorectal screening services as part of the mobile clinics.
- In September 2021, Screen Test Mobile celebrated its 30th anniversary of bringing breast cancer screening to where women live.

Alberta Cervical Cancer Screening Program

- Total Pap test volumes decreased in 2020, but the numbers recovered steadily thereafter and have surpassed pre-pandemic levels.
- Between 2017 and 2021, 90% of individuals with high-grade Pap results had a follow-up colposcopy within 6 weeks to 3 months.
- Colposcopies reduced significantly in 2020, however, the numbers increased in 2022 to 85% of pre-pandemic levels.
- Between 2018 and 2021, the highest age-specific invasive cancer cases was found in individuals between 30 and 39 years of age.
- Between 2015 and 2022, initiatives including updating the Clinical Practice Guideline, high-grade lesion monitoring and human papillomavirus (HPV) Test of Cure were introduced to support cervical screening. In 2023, planning for the HPV self-sampling project began, and the initial pilot testing started in 2024.

Alberta Colorectal Cancer Screening Program

- Total fecal immunochemical test (FIT) volume increased and surpassed pre-pandemic numbers due in part to the FIT mail-out initiative launched in January 2022 as part of pandemic recovery strategies.
- Median wait time for a follow-up colonoscopy after an abnormal FIT was 83 days in 2020, which was the longest wait time between 2017 and 2022. The Alberta Colorectal Cancer Screening Program and Digestive Health Strategic Clinical Network worked together to reduce these wait times.
- Total colonoscopy numbers were lowest in 2020. In 2022, numbers had surpassed pre-pandemic levels.
- As a result of low screening participation in 2020 due to the pandemic, the number of FIT-detected invasive cancer was lower than average.

Alberta Lung Cancer Screening Program

- This pilot program was implemented in September 2022 to target high-risk individuals, who currently smoked or had smoked in the past.
- Individuals recruited into the program were screened with low-dose computed tomography scans.
- Individuals were referred to the program through their primary care provider or by self-referral — individuals self-referred by calling the program or using an online portal on screeningforlife.ca to see if they were eligible to enroll.
- Thirty-nine patients with abnormal findings were referred to the Alberta Thoracic Oncology Program. Fourteen of these were diagnosed with lung cancer. Overall, 85.7% of lung cancers detected were in stages I & II.
- An enhanced tobacco cessation program was available to support individuals who wanted to quit smoking.
- The pilot included collaboration with the Indigenous Wellness Core to support Indigenous communities.

Screening program initiatives

- Screening Programs implemented a variety of initiatives including the Integrated Access to Cancer Screening project, the Creating Health Equity in Cancer Screening project, the FIT mail-out project, the Cancer Screening Virtual Education project, and others.
- These projects included the development of resources, such as videos and handouts, to promote cancer screening for individuals in materially deprived areas and those referred for follow-up procedures after receiving abnormal results.
- These initiatives generated awareness of the importance of screening and helped to increase screening participation in the province.

Introduction

Cancer continues to be a significant burden with about half of all Albertans expected to be diagnosed with cancer at some point in their lifetime. Based on projections, it was estimated that around 23,424 new cases of cancer would be diagnosed in Alberta in 2023[1]. Of these, 3,646 new cases of breast cancer, 2,235 new cases of colorectal cancer, and 170 new cases of cervical cancer[2] were expected. Organized cancer screening programs continue to support eligible populations by providing information about screening and ensuring Albertans can be up to date with screening. This has led to a decrease in the burden of cancer in the province.

In 2020, participation in organized screening for breast, cervical and colorectal cancer saw a substantial decline due to the COVID-19 pandemic. Screening Programs developed and implemented various strategies that helped to increase participation rates close to pre-pandemic levels by 2023, while actual screening numbers were above pre-pandemic levels[3–5].

Screening Programs is also piloting a lung cancer screening program. Currently, about 1 in 12 males and 1 in 13 females in Alberta are expected to develop lung cancer in their lifetime[6]. The 5-year survival rate is still low at 24%[7], however, evidence shows that short-term screening can reduce mortality by about 25%[8] while long-term screening would reduce mortality further.

> Early detection of cancer remains key to improving outcomes.

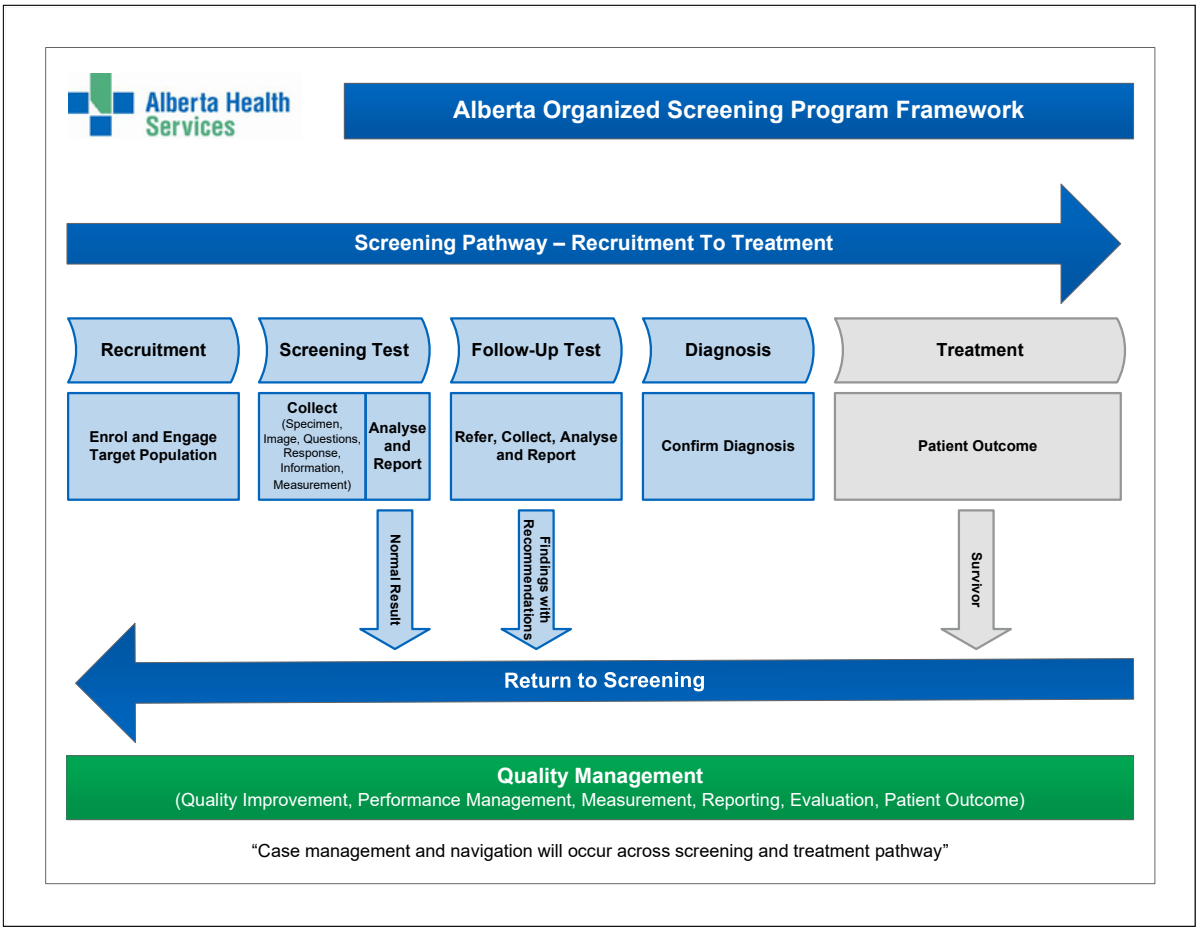
Alberta Health Services screening programs

Alberta Health Services (AHS) Screening Programs is comprised of organized, evidence-informed programs operating within a common framework (Figure 1) to support screening of asymptomatic, average-risk individuals. In addition, the lung cancer screening program targets high-risk individuals. This is done through coordinated program operations and collaboration with multiple partners and stakeholders.

Screening Programs works to inform, engage and enable individuals within the screening continuum — eligible individuals are communicated with and followed up from recruitment to diagnosis and specialist follow-up. To facilitate standardized screening province-wide, Screening Programs provides quality management processes such as standards and guidelines, quality improvement, performance monitoring, and other measures to ensure optimal health outcomes for Albertans[9].

Screening Programs also improves screening participation, follow-up and equity through personal correspondence. This is particularly important for many patients who may move between screening cycles, have different primary care providers, or do not have a primary care provider. See Appendix A for more information on personalized correspondence.

Figure 1: Alberta organized screening programs framework



Organized cancer screening programs in Alberta

Overview of programs

Alberta Breast Cancer Screening Program and Screen Test

Target Population

Average-risk women[a] aged 45 to 74 years

Screening Test

Mammogram

Screening Interval

Every 2 years

Alberta Cervical Cancer Screening Program

Target Population

Average-risk women[b] aged 25 to 69 years

Screening Test

Pap test

Screening Interval

Every 3 years

Alberta Colorectal Cancer Screening Program

Target Population

Average-risk Albertans aged 50 to 74

Screening Test

Fecal immunochemical test (FIT)

Screening Interval

Every 1 to 2 years

Alberta Lung Cancer Screening Program

Target Population

High-risk Albertans aged 50 to 74 years

Screening Test

Low-dose computed tomography

Screening Interval

Every year

a Also certain transgender, gender diverse and non-binary individuals (visit screeningforlife for more information).
b This includes anyone with a cervix.

COVID-19 impact on cancer screening

On March 18, 2020, the breast, cervical and colorectal cancer screening programs paused operations in response to the COVID-19 pandemic to align with the Government of Alberta's public health state of emergency declaration. Screening Programs resumed services in May 2020 with enhanced infection prevention and control measures in place to keep patients and staff safe and help prevent the spread of the disease. Cancer screening services gradually resumed to about 80% and higher of pre-pandemic volumes by November 2020[3–5]. Volumes fluctuated as subsequent waves of the pandemic impacted operations. Furthermore, the capacity of diagnostic follow-up services was also impacted resulting in longer wait times.

Alberta Breast Cancer Screening Program

In 2020, the number of screening mammograms was reduced due to public health restrictions. There were 140,713 screening mammograms performed compared to 186,995 in 2019, with 46,282 fewer screening mammograms in 2020 (down 25%)[10]. There were also about 600 fewer breast cancers diagnosed in 2020 than would have been otherwise expected[11].

Screen Test

As a result of the pandemic, Screen Test paused services on March 18, 2020. Screen Test Mobile resumed services in June 2020 with public health recommendations for physical distancing, health assessments for staff and patients, and enhanced infection prevention and control measures. This resulted in a reduction in the number of appointments. In 2020, Screen Test mobile visited 76 communities out of 121 communities, including 11 Indigenous communities. The remaining visits were completed in 2021[12].

Alberta Cervical Cancer Screening Program

In 2020, there were 259,534 Pap tests performed compared to 330,928 in 2019 (down 22%)[13]. Colposcopy exams were reduced to 16,937 in 2020 (down 14%) compared to 19,643 in 2019[14].

Alberta Colorectal Cancer Screening Program

FIT and colonoscopies were also affected by the COVID-19 pandemic, as services were paused for three months. In 2020, there were 203,623 (down 30%) FIT tests performed compared to 287,781 FIT tests in 2019. In the 2020-2021 fiscal year, 94,594 (down 17%) colonoscopy exams were performed compared to 113,571 colonoscopy exams done in 2019-2020 fiscal year[15].

Pandemic recovery

In response to the pandemic and to minimize touchpoints with the healthcare system, Screening Programs developed strategies to improve cancer screening participation. One of these was the launch of a FIT kit ordering system through a grant from the Canadian Partnership Against Cancer. This new system allows eligible Albertans to order a FIT kit online or by phone and have it mailed to their homes. Other strategies include supporting cancer screening by actively monitoring cancer screening participation, ensuring up-to-date information, and promoting partnerships with primary care providers and other partners to support a return to cancer screening.

Figure 2: Pandemic impacts and recovery by program

Breast cancer screening

- 2022 screening mammograms (188,480) surpassed pre-pandemic numbers.
- There were 6,600 fewer screening mammograms in 2021 compared to 2019.
- There were 46,282 fewer screening mammograms in 2020 compared to 2019.

Cervical cancer screening

- 2022 cervical screening numbers (311,066) were at 92%of pre-pandemic numbers.
- There were 10,510 fewer Pap tests completed in 2021 compared to 2019.
- There were 71,394 fewer Pap tests completed in 2020 compared to 2019.

Colorectal cancer screening

- 2022 FIT screening numbers (300,433) surpassed pre-pandemic numbers.
- Colonoscopies were at 94% pre-pandemic numbers in 2022.
- 2021 colorectal cancer incidence data resembles pre-pandemic numbers.

Breast cancer screening in Alberta

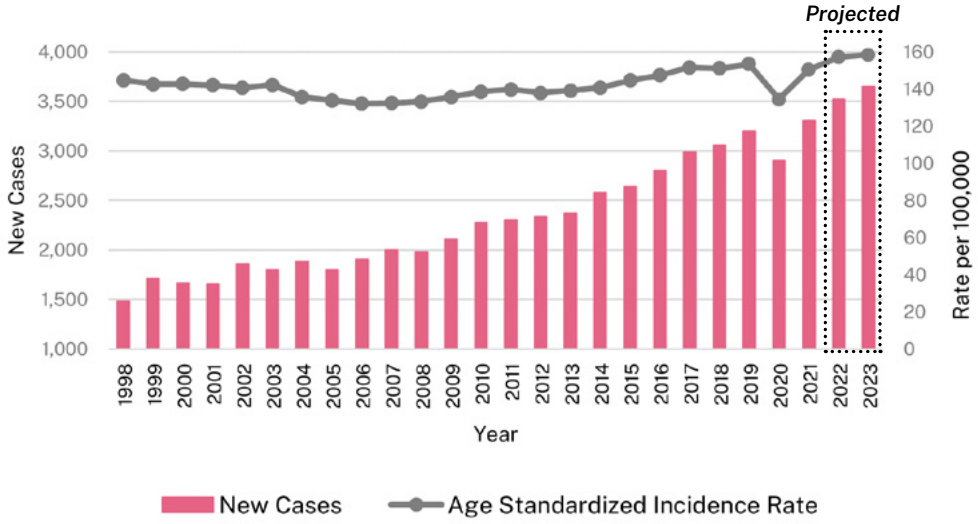
Burden of breast cancer

Incidence and mortality[c]

Breast cancer is the most common cancer among women in Canada (37.1%)[16]. In Alberta, approximately 1 in 7 females are expected to develop breast cancer in their lifetime, and 1 in 35 is likely to die from breast cancer[7]. The age-standardized incidence rate (ASIR) increased by 1.3% annually between 2008 and 2018 (Figure 3). Regarding geographic variation, there is no evidence that the incidence or mortality rates for breast cancer in any of the AHS Zones (North, Edmonton, Central, Calgary and South) were different from the provincial average[7].

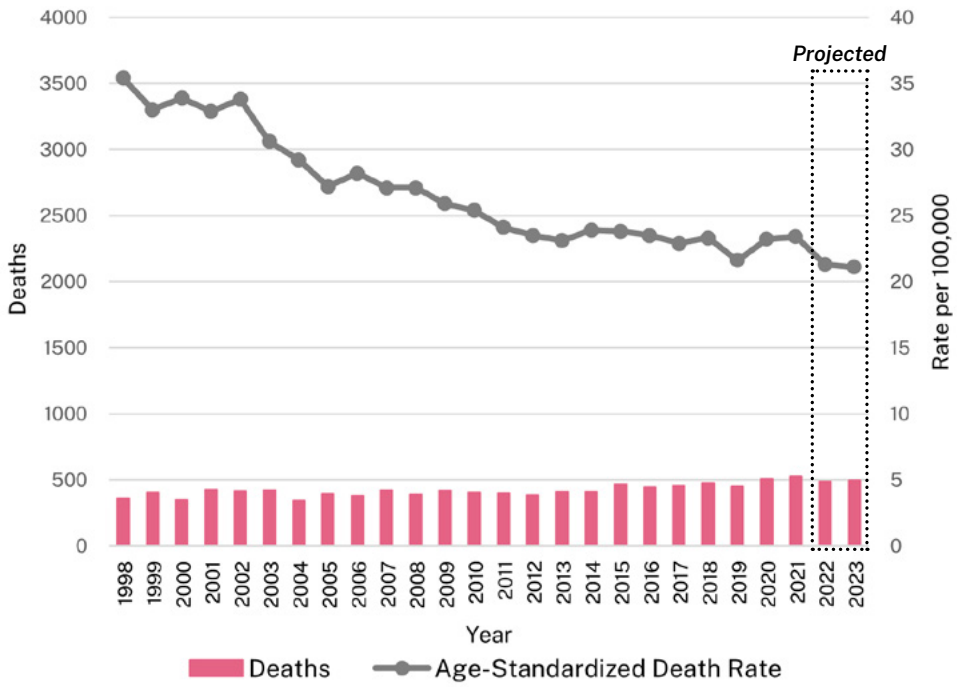
c The database for the incidence and mortality rates in this report was sourced from the 2021 Report on Cancer Statistics in Alberta and the Alberta Cancer Registry.

Figure 3: Actual and projected number of new cases for breast cancer, females, Alberta, 1998 to 2023



In 2018, there were 3,037 new cases of breast cancer diagnosed and 445 women died from breast cancer in Alberta. It was estimated that in 2023, approximately 3,646 cases of breast cancer would be diagnosed. Figure 4 shows that age-standardized mortality rate (ASMR) decreased by 2.3% annually between 1998 and 2018[17]. The five-year relative survival for breast cancer in Alberta was approximately 90% for those diagnosed between 2016 and 2018[17].

Figure 4: Actual and projected number of deaths for breast cancer, females, Alberta, 1998 to 2023



Alberta Breast Cancer Screening Program

The Alberta Breast Cancer Screening Program (ABCSP) recommends screening for eligible Albertans from ages 45 to 74 years, every 2 years. Figure 5 illustrates the milestones the ABCSP achieved between 2015 and 2023. These include establishing the breast imaging quality assurance committee in partnership with AHS Diagnostic Imaging and Alberta Society of Radiologists; inclusion of breast density information to individuals in their result letters; developing resources for informed decision-making; adding age-out letters to individuals who turn 75 years old; and updating the clinical practice guidelines to include higher-than-average risk and high-risk individuals.

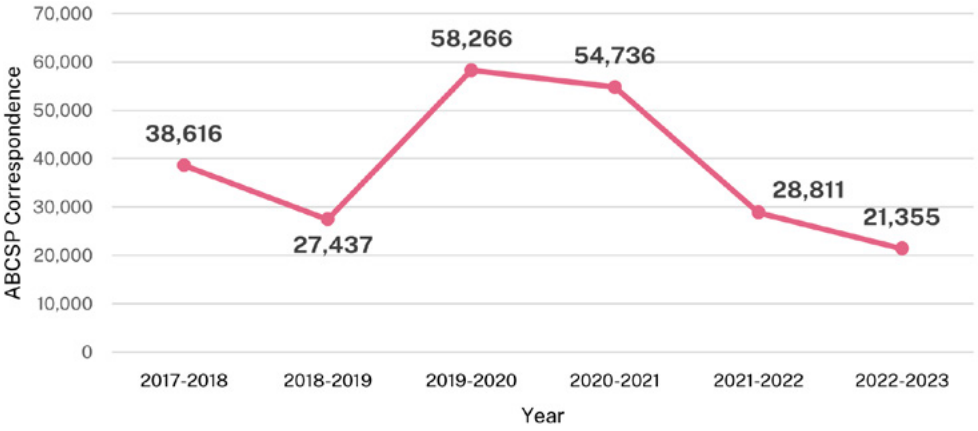
> In October 2022, the recommended screening age for breast cancer screening was lowered from 50 to 74 years to 45 to 74 years due to evidence demonstrating a reduction in mortality by screening before age 50.

Figure 5: ABCSP milestones from 2015 to 2023

Personalized correspondence

The ABCSP sends invitation letters, overdue screening reminder letters, and supports community clinics with standardized messaging to eligible individuals[18]. In 2019, the ABCSP introduced an age out of program letter informing them that they would no longer receive reminder letters to return to screen. The letter further advises them to discuss with their primary care provider about their personal benefits and risks of continuing to screen. Reminder letters were paused shortly after the pandemic began as clinics introduced new safety protocols and worked to catch up on the backlog of screening appointments impacted by the public health orders.

Figure 6: ABCSP personalized correspondence



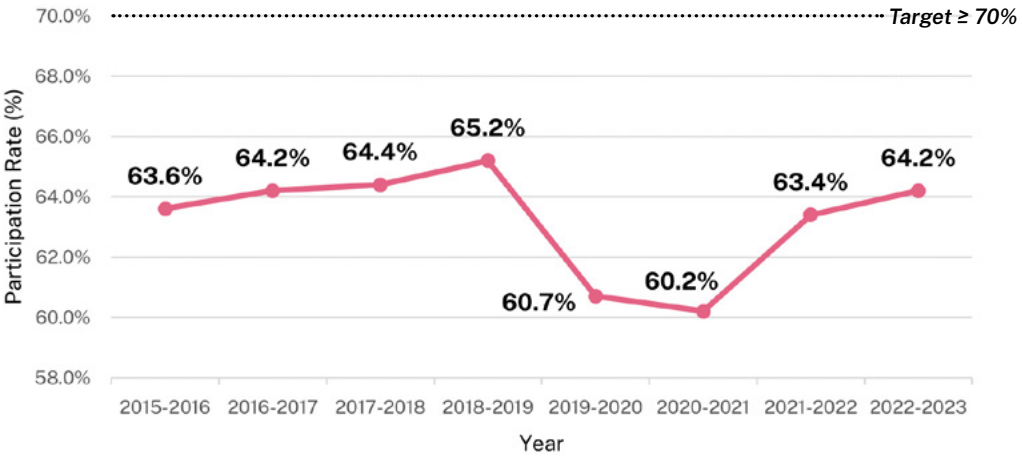
Program performance[d]

For ABCSP performance indicators and definitions, see Appendix B.

Participation rate

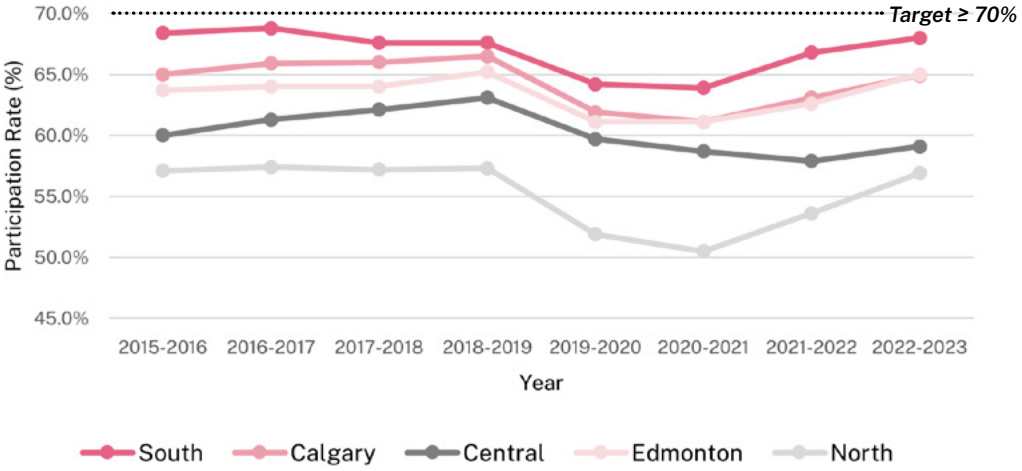
The breast cancer screening participation rate ranged from 60.2% to 65.2% between 2015 and 2023. Although the participation rate has not met the national target of 70%, the ABCSP actively works on strategies to increase screening participation, which has increased the number of screenings. Consistently, South Zone has had the highest participation rate while North Zone has had the lowest[3].

Figure 7: ABCSP participation rates in Alberta



d All data presented for performance indicators of the ABCSP is based on previous Clinical Practice Guideline (CPG) which recommended screening for those aged 50 to 74 years. The current CPG (recommending screening for those aged 45 to 74 years) was released in September 2022—data was not available at the time this report was prepared.

Figure 8: ABCSP participation rate by zone



Total screening mammograms

The number of screening mammograms performed was increasing year-over-year until 2020 when it dropped. Subsequently, there was an increase in the number of screening mammograms in the years that followed.

Table 1: Total screening mammograms

	2017	2018	2019	2020	2021	2022	2023
Total screening mammograms	173,760	178,355	186,995	140,713	180,395	188,480	186,521

Screening mammography positive predictive value (PPV)

In Alberta, the PPV value for screens[e] ranged from 7.0% to 9.4% from 2017 to 2022[19] which was above the national target of ≥6%[20].

Table 2: Screening mammography positive predictive value

	All	Zone 1 *(South)*	Zone 2 *(Calgary)*	Zone 3 *(Central)*	Zone 4 *(Edmonton)*	Zone 5 *(North)*
2017	7.0%	8.4%	5.9%	8.3%	7.5%	7.7%
2018	7.5%	7.5%	6.8%	8.9%	8.3%	6.8%
2019	8.6%	7.6%	7.3%	10.0%	10.0%	7.6%
2020	9.5%	6.9%	8.9%	9.9%	11.0%	8.7%
2021	9.2%	10.0%	9.0%	9.5%	9.6%	5.8%
***2022**	9.4%	14.0%	9.1%	9.9%	9.1%	7.1%

These are not age-standardized percentages 2022 data is not complete.*

e Screen tests can be broken down into initial screens (first screening test for the individual) and subsequent screens (any screening test after the initial screen for that individual). To provide a clearer and more stable picture of program effectiveness, only subsequent screens are being used to report on PPV and ICDR.

Invasive breast cancer detection rate

The invasive cancer detection rate ranged from 4.1 per 1,000 screens to 6.6 per 1,000 screens across the zones from 2017 to 2022[19], which was more than the national target of ≥ three per 1,000 screens[20].

Table 3: Invasive breast cancer detection rate

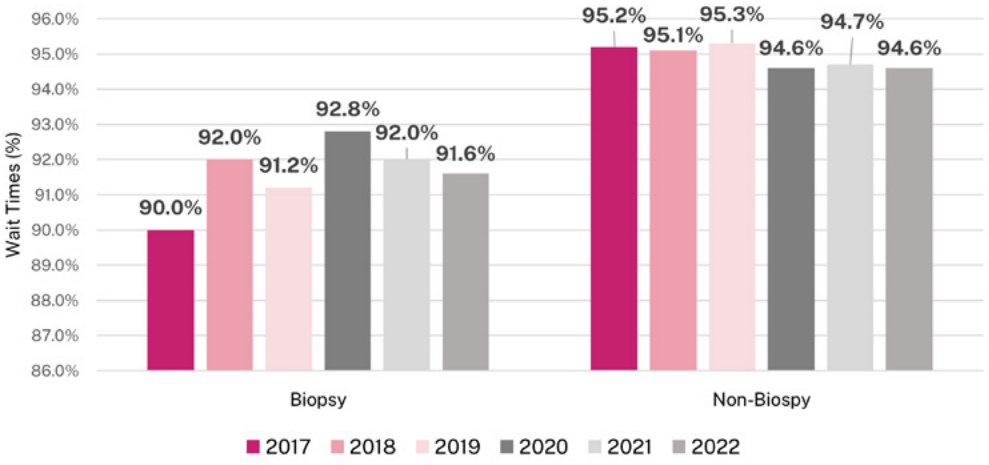
	All	Zone 1 *(South)*	Zone 2 *(Calgary)*	Zone 3 *(Central)*	Zone 4 *(Edmonton)*	Zone 5 *(North)*
2017	4.8‰	4.7‰	4.2‰	5.0‰	5.2‰	5.7‰
2018	5.0‰	3.9‰	4.6‰	5.3‰	5.6‰	5.1‰
2019	5.1‰	4.0‰	4.5‰	5.4‰	6.0‰	4.8‰
2020	5.3‰	3.7‰	5.3‰	5.5‰	5.9‰	4.6‰
2021	4.7‰	4.9‰	4.8‰	5.2‰	4.4‰	3.5‰
***2022**	4.9‰	6.5‰	4.4‰	5.3‰	5.1‰	4.1‰

*These are not age-standardized percentages * 2022 data is not complete.*

Wait times

For patients that required biopsy, the median wait times ranged from 2.4 to 2.9 weeks and the 90th percentile wait time ranged from 6.1 to 7 weeks, from 2017 to 2022[21]. This is within the national target of ≤ 7 weeks[22]. For those that did not require a biopsy but were waiting for diagnostic resolution in the same period, the median wait time was within a week while the 90th percentile ranged from 3.6 to 4 weeks[23], which is within the national target of ≤ 5 weeks[22].

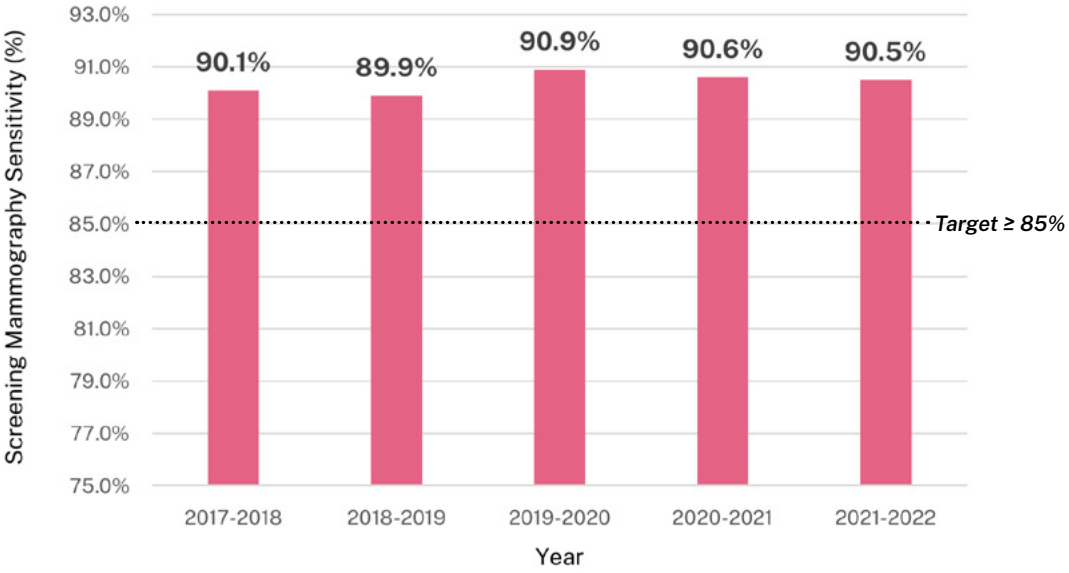
Figure 9: Percentage of abnormal screens resolved within the targeted wait times for tissue biopsy and non-biopsy in Alberta



Screening mammography estimated sensitivity

The screening mammography sensitivity in Alberta (Figure 10) ranged from 89.9% to 90.9% from 2017 to 2022, which is above the national target of ≥85%[24].

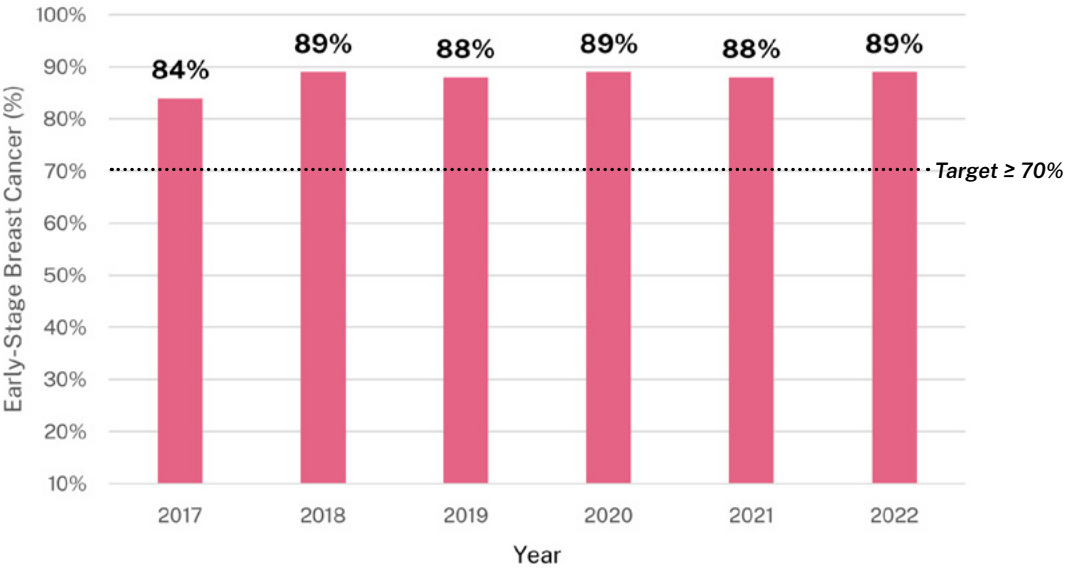
Figure 10: Screening mammography sensitivity



Percentage of early-stage breast cancers detected

The percentage of early-stage breast cancers detected (Figure 11) was consistently higher than the national target of 70% from 2017 to 2022[25].

Figure 11: Percentage of early-stage breast cancers detected



Screen Test

Screen Test is a service provided by Screening Programs. The service provides screening mammograms and information on breast health to eligible individuals throughout Alberta, particularly those living in remote areas with less access to fixed screening sites. Screen Test is accredited by the Canadian Association of Radiologists - Mammography Accreditation Program and the College of Physicians and Surgeons of Alberta[26].

Figure 12: Map of Screen Test mobile sites

Visit screeningforlife.ca for more information.

Screen Test sites and mammography clinics

Screen Test operates 2 mobile digital mammography units, with 1 operating in central and southern Alberta and the other operating in northern Alberta. The Screen Test mobile units provide service to 121 communities including 28 Indigenous communities. Screen Test also has 1 fixed site in Edmonton[26]. In September 2021, Screen Test Mobile celebrated its 30th anniversary of bringing breast cancer screening to where women live, and in communities with low screening rates.

Screen Test performance

Screen Test mammogram demographics

As with other jurisdictions in Canada, Screen Test in Alberta enhances mammogram access and participation rates by offering mobile clinics throughout Alberta. From 2016 to 2022, individuals 50 to 74 years comprised 84 to 85.8% of those screened[26]. Women between the ages of 40 and 49 were able to be screened with referral from their healthcare provider. Screen Test mobile clinic visits communities in all 5 zones in Alberta with the most communities in the North Zone, followed by the Central Zone. Figures 13 and 14 show Screen Test mammograms by age and zone[3].

Figure 13: Screen Test mammogram by age

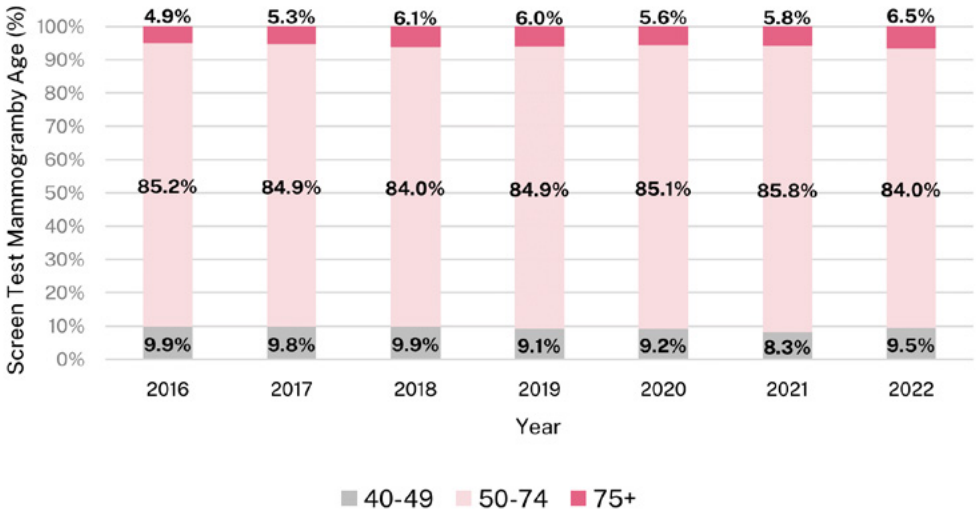
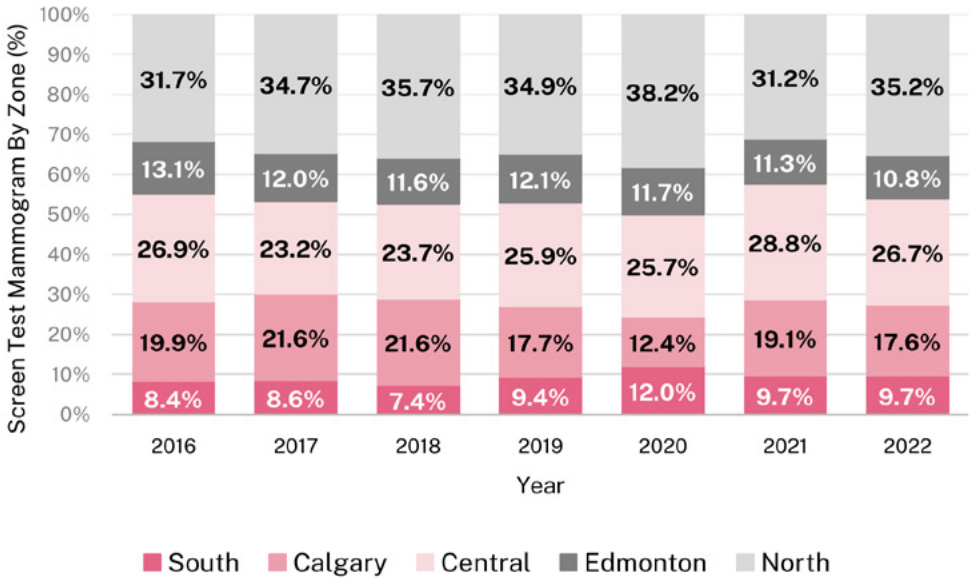


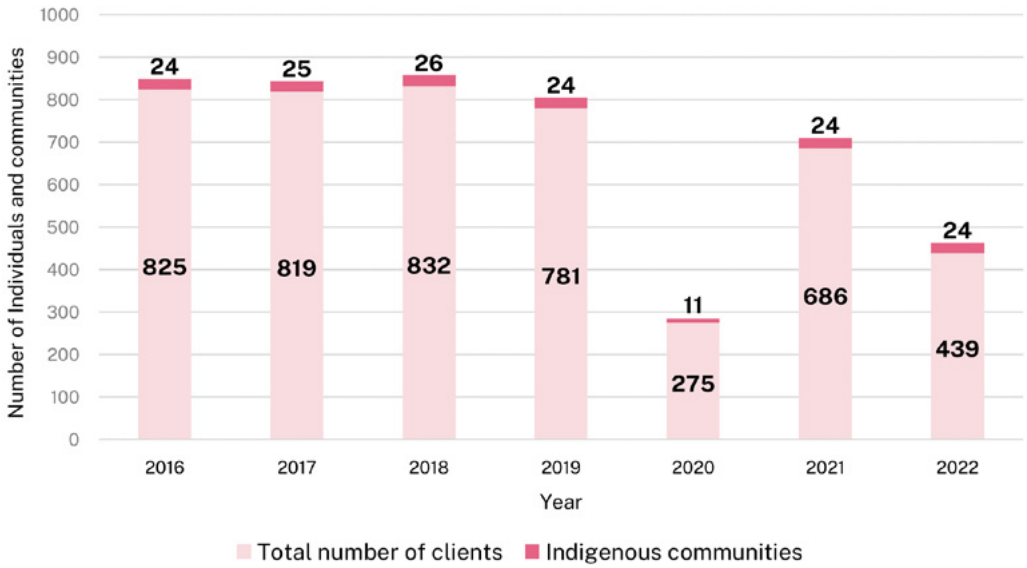
Figure 14: Screen Test mammogram by zone



Total number of Indigenous communities screened

Each year from 2017 to 2019, Screen Test performed mammograms in 24 to 26 Indigenous communities, accounting for around 800 screens per year. In 2020, only 11 Indigenous sites were visited and only 275 individuals were screened. Screening increased to 24 sites in 2021 and 2022, but the number of individuals screened remained below pre-pandemic levels[26].

Figure 15: Screen Test in Indigenous communities



Cervical cancer screening in Alberta

Burden of cervical cancer

Incidence and mortality

The incidence of cervical cancer has been decreasing due to organized cervical cancer screening, follow-up of abnormal results, human papillomavirus (HPV) vaccination, and other cancer reduction strategies[27,28]. Figures 16 and 17 show that the age-standardized incidence and mortality for cervical cancer between 2000 and 2020 were fluctuating. Although rates were down, the actual numbers remained high due to changes in population size as more individuals have moved to Alberta.

Figure 16: Actual and projected number of new cases for cervical cancer, females, Alberta, 2000 to 2023

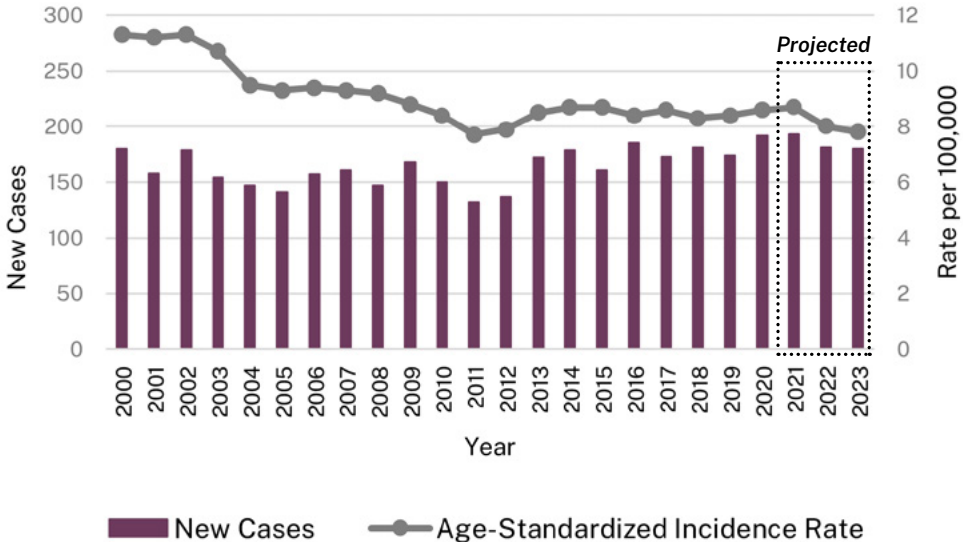
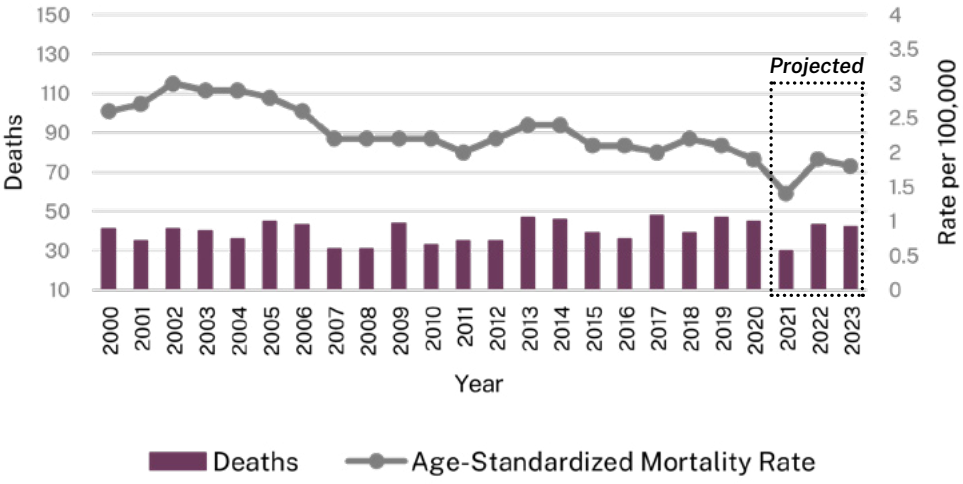


Figure 17: Actual and projected number of deaths for cervical cancer, females, Alberta, 2000 to 2023



In Alberta, 170 cases of cervical cancer and 45 deaths were estimated in 2023[29]. Most cases of cervical cancer occur in under screened or unscreened populations. Some barriers that limit screening include geographic location and access to primary care providers. Barriers that limit screening contribute to inequitable cervical screening activities in some population groups.

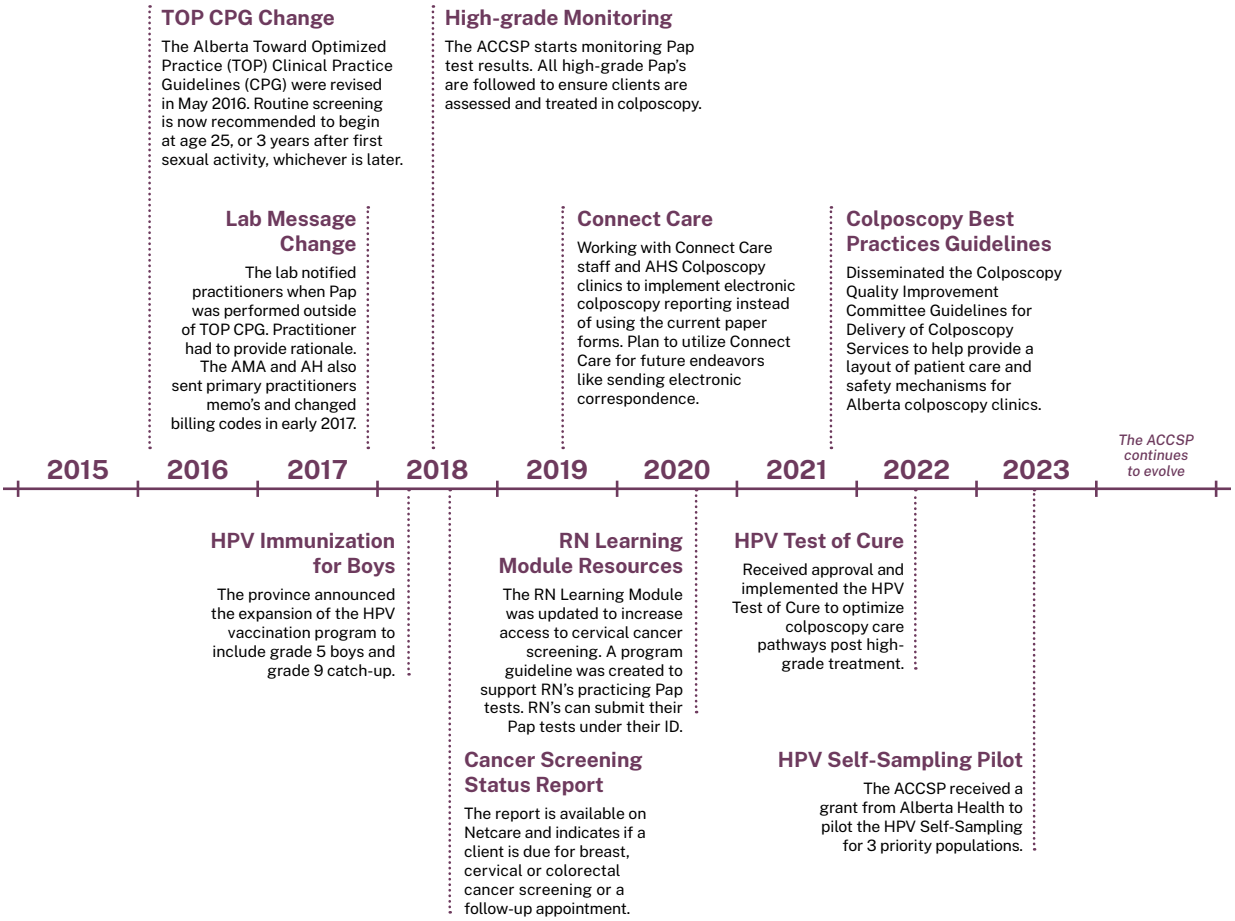
Alberta Cervical Cancer Screening Program

The Alberta Cervical Cancer Screening Program (ACCSP) recommends regular screening every 3 years for eligible Albertans between the ages of 25 and 69. The ACCSP is also developing strategies in line with the Canadian Partnership Against Cancer and the World Health Assembly action plan to eliminate cervical cancer by 2040[30,31].

Figure 18 illustrates the milestones the ACCSP achieved between 2015 and 2023. These include: implementing the 2016 clinical practice guidelines; easy access to patient cancer status reports to support primary care providers; updating laboratory messages to primary healthcare providers; introducing best practices for colposcopy clinics for alignment across the province; launching a high-grade monitoring project that supports patients with high-grade results to attend follow-up services if they have not attended after a certain timeframe, and the launch of HPV Test of Cure.

> Work to detect pre-cancers and prevent cervical cancer is aiming to eliminate the disease by 2040!

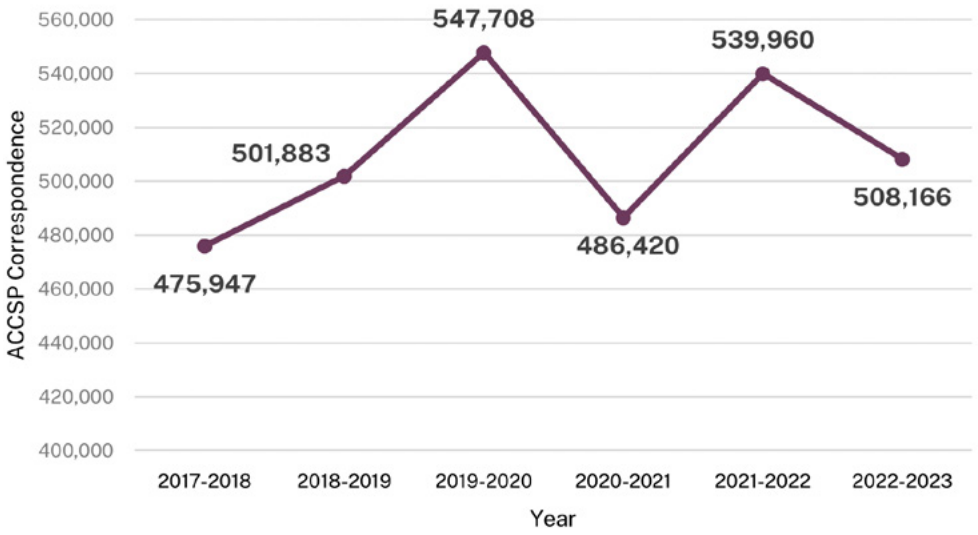
Figure 18: ACCSP milestones from 2015 to 2023



Personalized correspondence

The personalized correspondence sent to individuals from the ACCSP includes invite, reminder, recall and result letters. As shown in Figure 19, the highest volume of letters was sent out in the 2019–2020 fiscal year, while the lowest number of letters were sent in the 2020–2021 fiscal year[18]. This corresponded with the closure of organized screening programs during the early stages of the pandemic.

Figure 19: ACCSP personalized correspondence



Program performance

For ACCSP performance indicators and definitions, see Appendix C.

Participation rate

The ACCSP participation rate ranged from 59.6% to 65.1% between 2015 and 2023. The lowest participation rates were recorded in 2020 to 2022 corresponding to pandemic years. At the AHS Zone level (Figure 21), Calgary and Edmonton Zones had the highest participation rate, while North Zone had the lowest participation rate[4]. The ACCSP actively works on strategies to increase screening participation, which has increased the number of screenings.

Figure 20: ACCSP participation rate in Alberta

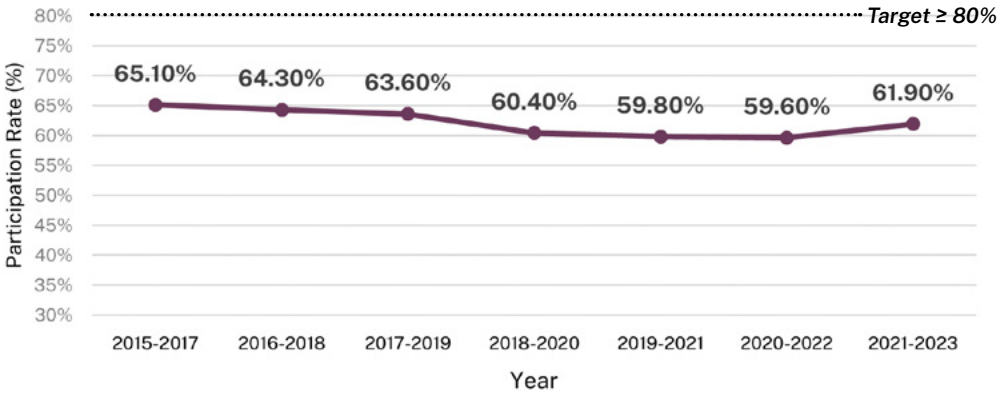
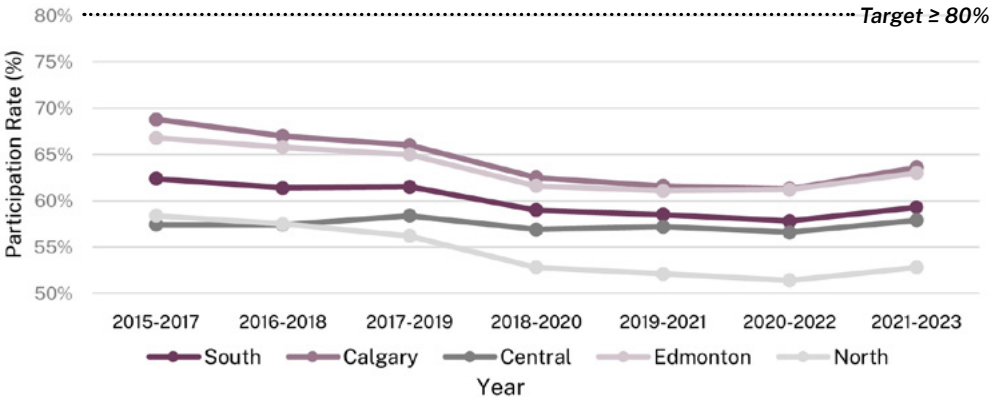


Figure 21: ACCSP participation rate by zone



Total Pap tests performed

The total number of Pap tests performed in Alberta was highest in 2019 and lowest in 2020[13].

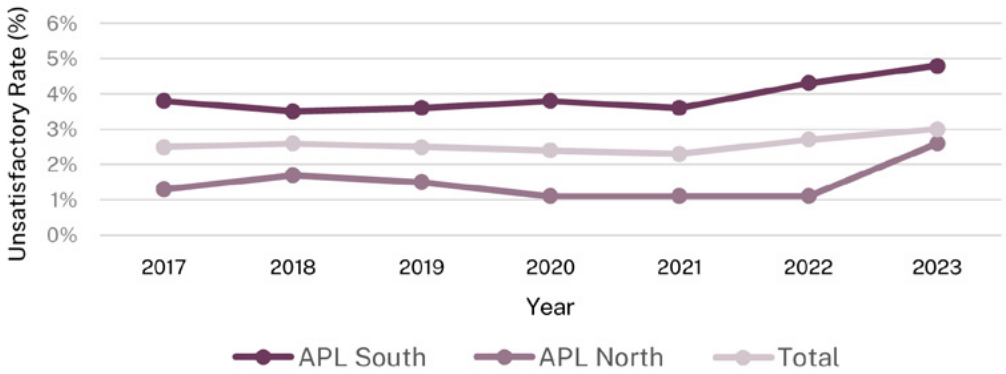
Table 4: Total Pap tests performed

	2019	2020	2021	2022	2023
Total pap tests performed	330,928	259,534	320,418	311,066	306,648

Unsatisfactory rate

In Alberta, 2 laboratories conduct cytology testing. Each of these laboratories, Alberta Precision Laboratory (APL) South and APL North (previously DynaLife) use different equipment. The equipment in the south is more sensitive to interference from lubricants, blood, and mucus leading to higher unsatisfactory rates than the equipment in the North. As shown in Figure 22, the total unsatisfactory rate for screening samples ranged from 2.3% to 3.0%[35], which is higher than the national target of <2%[33]. After an unsatisfactory result is obtained from the laboratory, it is recommended that the individual repeats the test after 3 months.

Figure 22: Unsatisfactory rate for screening samples in Alberta

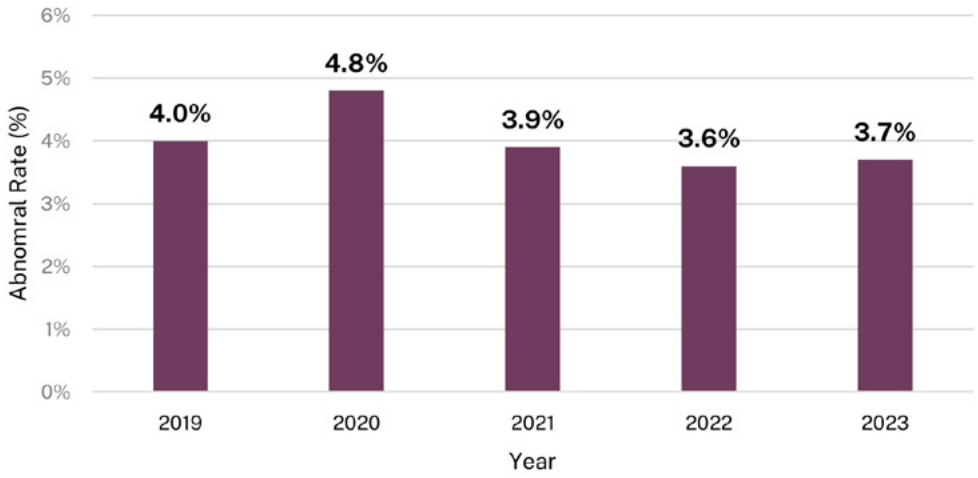


Cervical screening follow-up

Screening results abnormal Pap test rate

In Alberta, the abnormal Pap test rate ranged from 3.6% to 4.8% (Figure 23) with the highest abnormal rate reported in 2020 and the lowest abnormal rate reported in 2022[13]. This is because higher-risk individuals were prioritized for cervical cancer screening in 2020 due to the pandemic.

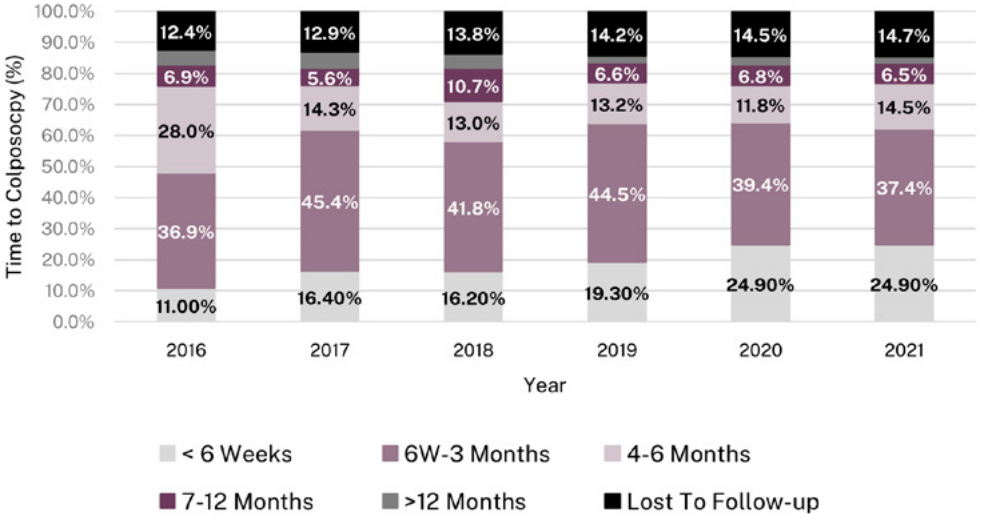
Figure 23: Pap tests abnormal rates in Alberta



Time to colposcopy

The national target set by the Canadian Partnership Against Cancer is for 90% of individuals with a high-grade Pap test result to have a colposcopy within six weeks of receiving their Pap test report[34]. In Alberta, most individuals screened and referred with a cytology result of ASC-H or worse were seen within 6 weeks to 3 months from 2016 to 2021[32].

Figure 24: Time to colposcopy in Alberta



Total number of colposcopy exams

The number of colposcopy exams performed in Alberta fluctuated between 2017 and 2022 with the highest number of colposcopy exams performed in 2017 and the lowest reported in 2022[14,35].

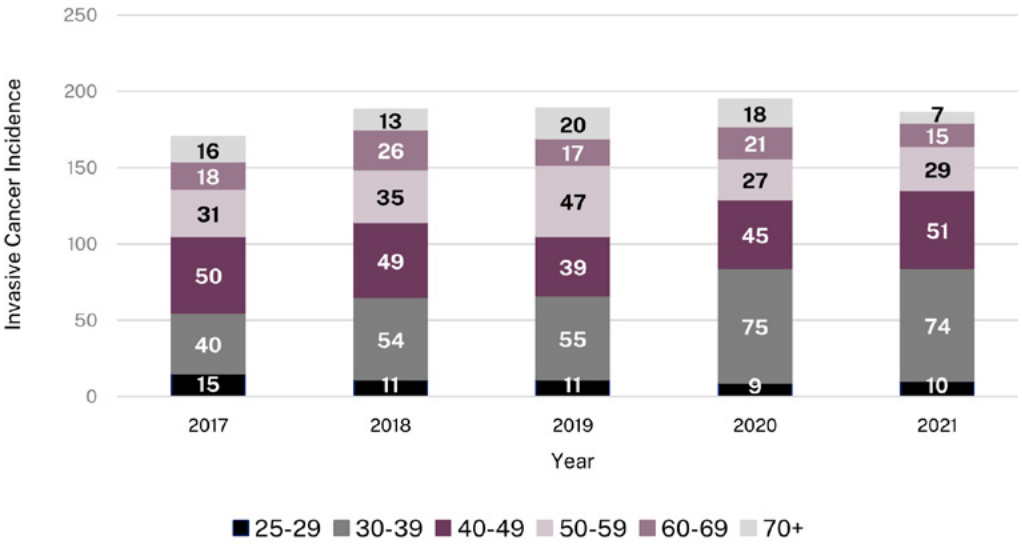
Table 5: Total number of colposcopy exams in Alberta

	2017	2018	2019	2020	2021	2022
Total number of colposcopies	22,257	20,190	19,643	16,937	19,258	16,783

Age-specific invasive cervical cancer cases

In Alberta, the highest number of new cases of invasive cervical cancer cases was found among individuals aged 30 to 39 years consistently between 2018 and 2021[36].

Figure 25: Age-specific invasive cancer cases in Alberta



Colorectal cancer screening in Alberta

Burden of colorectal cancer

Incidence and mortality

Colorectal cancer is the second most diagnosed cancer in males and the third most common in females[7]. Approximately 1 in 15 males and 1 in 18 females will develop colorectal cancer within their lifetime and approximately 1 in 36 males and 1 in 43 females will die from colorectal cancer. The age-standardized incidence rate (Figure 26) for male colorectal cancer decreased by 4.8% annually between 2014 and 2018. From 2015 to 2018, the female colorectal cancer incidence rate decreased by 7% annually[7]. The lowest incidence rate for colorectal cancer was reported in Calgary Zone while Central Zone had the highest incidence rate[7].

In 2018, there were 2,010 new cases of colorectal cancer and 702 deaths in Alberta. Based on projections, approximately 2,235 cases were expected to be diagnosed in 2023[7]. Age-standardized mortality rate (Figure 27) decreased by 2.1% and 2% annually between 1998 and 2018 for males and females, respectively[17].

The five-year relative survival for colorectal cancer in Alberta was approximately 68% for patients diagnosed between 2016 and 2018.

Figure 26: Actual and projected number of new cases for colorectal cancer, males and females, Alberta, 1998 to 2023

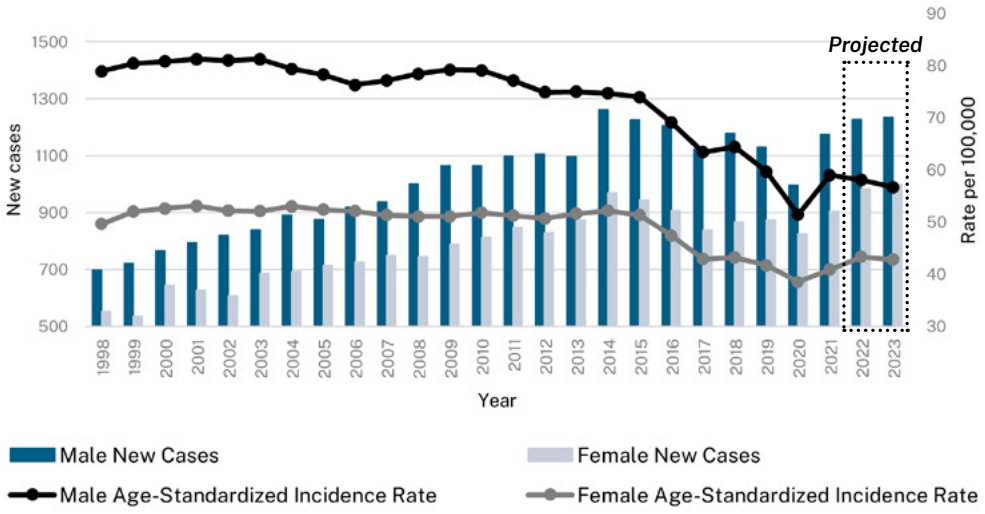
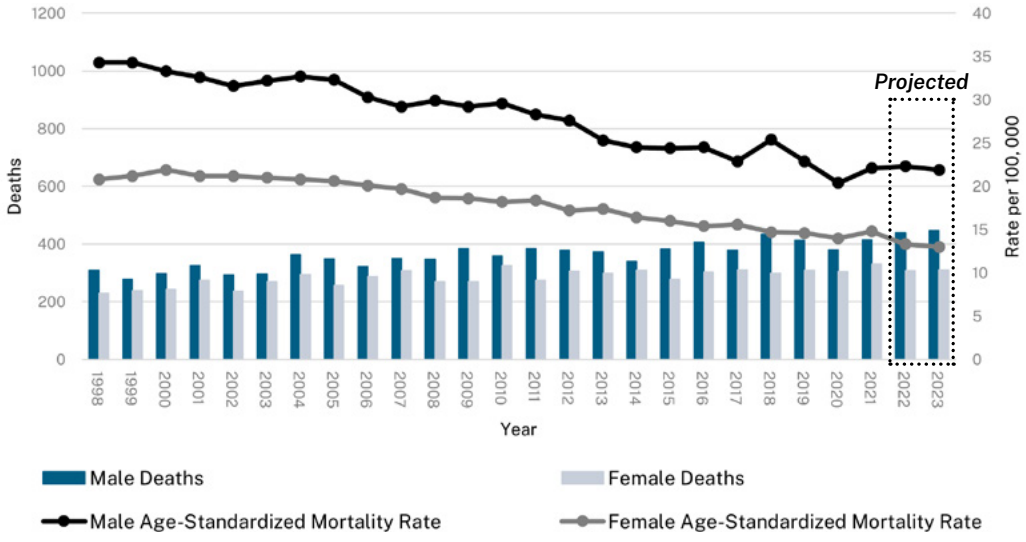


Figure 27: Actual and projected number of deaths for colorectal cancer, males and females, Alberta, 1998 to 2023



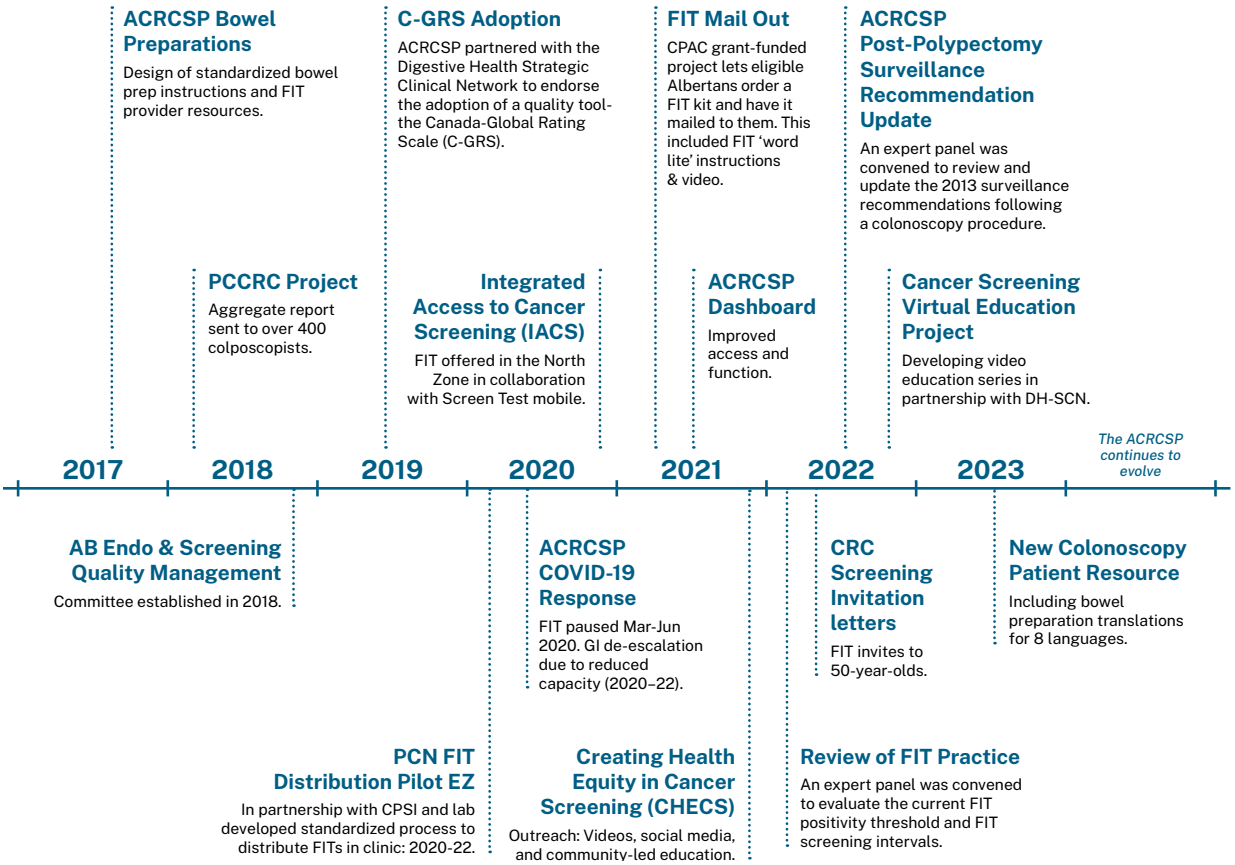
Alberta Colorectal Cancer Screening Program

The Alberta Colorectal Cancer Screening Program (ACRCSP) recommends screening with fecal immunochemical test (FIT) for eligible Albertans ages 50 to 74 years every 1 to 2 years.

Figure 28 illustrates the milestones that the ACRCSP has achieved between 2017 and 2023, which include updating and redesigning bowel preparation booklets and adopting the Canada Global Rating Scale in partnership with the Digestive Health Strategic Clinical Network. In 2022, the FIT mail-out initiative was implemented. Other milestones include sending colorectal cancer screening invitation letters to individuals when they turn 50 and updating the ACRCSP post polypectomy surveillance recommendation.

> As of January 2022, Albertans can order a FIT kit online at screeningforlife.ca to be mailed to their homes.

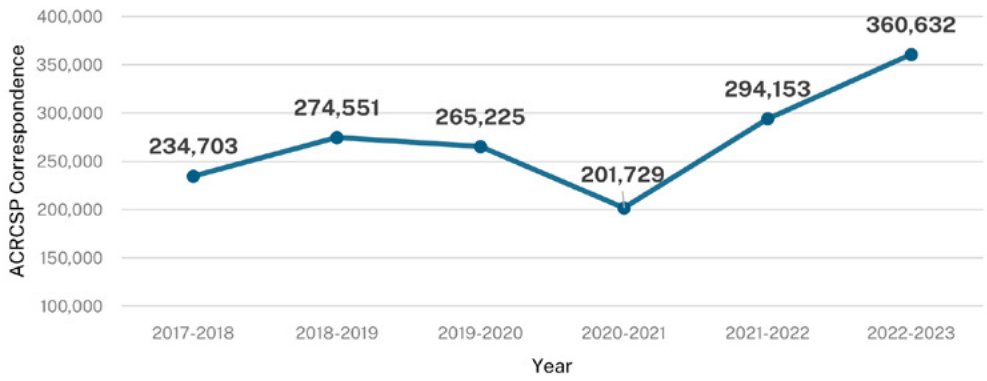
Figure 28: ACRCSP milestones from 2017 to 2023



Personalized correspondence

Personalized correspondence sent to individuals from the ACRCSP includes invitation letters and FIT result letters. More letters were sent out in the 2022–2023 fiscal year than any other year, due to the implementation of the invitation letters for 50-year-olds in 2022. The lowest number of letters were sent in the 2020–2021 fiscal year when screening was temporarily paused due to pandemic control measures[18].

Figure 29: ACRCSP personalized correspondence



Program performance

For ACRCSP performance indicators and definitions, see Appendix D.

Colorectal cancer participation rate

From 2015 to 2023, the colorectal cancer participation rate ranged from 49.9% to 55.7% in Alberta, with the lowest participation rate reported in 2020–2021. South Zone consistently had the highest participation rate, while North Zone consistently had the lowest participation rate.

Figure 30: Colorectal participation rate in Alberta

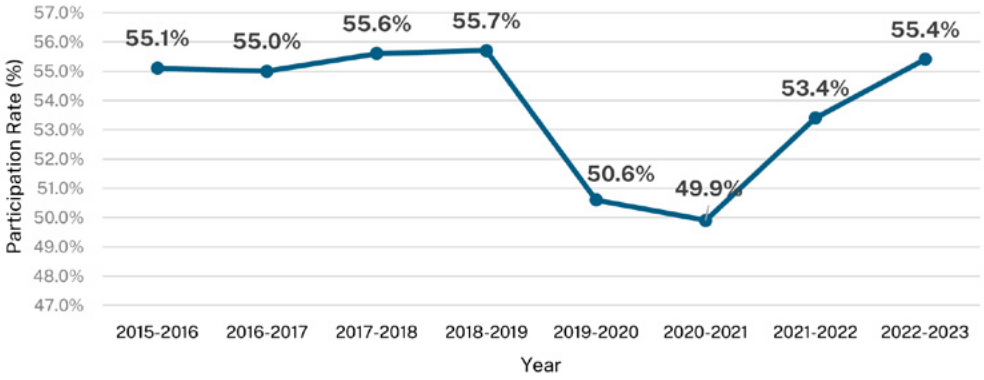
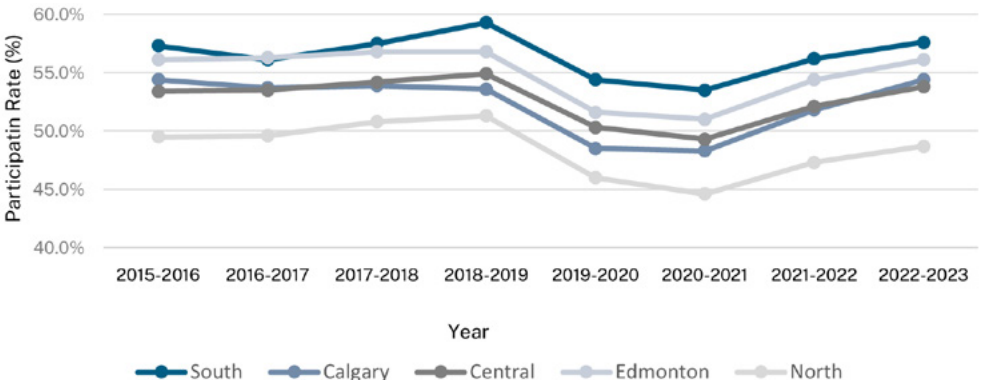


Figure 31: Colorectal cancer participation rate by zone



FIT participation rate

FIT participation rates ranged between 34.1% and 40% between 2015 and 2023, which is below the national target of ≥60%. Lower rates were observed in 2019–2020 and 2020–2021 and highest in 2018–2019[5]. The FIT mail-out initiative in 2022 supported an increase in participation rates in 2022 and 2023.

Figure 32: FIT participation rate in Alberta

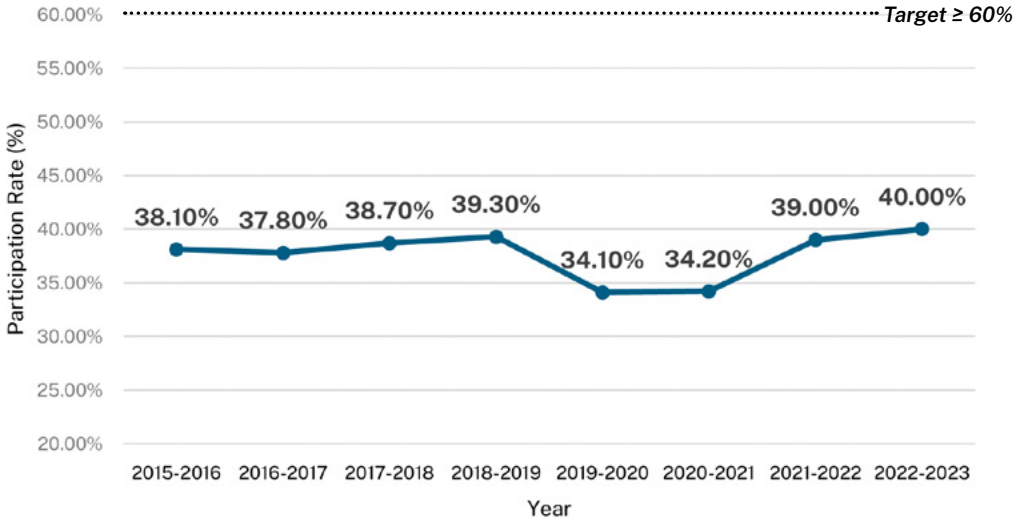
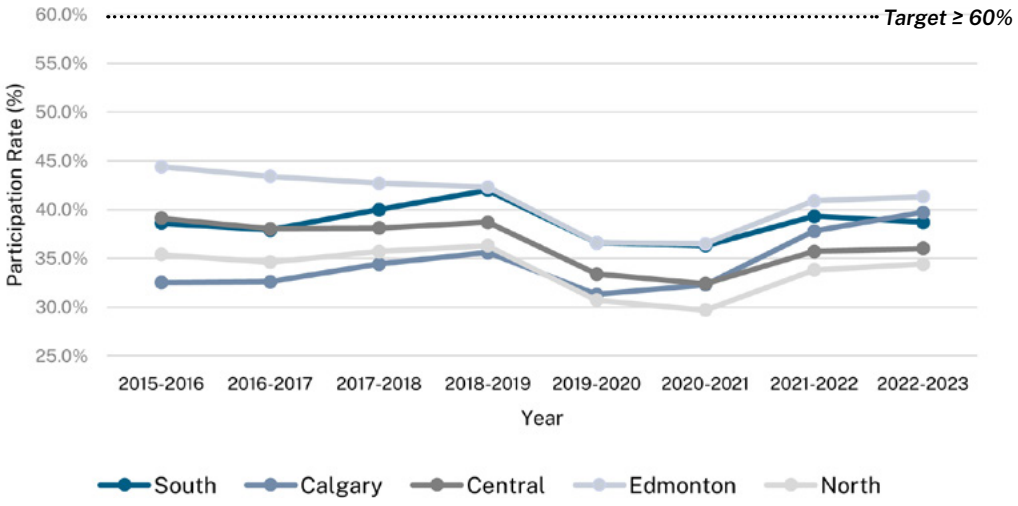


Figure 33: FIT participation rate by zone



Total FIT volume

The number of individuals who completed a FIT was lowest in 2020. In 2021, the number of completed tests surpassed pre-pandemic levels[37] (Table 6). This is likely due in part to the increased access to colorectal cancer screening through FIT mail-out.

Table 6: Total FIT volume

	All	Zone 1 *(South)*	Zone 2 *(Calgary)*	Zone 3 *(Central)*	Zone 4 *(Edmonton)*	Zone 5 *(North)*
2017	265,591	19,076	89,062	31,427	99,816	25,494
2018	287,781	21,611	96,648	32,343	101,023	27,253
2019	287,781	21,745	102,222	32,917	102,838	27,253
2020	203,623	15,832	73,042	23,053	71,910	18,784
2021	296,375	21,176	112,475	31,292	104,078	25,887
2022	300,433	20,003	119,290	30,507	102,656	26,258
2023	329,899	21,044	134,527	32,714	111,854	27,683

FIT positivity rate

FIT positivity rate ranged from 7.6% to 11.1% across the zones from 2017 to 2023 (Table 7). The highest FIT positivity rate in Alberta occurred in 2021, while the lowest rate occurred in 2023[38].

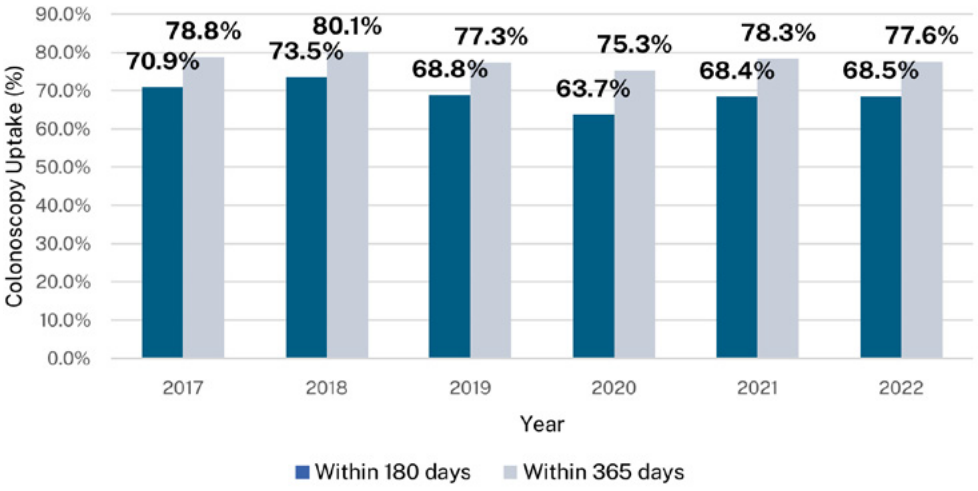
Table 7: FIT positivity rate in Alberta and by zone

	All	Zone 1 *(South)*	Zone 2 *(Calgary)*	Zone 3 *(Central)*	Zone 4 *(Edmonton)*	Zone 5 *(North)*
2017	9.0%	9.6%	8.3%	9.9%	8.8%	10.3%
2018	8.5%	8.0%	8.4%	9.4%	8.2%	9.9%
2019	8.9%	9.6%	8.0%	9.8%	8.8%	10.7%
2020	8.6%	9.7%	7.8%	9.5%	8.4%	10.2%
2021	9.1%	10.2%	8.3%	10.1%	8.8%	11.1%
2022	8.3%	9.6%	7.6%	9.3%	8.1%	9.9%
2023	8.1%	9.2%	6.9%	9.3%	8.4%	10.3%

Follow-up colonoscopy uptake

From 2017 to 2022, the follow-up colonoscopy uptake ranged from 63.7% to 73.5% within 180 days, and 75.3% to 80.1% within 365 days[39]. The lowest colonoscopy uptake was in 2020 (Figure 34).

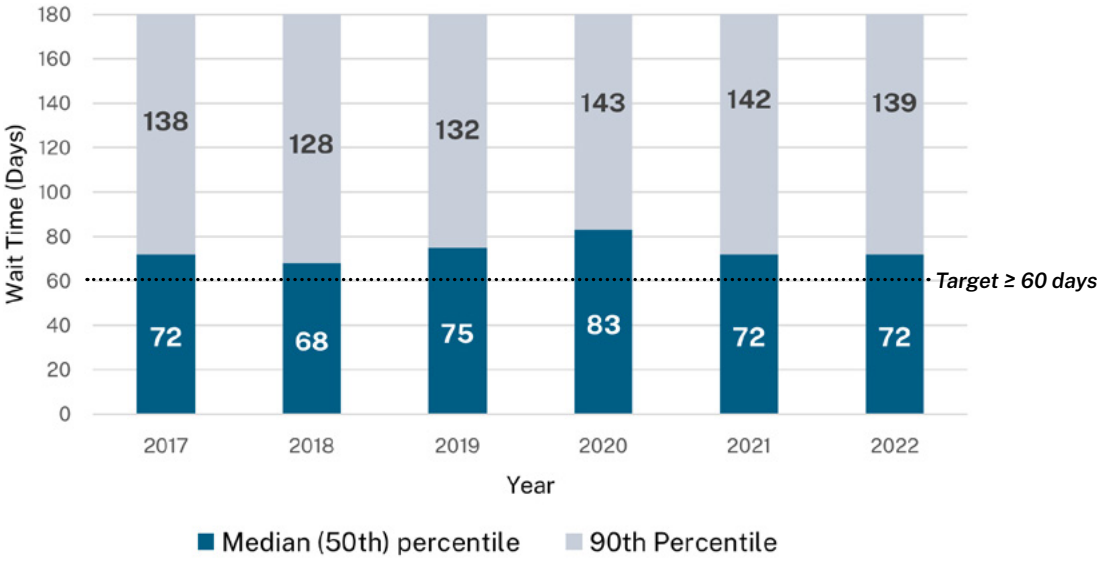
Figure 34: Follow-up colonoscopy uptake in Alberta



Wait time to follow-up colonoscopy

The median wait time for follow-up colonoscopy ranged from 68 to 83 days between 2017 and 2022, with the longest wait time in 2020.

Figure 35: Wait time to follow-up colonoscopy in Alberta



Total colonoscopy numbers

In Alberta, the total number of colonoscopies reported by the Alberta Cancer Registry was lowest in 2020–2021[40]. In 2022–2023, colonoscopy numbers surpassed pre-pandemic levels. In the same year, Calgary Zone had the highest colonoscopy numbers, while North Zone had the lowest.

Table 8: Total colonoscopy numbers in Alberta, all ages

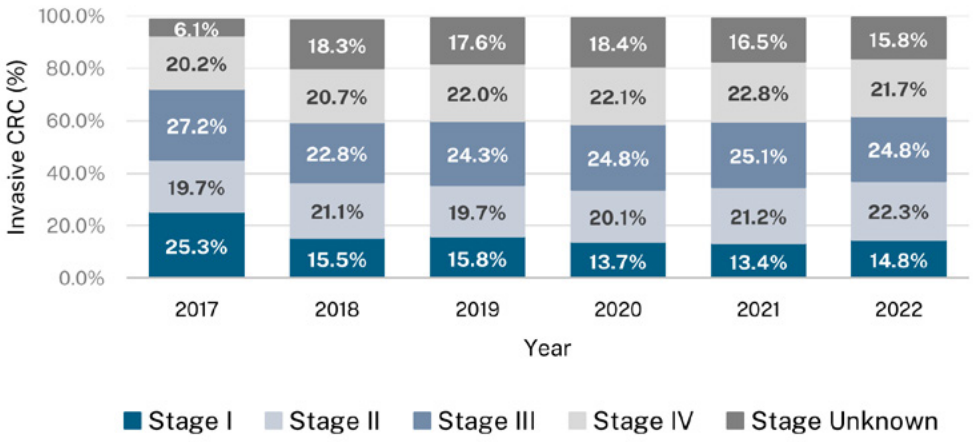
	All	Zone 1 *(South)*	Zone 2 *(Calgary)*	Zone 3 *(Central)*	Zone 4 *(Edmonton)*	Zone 5 *(North)*
2017–2018	115,438	8,392	44,510	12,278	40,194	10,064
2018–2019	118,149	9,032	45,253	12,809	41,382	9,671
2019–2020	113,571	9,084	44,676	12,220	38,861	8,730
2020–2021	94,594	7,789	36,247	12,000	30,387	8,171
2021–2022	107,267	8,168	41,236	12,207	37,663	7,993
2022–2023	119,704	9,627	46,297	13,278	41,837	8,665

**This date was pulled from the Alberta Cancer Registry (data accessed on October 10, 2023) and includes all colonoscopies i.e. the screening and diagnostic numbers.*

Invasive colorectal cancer stage distribution

In Alberta, early stage (I and II) invasive cancers were between 36.4%–45% between 2017 and 2022[41].

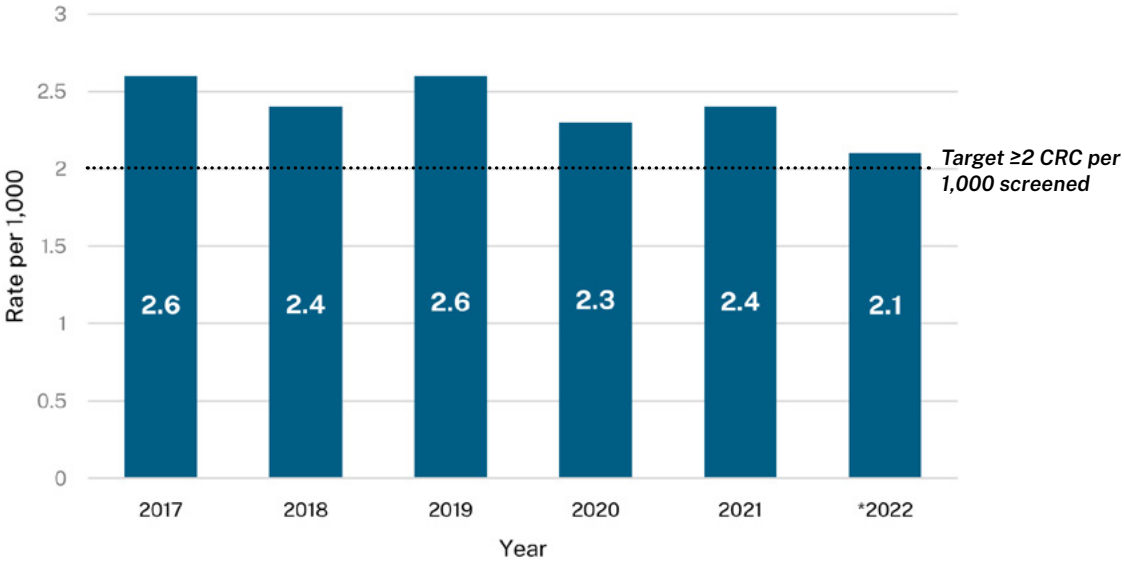
Figure 36: Distribution of stage of invasive colorectal cancer, all ages



FIT detected invasive colorectal cancer rate

From 2017 to 2022, FIT detected invasive colorectal cancer rates ranged from 2.1 to 2.6 per 1,000 individuals screened[41] (Figure 37). The FIT invasive cancer detection rates between 2017 and 2022 were above the national target of ≥2 CRC per 1,000 screened.

Figure 37: FIT detected invasive colorectal cancer rate



**2022 data is incomplete.*

Lung cancer screening in Alberta

Burden of lung cancer

Incidence and mortality

Lung cancer is the most common cause of cancer deaths in Canada in both males and females with only a 24% 5-year relative survival rate and over 1,500 deaths per year in Alberta alone[28]. Treatment of advanced lung cancer is improving but remains non-curative and is associated with increasing costs.

Approximately 1 in 13 individuals in Alberta will develop lung cancer within their lifetime and approximately 1 in 18 males and 1 in 19 females will die from lung cancer[7].

In 2018, there were 1,083 new cases of lung cancer in males in Alberta and 775 males died from the disease. In the same year, there were 1,276 new cases of lung cancer in females and 752 females died from the disease. Based on projections, approximately 2,700 cases were expected to be diagnosed in 2023[7]. The age-standardized incidence rate for lung cancer decreased by 1.4% and 0.6% annually between 1998 and 2018 for males and females, respectively[7].

The age-standardized mortality rate decreased by 3.0% annually between 2005 and 2018 for males. Female lung cancer mortality rates decreased by 2.2% annually from 2008 to 2018[7].

Figure 38: Actual and projected number of new cases for lung cancer, males and females, Alberta, 1998 to 2023

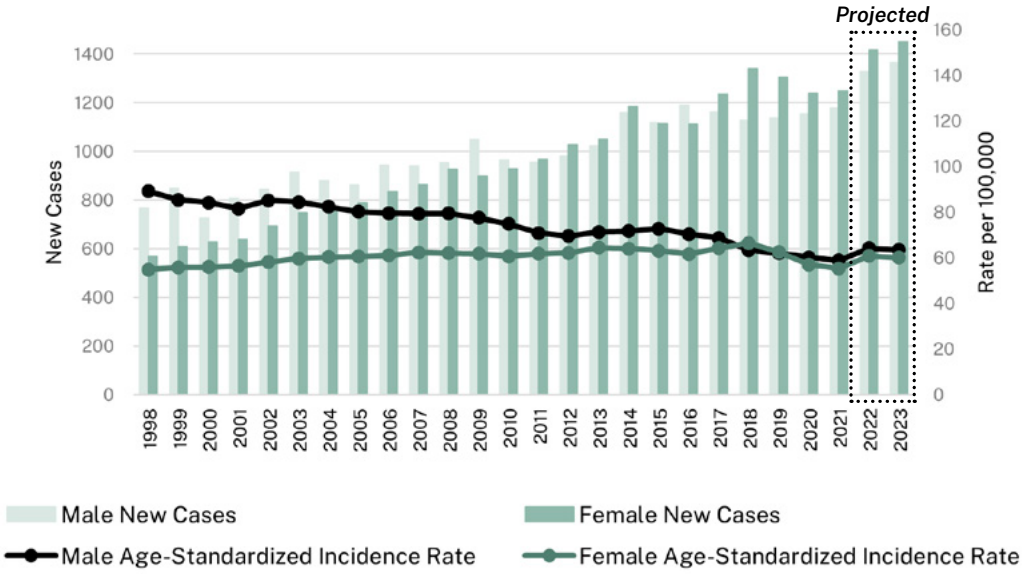
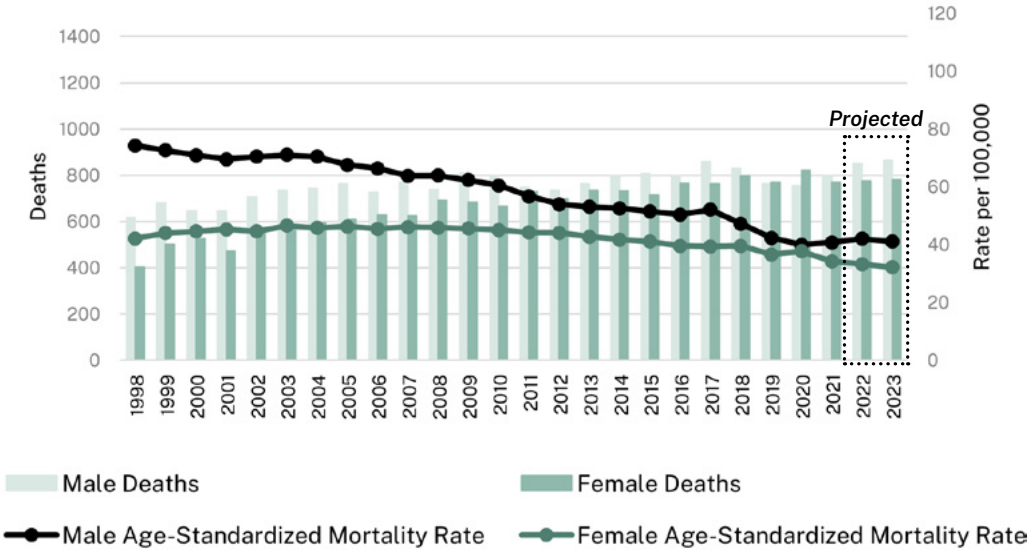


Figure 39: Actual and projected number of deaths for lung cancer, males and females, Alberta, 1998 to 2023

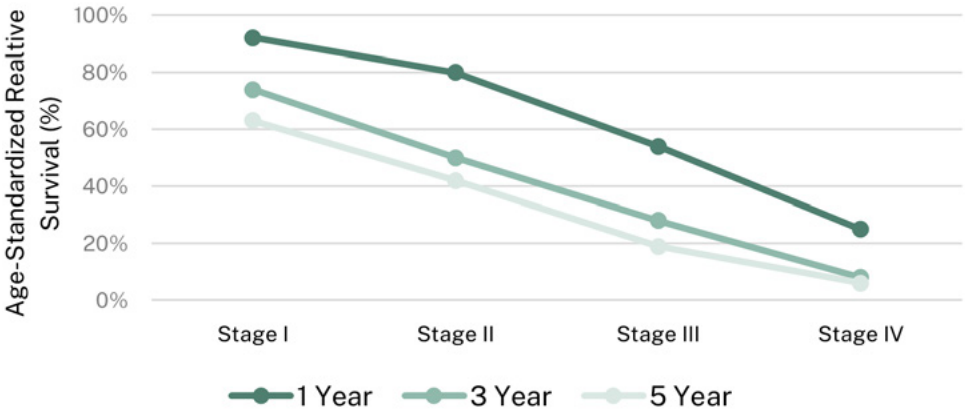


Concerning geographic variation, the incidence rate for lung cancer in Calgary Zone has been consistently lower than other zones from 2008 to 2018, while North and Central Zones had higher incidence rates in the same reporting period[1]. The mortality rate in Calgary Zone has remained the lowest from 2008 to 2018, while the mortality rate in North Zone is the highest[1].

Lung cancer survival

The 5-year relative survival for lung cancer in Alberta was approximately 24% for patients diagnosed between 2016 and 2018, up from 18% for those diagnosed between 2010 and 2012. The 5-year relative survival was 63% for patients diagnosed with stage I cancer and 6% for stage IV[17].

Figure 40: Age-standardized 1, 3 and 5-year relative survival ratios for lung cancer by stage, Alberta, 2013 to 2017



In Alberta, 71% of lung cancers are diagnosed in stages III and IV, but screening with low-dose computed tomography (LDCT) has demonstrated about 25% reduction in lung cancer deaths in 2 large, randomized trials[42].

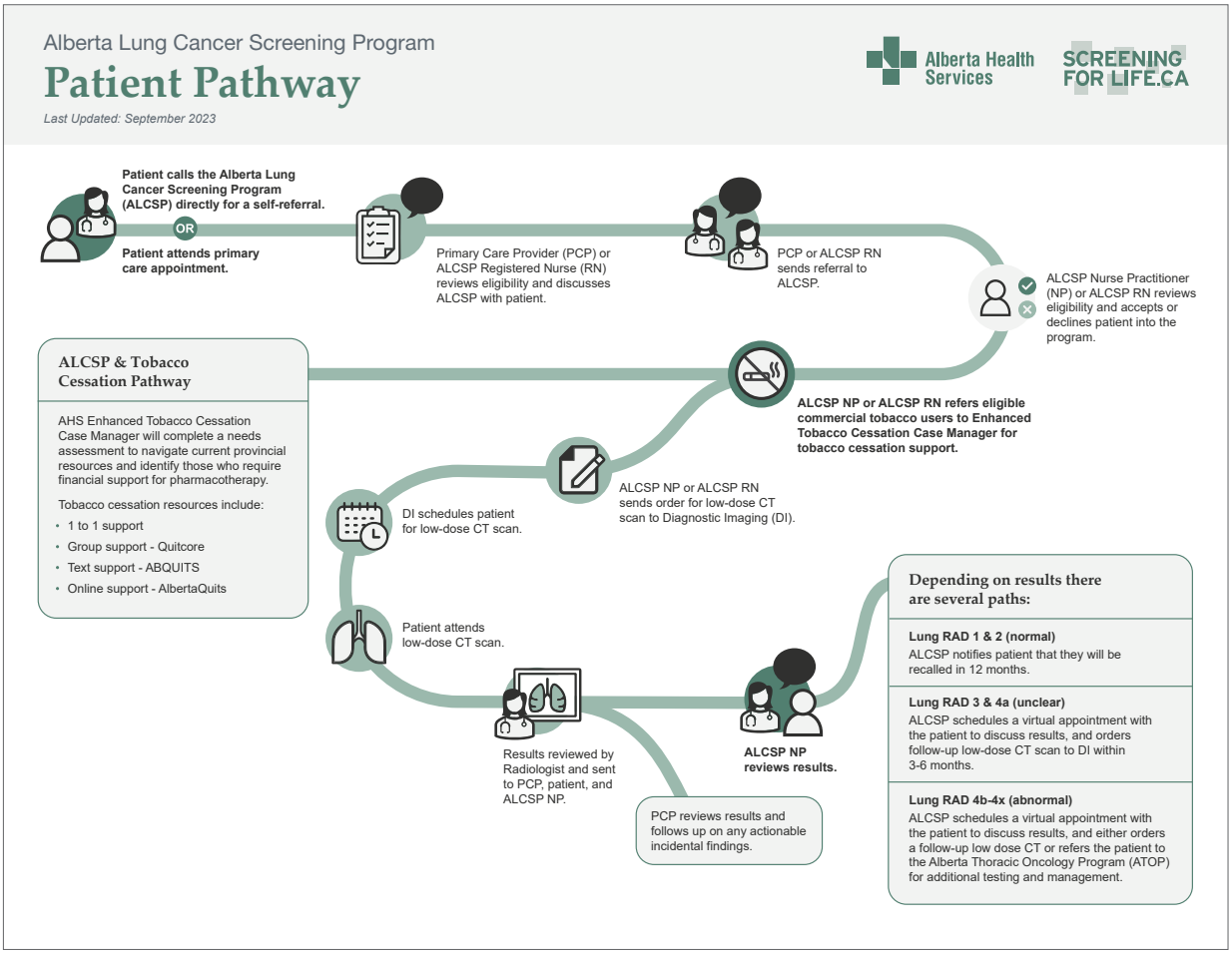
Alberta Lung Cancer Screening Program

AHS implemented a pilot lung cancer screening project starting September 2022 as part of planning towards the introduction of a provincial program. This project allowed capacity building through a phased approach to ensure necessary resources, scalable processes, and adequate infrastructures are in place before launching a province-wide program. A focus is being placed on promoting equity in the process by ensuring the program is accessible and overcomes barriers faced by high-risk, under-served populations including Indigenous populations.

The Alberta Lung Cancer Screening Program (ALCSP) recommends screening for individuals who are aged 50 to 74 years, with a ≥ 1.5% risk of lung cancer over 6 years, calculated using the PLCOm2012 3-race risk calculator (Tammemagi risk calculator[43]). Individuals are recruited into the program by their primary care provider or by self-referral. Figure 41 summarizes the ALCSP screening pathway.

> Lung cancer screening is a priority strategy in the Canadian Strategy for Cancer Control, a 10-year plan aimed at improving equitable access to cancer screening in Canada.

Figure 41: ALCSP pathway



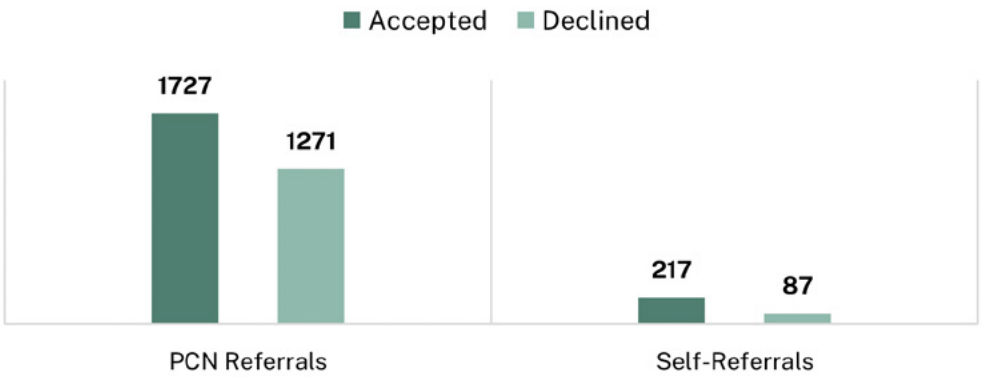
Program performance[f]

Referrals to the ALCSP

Between September 1, 2022 and December 31, 2023, the program received 3,302 referrals. The program accepted 59% of these and declined 41% who were ineligible for low-dose CT scans most commonly because they were at low-risk[44]. Self-referrals began in August 2023, where individuals could refer themselves into the program by calling the toll-free Health Link phone number (1-866-727-3926) or through screeningforlife.ca. Nurse practitioners called patients back who met the eligibility through the self-assessment tool on the website to support their lung screening.

f ALCSP is a pilot program, and all indicators are still being developed. Data including the Enhanced Tobacco data were derived from EPIC in Connect Care and ECHO in the Health Link database.

Figure 42: Number of referrals to ALCSP



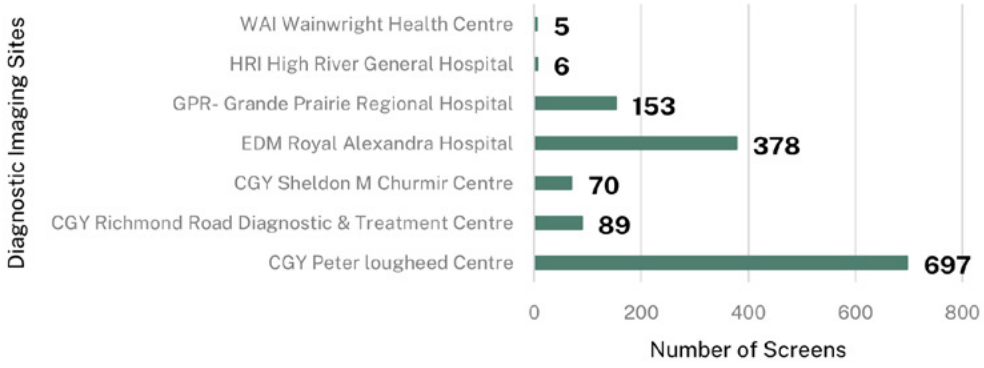
Referrals by Primary Care Network (PCN)

Primary care providers from 3 PCNs (Mosaic, Edmonton O'Day-min, and Grande Prairie) initially participated in the ALCSP. Additional PCNs (Edmonton Southside, Calgary West Central, High River, Wainwright, and Kalyna Country) joined the program after March 2023.

Low-dose computed tomography (LDCT) scans

1,398 patients received at least 1 low-dose CT scan in one of the AHS Diagnostic Imaging sites: Peter Lougheed Centre, Richmond Road Diagnostic and Treatment Centre, Sheldon M. Chumir Health Centre in Calgary, Royal Alexandra Hospital in Edmonton, and Grande Prairie Regional Hospital. In November 2023, High River General Hospital and Wainwright Health Centre began offering low-dose CT scans.

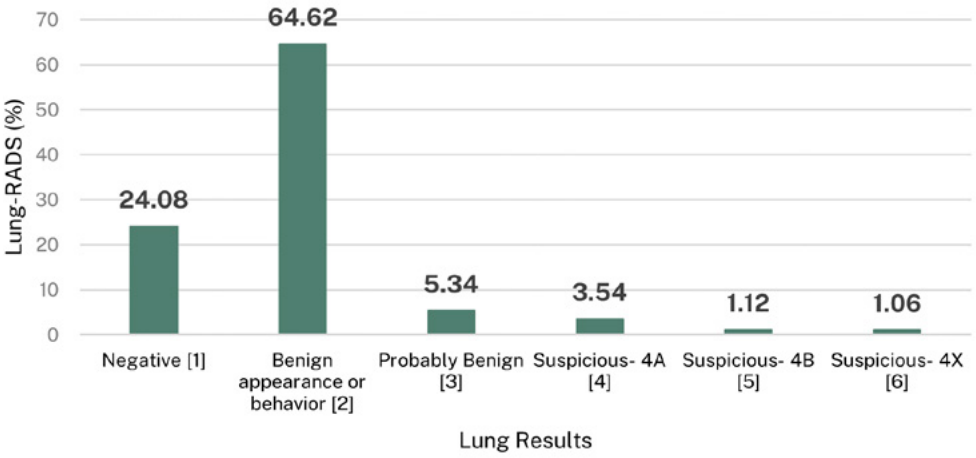
Figure 43: Individuals with at least one screen



Low-dose CT results

Low-dose CT results were measured using the Lung CT Screening Reporting & Data Systems (Lung-RADS[g]). Between September 2022 and December 2023, 88.7% of patient results were Lung-RADS 1 and 2 (negative or benign), 8.9% of patient results were Lung-RADS 3 (probably benign) and 4a (suspicious), and 2.2% of patient results were Lung-RADS 4b-4x (very suspicious), which was aligned with expectations.

Figure 44: Lung-RADS distribution



Wait times

The time from low-dose CT order to the date of the patient low-dose CT scan appointment with Diagnostic Imaging ranged from 17 to 60 days in the reporting period with a median percentile of 30 days and 90th percentile of 59 days. Within 90 days of referral, 94.7% of individuals had completed their initial low-dose CT examination.

Other metrics

As of December 31, 2023, the ALCSP had referred 39 (2.6%) patients to the Alberta Thoracic Oncology Program for further investigation while other abnormal screening results were managed within the program by a nurse practitioner. Of these, 14 have been diagnosed with lung cancer to date, 12 (85.7%) of which were in stages I or II. Only 1.8% of screening participants were referred for clinical evaluation but have not been diagnosed with cancer. No biopsies or surgery have occurred in these patients.

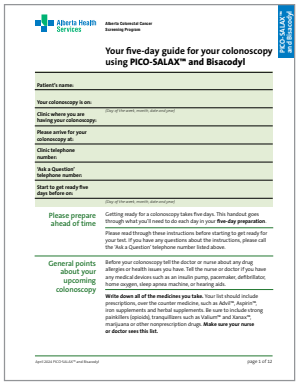
Non-lung cancer-related incidental findings on low-dose CT recorded in this program were at 37.9% in the same reporting period and standardized criteria for reporting these are in development.

Enhanced Tobacco Cessation Program

Individuals from the ALCSP were referred to the Enhanced Tobacco Cessation (ETC) program for tobacco cessation support. The ETC program included a case manager who offered counselling in collaboration with PCN-certified tobacco educators. If applicable, patients were offered all approved tobacco cessation pharmacotherapy through Alberta Blue Cross. Between September 2022 and December 2023, 1,464 individuals were referred to the ETC program with 372 individuals accepting and receiving support to quit smoking.

g Lung-RADs is a tool that categorizes nodules based on the probability of malignancy which then determines a set of management decisions.

Key screening programs initiatives


Alberta Health Services

Alberta Colorectal Cancer Screening Program

Your five-day guide for your colonoscopy using PICO-SALAX™ and Bisacodyl

PICO-SALAX™ and Bisacodyl

Patient's name:

Your colonoscopy is on:

(Day of the week, month, date and year)

Clinic where you are having your colonoscopy:

Please arrive for your colonoscopy at:

Clinic telephone number:

'Ask a Question' telephone number:

Start to get ready five days before on:

(Day of the week, month, date and year)

Please prepare ahead of time

Getting ready for a colonoscopy takes five days. This handout goes through what you'll need to do each day in your **five-day preparation**.

Please read through these instructions before starting to get ready for your test. If you have any questions about the instructions, please call the 'Ask a Question' telephone number listed above.

General points about your upcoming colonoscopy

Before your colonoscopy tell the doctor or nurse about any drug allergies or health issues you have. Tell the nurse or doctor if you have any medical devices such as an insulin pump, pacemaker, defibrillator, home oxygen, sleep apnea machine, or hearing aids.

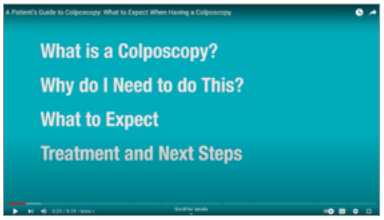
Write down all of the medicines you take. Your list should include prescriptions, over the counter medicine, such as Advil™, Aspirin™, iron supplements and herbal supplements. Be sure to include strong painkillers (opioids) tranquillizers such as Valium™ and Xanax™, marijuana or other nonprescription drugs. **Make sure your nurse or doctor sees this list.**

April 2024 PICO-SALAX™ and Bisacodyl

page 1 of 12

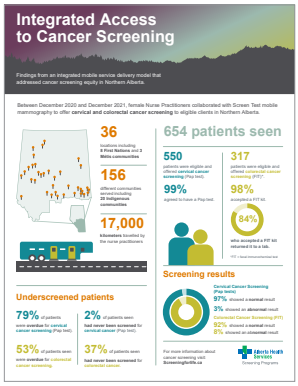
Colorectal standardized bowel preparation

- The project carried out in 2017 aimed to guide patients on how to prepare their bowels for endoscopic procedures.
- 3 bowel prep documents were developed following the Canadian-Global-Rating Scale (C-GRS) requirements.
- >100,000 preps ordered from Screening Programs since 2017.



Colposcopy video

- The Alberta Cervical Cancer Screening Program developed the video 'A Patient's Guide to Colposcopy: What to expect when having a colposcopy'.
- >170,000 video views since 2018.



Integrated Access to Cancer Screening project

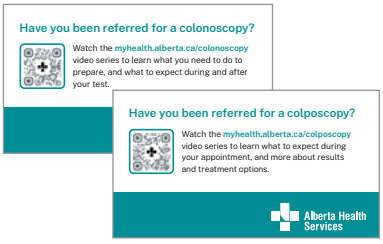
- The project ran from December 2020 and December 2021. It aimed to increase access to screening and care and promote health equity in the North Zone of Alberta.
- 550 patients were eligible and offered cervical cancer screening (Pap test).
  Of those screened, 97% had normal results while 3% had abnormal results.
- 317 patients were eligible and offered colorectal cancer screening (FIT).
  Of those screened, 92% had normal results while 8% had abnormal results.

FIT mail out initiative

- The FIT mail out initiative launched in January 2022.
- It aimed to increase options to access screening, address patient barriers, and overcome health equity.
- This was one of the pandemic recovery strategies to enhance cancer screening.
- >3,129 FIT kits mailed to Albertans since January 2022.
- This initiative is now operational and integrated into the Alberta Colorectal Cancer Screening Program.

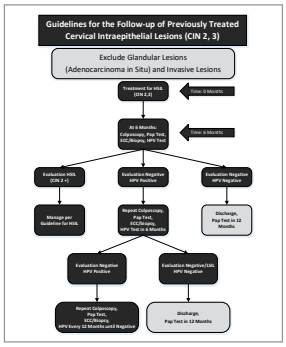
Creating Health Equity for Cancer Screening project

- This project aimed to engage with community members and health workers in materially deprived areas of Calgary, Alberta to improve screening participation.
- 7 animated videos launched on March 10, 2022. These videos are available on screeningforlife.ca and on MyHealth.Alberta.ca.
- 5 translated versions of each video were developed and went live in 2023.
- Health toolkits were also developed for health workers.



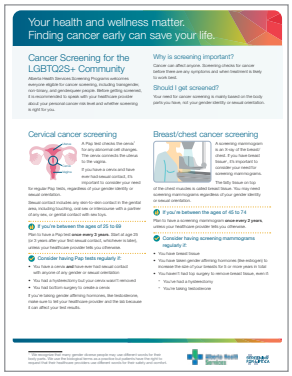
Cancer Screening Virtual Education project

- This project kicked off in October 2022. It aimed to provide standardized pre-procedure information available province wide.
- 4 colonoscopy videos were developed.
- 3 colposcopy videos were developed.
- The videos launched in December 2023. They are available on MyHealth.Alberta.ca.
- 9 translated versions of each video were developed and went live in 2024.



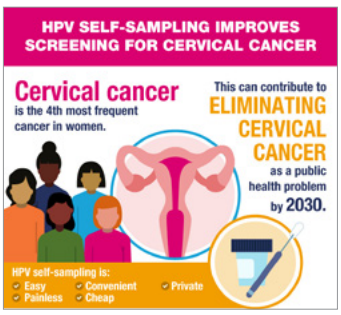
HPV Test of Cure

- This initiative launched in September 2022.
- HPV Test of Cure is a risk stratification tool for colposcopists to determine which patients treated for high-grade lesions in colposcopy can be discharged back to primary care.
- This initiative has helped reduce wait times in colposcopy and support positive patient health outcomes.



2SLGBTQI+ resources for cancer screening

- These resources were developed in 2023 and released in February 2024.
- The resources provide information about cancer screening for individuals of the 2SLGBTQI+ community.
- 3 information sheets were developed.
- This initiative promotes equity and diversity in cancer screening.
- 2SLGBTQI+ resources for health providers are currently under development.



HPV self-sampling

- A 3-year grant-funded initiative to support the HPV self-sampling pilot project in Alberta.
- The project launched in 2024.
- The project will target 5,000 under screened and unscreened populations of Indigenous ancestry, newcomers, or individuals living in rural and remote areas.

Image is courtesy of World Health Organization self-care interventions

Appendices

Appendix A — Personal correspondence types and definitions

Invitation letters	Invitation letters make eligible individuals aware of specific screening needs and provide educational resources to learn more about screening. This includes information about the potential benefits and harms of screening, and how to access this service regardless of where they live or whether they have a primary care provider. An opportunity to opt-out is also offered.
Result letters	These letters inform individuals of their test results and next steps. It is also a reminder for individuals to follow up with their healthcare provider to discuss next steps and book and attend any specialist services they have been referred to.
Reminder/recall letters	These letters are a valuable tool to remind individuals to return for regular screening.

Appendix B — ABCSP performance indicators and definitions

Participation rate	This is the percentage of eligible women (50 to 74 years) who completed at least 1 screening mammogram within 30 months[3].
Total screening mammogram	The total number of screening mammograms for eligible women aged 50 to 74 years, who completed at least 1 mammogram within the time period[3].
Retention rate	The number of Albertans aged 50 to 74 who returned for breast screening within 30 months[22].
Mammogram positive predictive value	Percentage of all positive screening examinations (BI-RADS categories 0, 4, and 5) for Albertans aged 50 to 74 years that result in a tissue diagnosis of cancer within 1 year[45].
Invasive breast cancer detection rate	This is the number of invasive cancers detected per 1,000 screens[46].
Wait times	The time (in weeks) between an abnormal breast screen result and the resolution of the diagnosis[21],[23].
Screening mammography sensitivity	The probability of detecting cancer when it exists or the number of cancers diagnosed after being identified at mammography in a population within 1 year of the imaging examination, divided by all cancers present in that population in the same period[24].
Percentage of early-stage breast cancers	The proportion of invasive breast cancers that had a TNM (Tumor, Nodes, and Metastasis) stage 0, I, or II in relation to all cases diagnosed at all stages.

Appendix C ACCSP performance indicators and definitions

Participation rate	The participation rate is defined as the percentage of eligible women (or anyone with a cervix), in the target population (25 to 69 years old) with at least 1 Pap test in 3 years.
Total Pap tests performed	The total number of Pap tests completed for eligible women (or anyone with a cervix) aged 25 to 69 years within the time period[3].
Retention rate	The percentage of eligible Albertans re-screened 3 years after a negative Pap test within a 12-month period from when they are due[34].
Pap Test positive predictive value	This is defined as the percentage of abnormal Pap test results[h] with histological workups found to have a pre-cancerous lesion or invasive cancer in a 12-month period[34].
Unsatisfactory rate	The percentage of Pap test results that are reported as unsatisfactory by a laboratory within a 12-month period[34].
Screening abnormal results rate	The percentage of eligible women (or anyone with a cervix) with an abnormal result (low-grade or high-grade lesions) following screening with Pap Tests in a 12-month period[34].
Time to colposcopy	The percentage of eligible women (or anyone with a cervix) with abnormal Pap test results who had a follow-up colposcopy within 6 weeks of the Pap test reported date.
Total number of colposcopy exams	The total number of colposcopy exams performed in a given period.
Pre-cancer detection rate	The number of pre-cancerous lesions detected per 1,000 eligible Albertans within a 12-month period[33].
Invasive cervical cancer detection rate	The number of new cases of invasive cervical cancer diagnosed among eligible individuals annually[33].

Appendix D ACRCSP performance indicators and definitions

CRC participation rate	This is defined as the proportion of eligible Albertans, aged 50 to 74 years, who had a FIT test in the past 2 years and/or sigmoidoscopy/colonoscopy in the past 5 years[47].
FIT participation rate	The percentage of individuals aged 50 to 74 who completed a FIT at least biennially[48].
Total FIT volume	This is defined as the number of individuals who have completed a FIT within the reference period.
FIT retention rate	The proportion of individuals aged 50 to 72 years who had a screening test or follow-up colonoscopy within 30 months after a normal fecal test[48].
FIT positivity rate	The percentage of individuals with an abnormal FIT in the reference period[48].
Follow-up colonoscopy uptake	Follow-up colonoscopy uptake is defined as the percentage of individuals aged 50 to 74 years with an abnormal FIT who had a follow-up colonoscopy within 180 days and 365 days[48].

h Abnormal Pap test results include a high-grade Pap test result- Atypical glandular cells (AGC), Atypical squamous cells with High-grade squamous intraepithelial lesion (ASC-H,) or High-grade squamous intraepithelial lesions and above (HSIL+)

Appendix E

List of abbreviations

ABCSP	Alberta Breast Cancer Screening Program
ACCSP	Alberta Cervical Cancer Screening Program
ACRCSP	Alberta Colorectal Cancer Screening Program
ACTT	Accelerating Change Transformation Team
AGC	Atypical Granular cells
AHS	Alberta Health Services
ALCSP	Alberta Lung Cancer Screening Program
APL	Alberta Precision Laboratories
ASC-H	Atypical Squamous Cell, high-grade Squamous intraepithelial lesion
ASIR	Age-Standardized Incidence Rate
ASMR	Age-Standardized Mortality Rate
ASR	Alberta Society of Radiologists
ATOP	Alberta Thoracic Oncology Program
CHECS	Creating Health Equity for Cancer Screening
CPAC	Canadian Partnership Against Cancer
CPG	Clinical Practice Guidelines
CRC	Colorectal Cancer
CTFPHC	Canadian Task Force on Preventive Health Care
DYN	DynaLife Laboratories
ETC	Enhanced Tobacco Cessation Program
FIT	Fecal Immunochemical Test
HPV	Human Papillomavirus
HSIL+	High-grade Squamous Intraepithelial Lesion and above
IACS	Integrated Access to Cancer Screening
ISMF	Individual Screening Mammographer Feedback
IWC	Indigenous Wellness Core
LDCT	Low-dose Computed Tomography
LTFU	Lost to Follow-up
PCN	Primary Care Networks
PPV	Positive Predictive Value
TOP	Toward Optimized Practice
TNM	Tumour, Nodes, and Metastasis

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