Ontario Cancer Screening Performance Report 2023

Special Focus: Equity in Cancer Screening

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Ontario Health
Cancer Care Ontario

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Foreword

Cancer is the leading cause of death in Ontario. Approximately one in two people in Ontario can expect to be diagnosed with cancer in their lifetime, and approximately 1 in 4 people in Ontario is expected to die of cancer. Effective screening and early diagnosis are crucial to reducing the burden (morbidity and mortality) of cancer. Screening in the asymptomatic population can detect cancer at an earlier stage, when treatment has a better chance of working. To support early detection of cancer, Ontario Health operates four organized cancer screening programs: the Ontario Breast Screening Program and High Risk Breast Screening Program, the Ontario Cervical Screening Program, ColonCancerCheck and the Ontario Lung Screening Program.

As in most jurisdictions around the world, access to health services were impacted by the COVID-19 pandemic in Ontario. All non-urgent or emergent health services, including cancer screening, were suspended in the province from March 23 to May 26, 2020, after which they were permitted to gradually resume. During the pandemic, Ontario Health provided clinical guidance to support the delivery of health services, including on the prioritization of cancer screening services according to risk. As this report presents data up to 2021, the impact of the COVID-19 pandemic and pause in screening services on key cancer screening performance indicators is clearly demonstrated.

We have applied an equity lens to the entirety of this report, with specific focus on examining the impact of several types of neighborhood-level marginalization on screening participation and follow-up of abnormal results. This equity lens is in alignment with Ontario Health's strategic priorities, *Annual Business Plan* and the *Ontario Cancer Plan*.

The findings in this report will be used to continually strengthen our cancer screening programs to meet the needs of the people in Ontario, following international standards for organized cancer screening programs. Future plans for the programs include: improving access to screening for trans and nonbinary people in Ontario, implementing the human papillomavirus test as the recommended cervical screening test in Ontario, implementing screening recommendations for people at increased risk for colorectal cancer, and provincial expansion of the Ontario Lung Screening Program.

Together with our partners at the Ministry of Health, we are working to decrease the burden of cancer in Ontario through the delivery of high-quality organized cancer screening programs.

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Key Findings

Ontario Breast Screening Program (OBSP)

- Participation and retention decreased during the COVID-19 pandemic, but began to recover in 2021
- Almost all participants with an abnormal screening mammogram result received a definitive diagnosis within six months. Targets for timely follow-up were not met in the most recent years likely due to delays related to the COVID-19 pandemic and human resource challenges
- Cancer detection rates increased in 2021, likely related to the prioritization of screening for those with higher breast cancer risk during the pandemic
- Sensitivity and specificity remained consistently high

Ontario Cervical Screening Program (OCSP)

- Cervical screening participation has continued to decrease over time. A large decrease occurred in the 21–24 age group, related to new guidance which encouraged health care providers to delay initiation of cytology-based screening for immunocompetent people until age 25
- Retention decreased during the pandemic, but began to recover in 2021
- Most participants with a high-grade cervical cytology test result received follow-up within six months
- Cervical pre-cancer and cancer detection rates increased in the most recent year, likely related to the prioritization of people at higher risk for cervical cancer during the pandemic

ColonCancerCheck

- The percentage of people overdue for colorectal cancer screening was stable before the COVID-19 pandemic, after which it increased
- Participation in fecal-based colorectal cancer screening has remained stable. The COVID-19 pandemic minimally impacted fecal test participation likely because the test can be done at-home
- Following the implementation of the fecal immunochemical test in 2019, improved rates of follow-up following an abnormal fecal test, increased positive predictive value and cancer detection rate have been observed
- Colonoscopy quality remained consistently high

Ontario Lung Screening Program (OLSP)

- Ontario's Lung Cancer Screening Pilot for People at High Risk transitioned to an organized cancer screening program in 2021
- The percentage of low-dose computed tomography (LDCT) scans that had abnormal findings (Lung-RADS® 3, 4A, 4B, 4X) and rates of cancer detection have decreased over time; this is because the percentage of people having their first LDCT screen has decreased as the program matures
- Most lung cancers detected through the Ontario Lung Screening Program were early stages (78%), compared with only 35% of all lung cancers diagnosed in Ontario among people ages 55 to 74

Equity in Cancer Screening

- People living in neighborhoods with higher levels of material deprivation and ethnic concentration had lower rates of breast and cervical screening participation, lower rates of retention in the High Risk Ontario Breast Screening Program, lower rates of follow-up after an abnormal cervical and colorectal cancer screening test, higher rates of being overdue for colorectal screening, and lower rates of completing lung cancer screening after being determined eligible

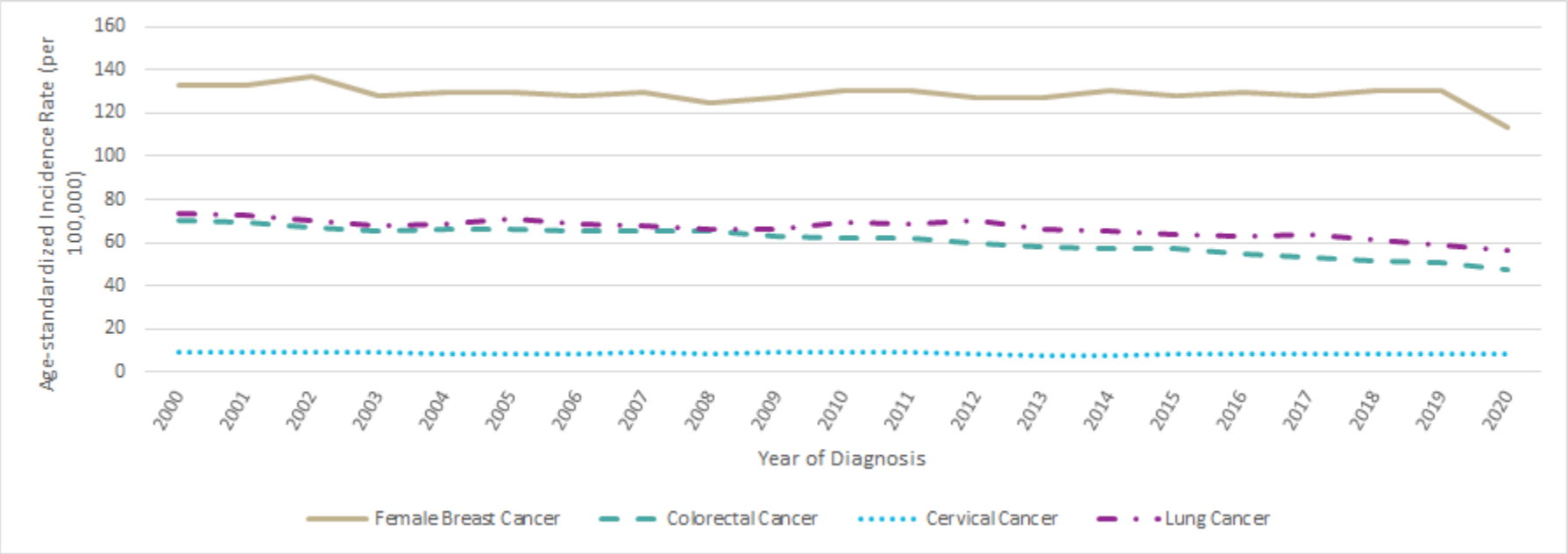
Burden of Disease

A Note About the Data in this Section

The statistics reported by sex in this section include female and male terms, which refer to the sex that is recorded in the Ontario Cancer Registry. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity and may incorrectly classify people whose gender identity differs from their sex assigned at birth.

Incidence of Female Breast, Colorectal, Cervical and Lung Cancer in Ontario, 2000 to 2020

Figure 1: Age-standardized Incidence Rate of Female Breast, Colorectal, Cervical and Lung Cancer in Ontario, 2000 to 2020



For data, see Table 1 in Appendix 1.

In 2018, female breast cancer was the most commonly diagnosed cancer in Ontario. With 11,728 cases diagnosed in 2018, it accounted for 27.8% of all new cancer cases (1). The age-standardized incidence rate for breast cancer in Ontario was 113.8 per 100,000 in 2020. Breast cancer incidence remained relatively consistent from 2000 to 2019. The decrease in incidence from 2019 to 2020 may reflect challenges with getting access to screening and diagnostic services during the COVID-19 pandemic, but more data are needed before drawing definitive conclusions.

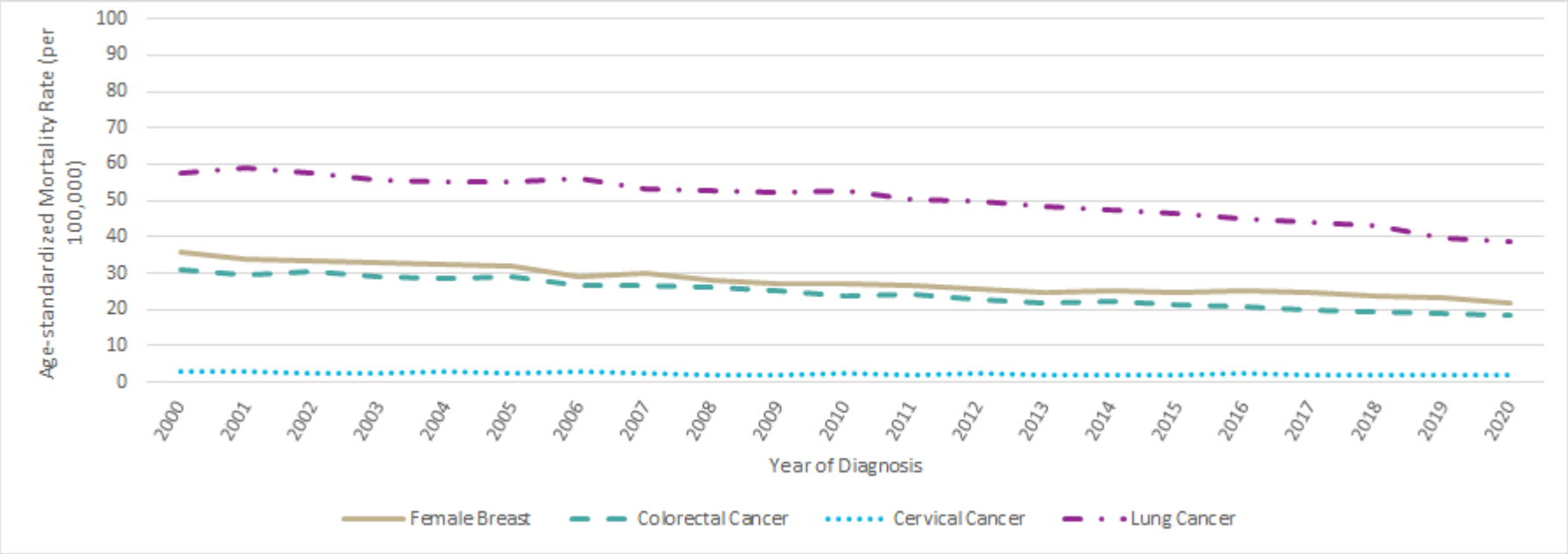
In 2018, lung cancer was the third most commonly diagnosed cancer in Ontario. With 10,337 cases diagnosed in 2018, lung cancer accounted for 12.2% of new cancer cases (1). The age-standardized incidence rate has been decreasing over time, from 73.4 per 100,000 in 2000 to 56.1 per 100,000 in 2020.

Colorectal cancer was the fourth most commonly diagnosed cancer in Ontario in 2018. There were 8,398 cases diagnosed in 2018, accounting for 9.9% of all new cancer diagnoses (1). The age-standardized incidence rate for colorectal cancer decreased from 69.7 per 100,000 in 2000 to 47.7 per 100,000 in 2020.

In 2018, cervical cancer accounted for 1.5% of all cancer cases in females (1). The age-standardized incidence rate for cervical cancer decreased slightly from 9.4 per 100,000 in 2000 to 7.9 per 100,000 in 2020. Cervical cancer is less common than other cancers that have organized screening programs in Ontario, partly due to the success of cervical screening with cytology in reducing cervical cancer incidence and mortality (2).

Mortality for Female Breast, Colorectal, Cervical and Lung Cancer in Ontario, 2000 to 2020

Figure 2: Age-standardized Mortality Rate for Female Breast, Colorectal, Cervical, and Lung Cancer in Ontario, 2000 to 2020



For data, see Table 2 in Appendix 1.

Of the four cancer types that Ontario provides organized screening for, lung cancer is the most fatal. In 2018, lung cancer deaths numbered 6,971, accounting for 23.5% of all cancer deaths (1). The age-standardized mortality rate for lung cancer decreased over time but remained higher than the age-standardized mortality rates for female breast, colorectal and cervical cancers at 38.8 per 100,000 in 2020.

In 2018, female breast cancer deaths numbered 2,003, accounting for 14.3% of all female cancer deaths (1). The age-standardized mortality rate for female breast cancer decreased over time and was 22.0 per 100,000 in 2020.

In 2018, there were 3,099 deaths due to colorectal cancer, accounting for 10.4% of all cancer deaths (1). Mortality for colorectal cancer also decreased over time, with an age-standardized mortality rate of 18.6 per 100,000 in 2020.

Similar to incidence trends, cervical cancer mortality is lower than mortality for female breast, colorectal and lung cancers. In 2018, cervical cancer was responsible for 1% of all cancer deaths (145 deaths) (1). Mortality for cervical cancer decreased slightly over time, with an age-standardized mortality rate of 1.9 per 100,000 in 2020.

Organized Cancer Screening in Ontario

Effective screening and earlier diagnosis are crucial to reducing the burden of cancer. Screening in the asymptomatic population detects pre-cancerous changes or cancers at an early stage, when treatment has a better chance of working (3). Screening that is delivered through organized programs is more likely to reduce cancer incidence and mortality, minimize the potential harms of screening and be cost-effective when compared to screening that happens outside of organized programs (4).

Ontario Health, which operates organized cancer screening programs in the province, is working to improve the quality, safety and accessibility of cancer services for all people in Ontario. These screening programs, which are guided by published evidence and high-quality research, include the Ontario Breast Screening Program (OBSP), the Ontario Cervical Screening Program (OCSP), ColonCancerCheck, and the Ontario Lung Screening Program (OLSP). Ontario's cancer screening recommendations are regularly updated to reflect emerging evidence and ensure that people in Ontario have access to high-quality care throughout their screening experience. Additional program-specific details, including eligibility criteria and screening pathways, can be found on pages 24-33.

Requirements for an Organized Cancer Screening Program

Building on the International Agency for Research on Cancer (IARC) recommendations for organized cancer screening (5,6), the World Health Organization and IARC convened a panel of experts beginning in 2020 to achieve international consensus on essential and desirable criteria for organized cancer screening programs (7). The 16 essential and eight desirable criteria for organized cancer screening are listed in Tables 1 and 2, along with a status note indicating whether the criterion is met by each of Ontario's cancer screening programs.

Table 1: Essential Criteria for Organized Cancer Screening Programs

Essential Criteria	Ontario Breast Screening Program[1]	Ontario Cervical Screening Program	ColonCancerCheck[2]	Ontario Lung Screening Program
A protocol or guideline describing at least the target population, screening intervals, screening tests, referral pathway and management of positive cases	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
A system in place for identifying the target population	●[3] Fully implemented	● Fully implemented	● Fully implemented	◑[3] Partially implemented
A system in place for inviting eligible individuals for screening	● Fully implemented	● Fully implemented	● Fully implemented	N/A[4]

[1] The information provided applies to both the average risk and High Risk Ontario Breast Screening Program (OBSP).

[2] The information provided does not apply to people at increased risk for colorectal cancer.

[3] The High Risk OBSP and the OLSP are programs for people at high risk for breast and lung cancer, respectively. Eligibility for screening is determined by assessing cancer risk by examining relevant risk factors. While a systematic approach for identifying the target population is not possible, Ontario Health provides evidence-based guidance and health care provider resources to support the referral of individuals for screening.

[4] The Ontario Lung Screening Program is only available to people determined to be at high risk for developing lung cancer based on specific smoking histories. Potentially eligible participants can self-present or be referred to the program by a health care provider to determine if they meet eligibility criteria.

Essential Criteria	Ontario Breast Screening Program[1]	Ontario Cervical Screening Program	ColonCancerCheck[2]	Ontario Lung Screening Program
A policy framework[5] from the implementing organization defining governance structure, financing, goals and objectives of the program[6]	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented
Performance should be evaluated with appropriate indicators	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
The protocol or guideline should at least describe monitoring and evaluation[7]	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
A system in place for notifying of results and informing about follow-up	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
A system in place for sending recall notices to non-compliant individuals	● Fully implemented	● Fully implemented	● Fully implemented	●[8] Fully implemented

[5] A policy framework defines the financial support, governance structure, goals and objectives of the screening program to guide implementation and evaluation. It should describe the cooperation and the relationships between the stakeholders involved in the preparation, decision-making and implementation of the screening program.

[6] Criterion was assessed as partially met because most components of the framework have been separately developed but have not yet been incorporated into a fulsome policy framework.

[7] Cancer screening programs in Ontario are subject to robust monitoring, reporting and performance management processes. Focused evaluations are performed for all major program changes and overall program performance is evaluated on a regular basis in the Ontario Cancer Screening Performance Report.

[8] The system for recalling participants who are due for screening or surveillance scans is managed by Ontario Lung Screening Program sites.

Essential Criteria	Ontario Breast Screening Program[1]	Ontario Cervical Screening Program	ColonCancerCheck[2]	Ontario Lung Screening Program
Auditing of the program (defined as investigation of screening failures)[9,10]	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented
A specified team or organization is responsible for quality assurance and improvement	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
Performance of the program is evaluated, published and widely disseminated on a regular basis	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
All activities along the screening pathway are planned, coordinated and evaluated through a quality improvement framework (quality assurance)	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented

[9] Screening failures are defined as 1) cancers occurring in people who were not screened within the recommended interval; 2) cancers occurring in people who were screened and found to have an abnormality, but who were not appropriately managed; 3) people who were adequately screened within the recommended interval with apparently normal results, but who developed cancer before the next screening round; 4) cancer occurring outside the target age group, overtreatment or screening-related complications.

[10] Ontario Health routinely monitors post-screen cancers in the OBSP, OCSP and CCC. Post-screen cancer case data are also provided to radiologists and endoscopists on an annual basis for quality improvement purposes. Post-screen breast cancers were evaluated after the first four years of screening in the High Risk OBSP. Post-screen lung cancers were evaluated during the piloting phase of the OLSP. A long-term reporting strategy for the OLSP is now being developed.

Essential Criteria	Ontario Breast Screening Program[1]	Ontario Cervical Screening Program	ColonCancerCheck[2]	Ontario Lung Screening Program
An evidence-based protocol or guideline is developed in consensus with the majority of stakeholders[11]	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
An information system with appropriate linkages (e.g., between population databases, screening information, cancer registry, etc.) for screening implementation and evaluation	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
Provision of continued training for service providers[12,13]	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented
Performance of the screening program is evaluated with reference standards for the indicators[14]	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented

[11] The term 'stakeholder' is used in this table because it is the language used in the original source document. Ontario Health acknowledges that this terminology has racist origins. The term 'partner' is used throughout the remainder of this report.

[12] Continued training (both knowledge-based and skill-based) is ensured by the screening program for all personnel involved in the screening pathway, including periodic refresher training and the supervisory support for new health providers. Such training can be provided by the program or other stakeholders and is also regularly monitored. The service providers need regular feedback on their performance.

[13] Most training for service providers is provided independent from Ontario Health. Ontario Health incorporates some training and expertise requirements within the quality standards and creates and updates Mainpro+®-accredited continuing professional development courses that count towards continuing medical education or membership and designations with the College of Family Physicians of Canada.

[14] Targets and/or benchmarks are established for indicators where appropriate based on the availability of evidence.

Table 2: Desirable Criteria for Organized Cancer Screening Programs

Desirable Criteria	Ontario Breast Screening Program	Ontario Cervical Screening Program	ColonCancerCheck	Ontario Lung Screening Program
A specific organization or team is responsible for program implementation and coordination	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
Health care professionals comply with protocol or guideline of the screening program while delivering services[15]	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented
Cancer screening program has a system in place to identify cancer occurrence in the target population (e.g., a population-based cancer registry)	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
Eligible individuals should be given informed choice, with information on benefits and harms	◑[16] Partially implemented	◑[16] Partially implemented	◑[16] Partially implemented	● Fully implemented

[15] Ontario Health undertakes a variety of activities to promote compliance with cancer screening guidelines. This includes the provision of tools for primary care providers and specialists to facilitate the adoption of best practices that are recommended by Ontario Health's screening guidelines and eligibility criteria, collaboration with provincial partners including laboratories and the Ministry of Health to develop strategies to discourage noncompliant screening activities (e.g., billing code restrictions), and routine monitoring of indicators that measure noncompliant screening; however, Ontario Health does not have the authority to enforce compliance.

[16] Referral to screening or screening participation is facilitated by individual health care providers; there is likely variability with respect to the delivery of informed participation discussions.

Desirable Criteria	Ontario Breast Screening Program	Ontario Cervical Screening Program	ColonCancerCheck	Ontario Lung Screening Program
The screening program has an operational plan to encourage participation of the target population through improved awareness[17]	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented
An appropriate legal framework exists for registration of individuals in the program and establishing data linkages[18]	● Fully implemented	● Fully implemented	● Fully implemented	● Fully implemented
Availability of adequate infrastructure, workforce and supplies for delivery of screening, diagnosis and treatment services[19]	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented
Equity of access to screening, diagnosis and treatment services should be built into the screening program[20]	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented	◑ Partially implemented

[17] Public cancer screening awareness campaigns are formally managed by the Ontario Ministry of Health, in consultation with Ontario Health. Regional partners and screening sites execute additional awareness and recruitment strategies locally.

[18] The legal framework provides a legal mandate for the appropriate data protection safeguards and recognizes that a balance between fundamental rights of privacy and access to health services is crucial. The regulation of personal data safety, cancer screening program registration, and the linkage between screening-related data and other relevant data sources are necessary for effective management of screening programs.

[19] All cancer screening programs in Ontario are experiencing performance challenges related to inadequate resources, primarily with respect to health human resources (HHR).

[20] Health equity is a strategic focus of Ontario Health. Ongoing efforts are required to address inequities in cancer screening. Ontario Health is undertaking various equity-focused initiatives to improve health equity in cancer screening (see the Future Directions section for additional details).

Delivery of Cancer Screening in Ontario

Ontario's organized cancer screening programs are planned, designed, implemented, operated, monitored, evaluated and refined by Ontario Health. Regional Cancer Programs, Ontario Health teams and health care providers are accountable for screening activities and performance at the regional and local levels. Having regional health system administrators and clinician leadership is critical for the delivery of evidence-based and high-quality cancer screening services.

Ontario Health

Ontario Health was established by the Government of Ontario to connect, coordinate and modernize Ontario's health system. Ontario Health was created through the amalgamation of 22 organizations, including Cancer Care Ontario, which was responsible for operating Ontario's cancer screening programs. These screening programs are now delivered by Ontario Health. The work of Ontario Health is guided by the Quintuple Aim (8) strategic priorities, an annual business plan and other strategic documents, including an *Equity, Inclusion, Diversity, and Anti-Racism Framework*, the *High Priority Community Strategy* and the *Black Health Plan*.

The *Ontario Cancer Plan* and the *First Nations, Inuit, Métis and Urban Indigenous Cancer Strategy* guide the work of Ontario Health in the cancer system. The *Ontario Cancer Plan* is a multi-year provincial road map that guides how Ontario Health, the Regional Cancer Programs and other health system partners work together to reduce the risk of developing cancer and improve outcomes for those affected by cancer in Ontario. The *First Nations, Inuit, Métis and Urban Indigenous Cancer Strategy* provides a road map for how Ontario Health, Indigenous communities and individuals, and health system partners will work together to improve the performance of the cancer system for Indigenous people in Ontario. This work should take place in a way that honours Indigenous concepts of well-being, improves the well-being of Indigenous people in Ontario, reduces the burden of cancer in these communities, and empowers supportive and healthy environments that build on the strengths of Indigenous individuals, families, communities and organizations.

Ontario Health has six administrative health regions (North East, North West, East, Central, Toronto, West) that link the organization with communities and provider partners to ensure that health system resources and supports are allocated to where they will best meet the diverse needs of people across the province.

Regional Cancer Programs

Ontario also has 14 Regional Cancer Programs, each led by a Regional Vice-President. Regional Cancer Programs are networks of hospitals and other agencies involved in providing cancer prevention, screening, diagnostic, treatment and support services in each of the six Ontario Health regions. Each Regional Cancer Program, supported by a network of regional clinical leads, is responsible for implementing provincial standards and programs for cancer care (including prevention and screening) and ensuring that facilities meet the requirements and targets set out in their agreements with Ontario Health. Regional Cancer Programs respond to issues related to screening, diagnosis, treatment and management of cancer based on regional and local needs, coordinate care across local and regional health care providers, and work to continually improve access to care, wait times and quality.

Ontario Health supports the Regional Cancer Programs in the delivery of cancer screening by:

- Reporting regularly on cancer screening program performance at regional, facility and provider levels
- Sharing recommendations and clinical guidance for cancer screening and diagnostic management that were developed in collaboration with primary care providers, specialist physicians, cancer system administrations and public advisors
- Maintaining a centralized correspondence program for the Ontario Breast Screening Program, Ontario Cervical Screening Program, and ColonCancerCheck to encourage routine screening and timely follow-up of screening results

The Hamilton-Niagara-Haldimand-Brant Regional Cancer Program and the North West Regional Cancer Program each operate a mobile screening coach, which travels from community to community to provide breast, cervical and colorectal screening for screen-eligible people who experience barriers to accessing screening.

Ontario Health Teams

In 2019, Ontario Health Teams were introduced to provide a new way of organizing and delivering care that is more connected to patients in their local communities. Under Ontario Health Teams, health care providers – including hospitals, doctors, and home and community care providers – work in a coordinated way to provide care, no matter where they provide it. Since 2019, 57 teams have been approved and are seeing successes, such as more efficient hospital-to-home transitions, a stronger voice for primary care within Ontario Health Team decision making and leadership structures, more extensive primary care organization, improved digital health and virtual care access, better data and analytics, and more meaningful partnership and engagement with patients, families and caregivers.

A formal link between the work of Ontario Health Teams and Cancer Screening was established through the Collaborative Quality Improvement Plan (cQIP). The cQIP is Ontario Health Teams' formal commitment to quality and serves as a process for Ontario Health Team partners to work together towards better coordinated, integrated care that delivers improvements in alignment with the Quintuple Aim. With cross-sectoral partnerships and a growing role in the health care system, OHTs are uniquely positioned to have a significant impact on long-standing challenges affecting our health system. The cQIP program fosters this opportunity by aligning its areas of focus with provincial and local health system priorities aimed at improving population health, and patient and provider experience through an equity lens. The OHTs report on their progress for each area of focus in an annual plan. They also share lessons learned through an OHT community of practice.

For the 2022/23 fiscal year, the cQIP program's three areas of focus had corresponding quality indicators and were tied to health system issues affected by the COVID-19 pandemic: overall access to care in the most appropriate setting, overall access to mental health and addictions services in the community, and overall access to preventative care. Preventative care in this context refers to decreasing the burden of cancer in Ontario through cancer screening using the following indicators:

- Percentage of screen-eligible people up to date with cervical screening (i.e. cytology tests)
- Percentage of screen-eligible people up to date with breast cancer screening (i.e. mammography)
- Percentage of screen-eligible people up to date with colorectal cancer screening

Building on lessons learned from the fiscal year 2022/23 cQIP program, these areas of focus will be maintained for fiscal year 2023/24 and Ontario Health Teams will be encouraged to continue their efforts in these areas with the added option to customize their improvement efforts based on their unique needs. The cQIP presents an opportunity for OHTs to work with their Regional Cancer Programs on common goals. A key requirement of the Ontario Health Team Transfer Payment Agreement and a fundamental part of the future performance framework for Ontario Health Teams, cQIPs play a role in supporting performance objectives, promoting a culture of quality improvement, and contributing to the development of a robust learning health system.

Primary Care Providers

Primary care providers, including family doctors and nurse practitioners, play a critical role in the success of cancer screening programs by encouraging and facilitating screening participation, performing screening tests (in the case of cervical screening) and supporting timely follow-up of abnormal screening results. Ontario Health provides tools for primary care providers and specialists to facilitate the adoption of best practices that are recommended by Ontario Health's screening guidelines and eligibility criteria.

Another way that Ontario Health supports primary care providers is by providing the Screening Activity Report. This electronic report can be accessed through the OneID® system and allows physicians working in a patient enrolment model practice to identify which of their patients are due (or overdue) for screening and which require follow-up of abnormal screening results. It also provides primary care providers with key performance data, such as how they compare against other primary care providers across Ontario and within their Regional Cancer Program. In the future, the Screening Activity Report will be incorporated with the *MyPractice* report (a similar primary care report for family physicians and executive directors of family health teams and community health centres) into the Primary Care Integrated Report.

Ontario Health also creates and updates Mainpro[21]-accredited continuing professional development courses that count towards continuing medical education or membership and designations with the College of Family Physicians of Canada. There are currently three accredited continuing professional development courses: one for the Ontario Lung Screening Program and two for ColonCancerCheck, with a fourth one planned for the Ontario Cervical Screening Program.

[21] Mainpro+® (Maintenance of Proficiency) is the College of Family Physicians of Canada program designed to support and promote continuing professional development for family physicians. Mainpro sets standards, as well as reviews and accredits continuing professional development programs.

Ontario Cancer Screening Programs

Table 3: Ontario Cancer Screening Program Summary: Average Risk Programs

Screening Program	Target Population	Screening Test	Screening Interval
Ontario Breast Screening Program	Women, trans people and nonbinary people ages 50 to 74	Mammography	Every 2 years[22]
Ontario Cervical Screening Program	People with a cervix ages 21 to 70[23] who are or have ever been sexually active	Cytology	Every 3 years[24]
ColonCancerCheck	People ages 50 to 74	Fecal immunochemical test	Every 2 years[25]

[22] Some Ontario Breast Screening Program participants may be called back for screening in 1 year instead of 2 years because of a documented pathology of high risk lesions, a personal history of ovarian cancer, 2 or more first-degree relatives assigned female at birth with breast cancer at any age, 1 first-degree relative assigned female at birth with breast cancer under age 50, 1 first-degree relative with ovarian cancer at any age, 1 relative assigned male at birth with breast cancer at any age, BI-RADS breast density Category D at the time of screening or as recommended by the radiologist at the time of screening.

[23]The Ontario Cervical Screening Program will formally change the age of initiation for cervical screening from 21 to 25 with the implementation of human papillomavirus testing in the program, except for people who are immunocompromised. Until the change is formally implemented, health care providers are encouraged to consider delaying screening until age 25 for people who are immunocompetent.

[24]Immunocompromised people may be at elevated risk and should receive annual screening. Screening annually with cytology is also recommended for some people who are discharged from colposcopy (i.e., those with a positive human papillomavirus test, atypical squamous cells of undetermined significance or low-grade squamous epithelial lesion).

[25]People at average risk for colorectal cancer who choose to be screened with a flexible sigmoidoscopy should be screened every 10 years.

Table 4: Ontario Cancer Screening Program Summary: Increased or High Risk Programs

Screening Program	Target Population	Screening Test	Screening Interval
High Risk Ontario Breast Screening Program	Women, trans people and nonbinary people ages 30 to 69 who meet the program eligibility criteria	Mammography and breast magnetic resonance imaging[26]	Every year
ColonCancerCheck	People with 1 or more first-degree relatives who have been diagnosed with colorectal cancer[27]	Colonoscopy	Every 5 or 10 years[28]
Ontario Lung Screening Program	People ages 55 to 74 who have smoked cigarettes daily for at least 20 years[29]	Low-dose computed tomography	Every year[30]

[26] Screening breast ultrasound is scheduled if breast magnetic resonance imaging is not medically appropriate.

[27] The definition of increased risk for colorectal cancer is currently under review.

[28] Frequency of screening with colonoscopy depends on family history. People with a first-degree relative who was diagnosed with colorectal cancer before age 60 should be screened every 5 years starting at age 50, or 10 years earlier than the age their relative was diagnosed, whichever occurs first. People with a first-degree relative who was diagnosed with colorectal cancer at age 60 or older should be screened every 10 years starting at age 50. However, some people who have first-degree relatives who were diagnosed with colorectal cancer may need colonoscopy more often if they meet criteria for a genetic syndrome.

[29] Refers to 20 years of cumulative smoking (there could be times when the person did not smoke). These people can be referred for a risk assessment to determine eligibility for screening in the Ontario Lung Screening Program.

[30] The Ontario Lung Screening Program uses the American College of Radiology's Lung-RADS® system to manage nodules. People may be required to come in for scans earlier than 1 year or could be sent for diagnostic assessment based on their Lung-RADS® score.

Table 5: Eligibility Criteria by Screening Program: Average Risk

Screening Program	Eligibility Criteria
Ontario Breast Screening Program	Women, trans people and nonbinary people ages 50 to 74 who have: • No breast cancer symptoms • No personal history of breast cancer • Not had a mastectomy, and • Not had a screening mammogram within the last 11 months People ages 40 to 49 who are at average risk for breast cancer are encouraged to make a personal decision about breast cancer screening in consultation with their family doctor or nurse practitioner. If someone in this age group would like to get screened, their family doctor or nurse practitioner can provide a referral for a mammogram. Currently, people in this age group are not eligible to be screened through the Ontario Breast Screening Program. However, beginning in fall 2024, the Ontario Breast Screening Program will expand eligibility to include people ages 40 to 49. People will be encouraged to have a conversation with a health care provider on the risks and benefits of screening as well as their values and preferences, to determine if screening is right for them. Those who decide to screen will be able to self-refer for a mammogram and receive the benefits of organized screening.

Screening Program	Eligibility Criteria
Ontario Cervical Screening Program	People with a cervix (women, transmasculine people and nonbinary people) who are ages 21 to 70[31] and: • Have no symptoms that could be caused by cervical cancer, and • Are or have ever been sexually active – sexual activity is defined as having contact with another person's genitals using the hands, mouth or genitals Cervical screening can stop at age 70 if someone has been regularly screened and has had 3 or more normal cervical screening test results in the previous 10 years.
ColonCancerCheck	People ages 50 to 74 who have: • No symptoms that could be caused by colorectal cancer • No first-degree relative (parent, sibling or child) who has been diagnosed with colorectal cancer • No personal history of pre-cancerous colorectal polyps requiring surveillance, and • No history of inflammatory bowel disease (i.e., Crohn's disease involving the colon or ulcerative colitis) ColonCancerCheck does not send letters to people under age 50 or over age 74 about participating in the program. Primary care providers can order a fecal immunochemical test (FIT) for people who are age 49 at their discretion to support screening initiation in people who will soon be turning age 50. Additionally, people ages 75 to 85 may choose to get screened if the benefits of screening outweigh the risks. ColonCancerCheck strongly recommends against colorectal cancer screening in people older than age 85; people older than age 85 are not eligible for a program FIT.

[31] The Ontario Cervical Screening Program will formally change the age of initiation for cervical screening from 21 to 25 with the implementation of human papillomavirus testing in the program, except for people who are immunocompromised. Until the change is formally implemented, health care providers are encouraged to consider delaying screening until age 25 for people who are immunocompetent.

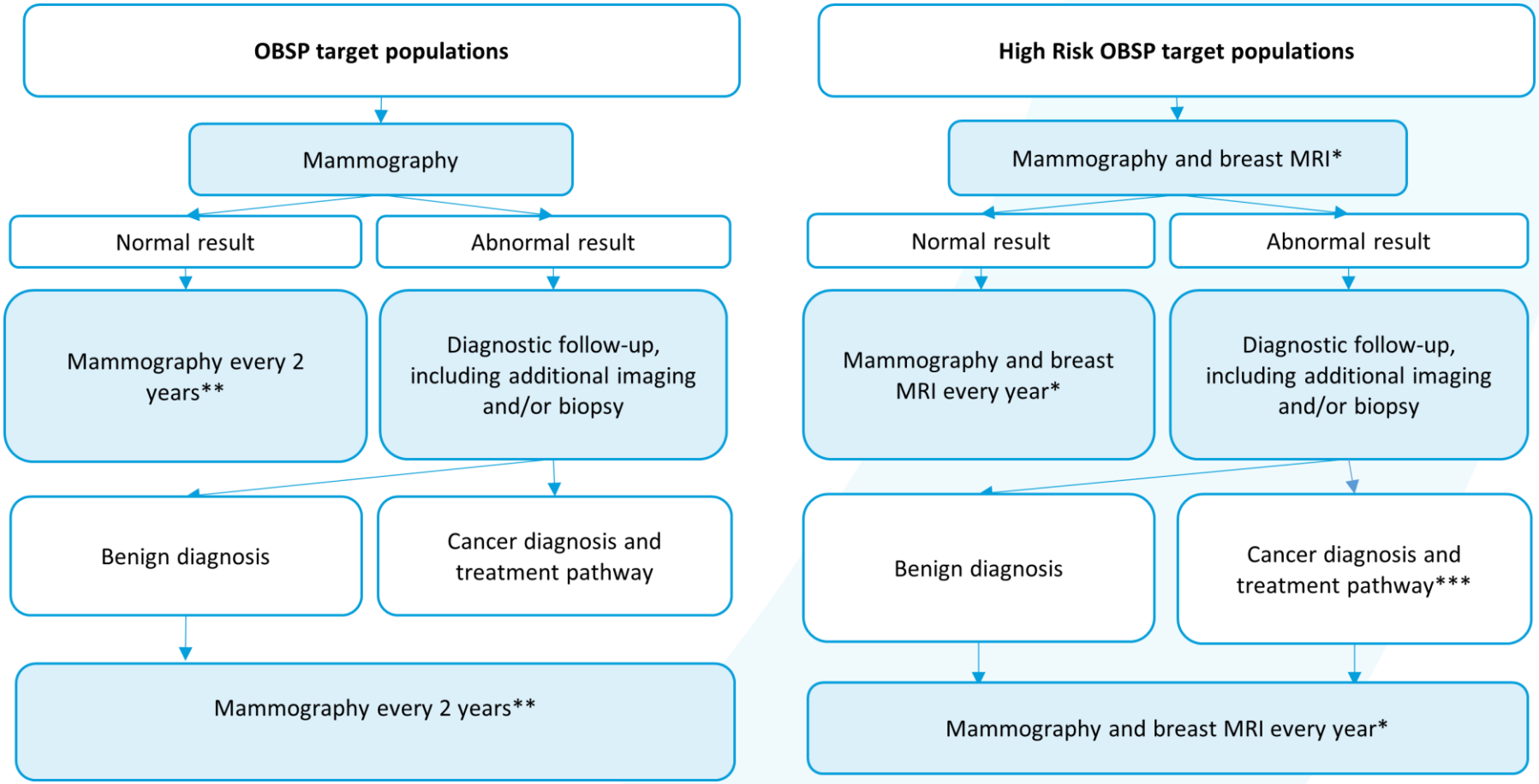
Table 6: Eligibility Criteria by Screening Program: Increased or High Risk

Screening Program	Eligibility Criteria

High Risk Ontario Breast Screening Program (OBSP)	Women, trans people and nonbinary people ages 30 to 69 who:
	
	• Have a referral from a doctor or nurse practitioner
	• Have no breast cancer symptoms
	• Have valid Ontario Health Insurance Plan coverage, and
	• Fall into one of the following risk categories:
	  ○ Have gene changes that increase their chance of getting breast cancer (e.g., changes in the BRCA1, BRCA2, TP53 or PALB2 genes)
	  ○ Have not had genetic testing, but have had genetic counselling because they have a first-degree family member with gene changes that increase their chance of getting breast cancer (e.g., changes in the BRCA1, BRCA2, TP53 or PALB2 genes)
	  ○ Have a ≥25% lifetime chance of getting breast cancer based on personal and family history (confirmed at a genetics clinic using the International Breast Cancer Intervention Study or CanRisk risk assessment tools), and
	  ○ Had radiation therapy to the chest to treat another condition (e.g., Hodgkin Lymphoma) before age 30 and at least 8 years ago
	
	The High Risk OBSP does not accept new participants over age 70. However, when participants already in the High Risk OBSP turn 70, the program will continue to screen them with just mammography every year until they are age 74.
	
	The High Risk OBSP does not send letters to people over age 74 about participating in the program. People over age 74 are encouraged to make a personal decision about breast cancer screening in consultation with their doctor or nurse practitioner and can continue to be screened with just mammography through the High Risk OBSP with a referral from their doctor or nurse practitioner.

Screening Program	Eligibility Criteria
ColonCancerCheck	People with a family history of colorectal cancer that includes 1 or more first-degree relatives who have been diagnosed with colorectal cancer, but do not meet the criteria for hereditary colorectal cancer syndromes. ColonCancerCheck is reviewing the definition of increased risk for colorectal cancer.
Ontario Lung Screening Program	People ages 55 to 74 who have: • A referral from a doctor or nurse practitioner • No lung cancer symptoms • Valid Ontario Health Insurance Plan coverage, and ○ A lung cancer risk score of ≥2.0% as determined by the PLCOm2012 risk prediction model (8–10)

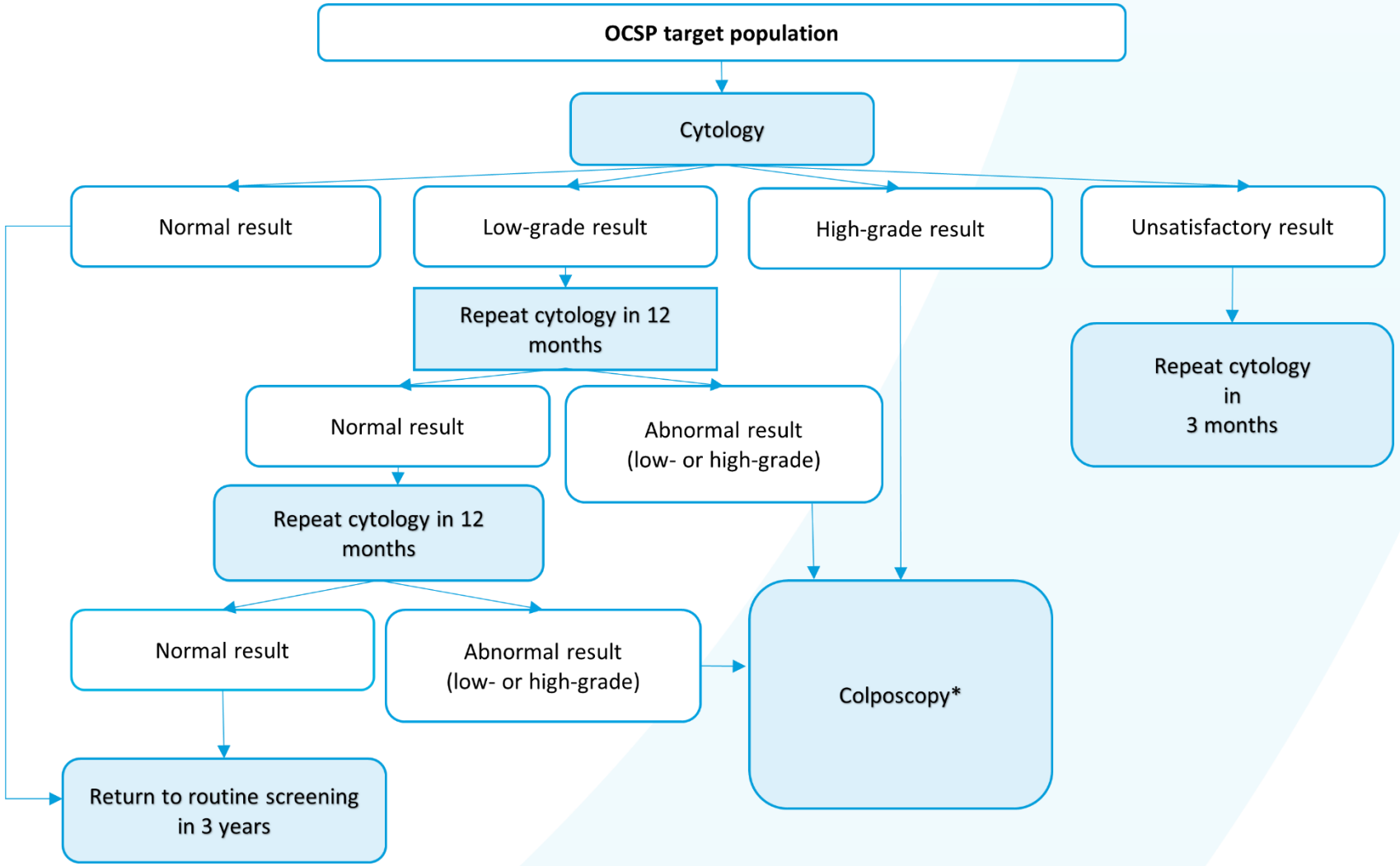
Figure 3: Ontario Breast Screening Program (OBSP) Pathway



* Screening breast ultrasound is scheduled if breast magnetic resonance imaging (MRI) is not medically appropriate.
**Some OBSP participants may be called back for screening in 1 year instead of 2 years because of a documented pathology of high-risk lesions, a personal history of ovarian cancer, 2 or more first-degree relatives assigned female at birth with breast cancer at any age, 1 first-degree relative assigned female at birth with breast cancer under age 50, 1 first-degree relative with ovarian cancer at any age, 1 relative assigned male at birth with breast cancer at any age, BI-RADS breast density Category D at the time of screening or as recommended by the radiologist at the time of screening.
***High Risk OBSP participants who are diagnosed with breast cancer are eligible to return to screening once they have completed treatment and have no breast cancer symptoms.

For a text version of Figure 3, refer to Appendix 2: Figure Descriptions.

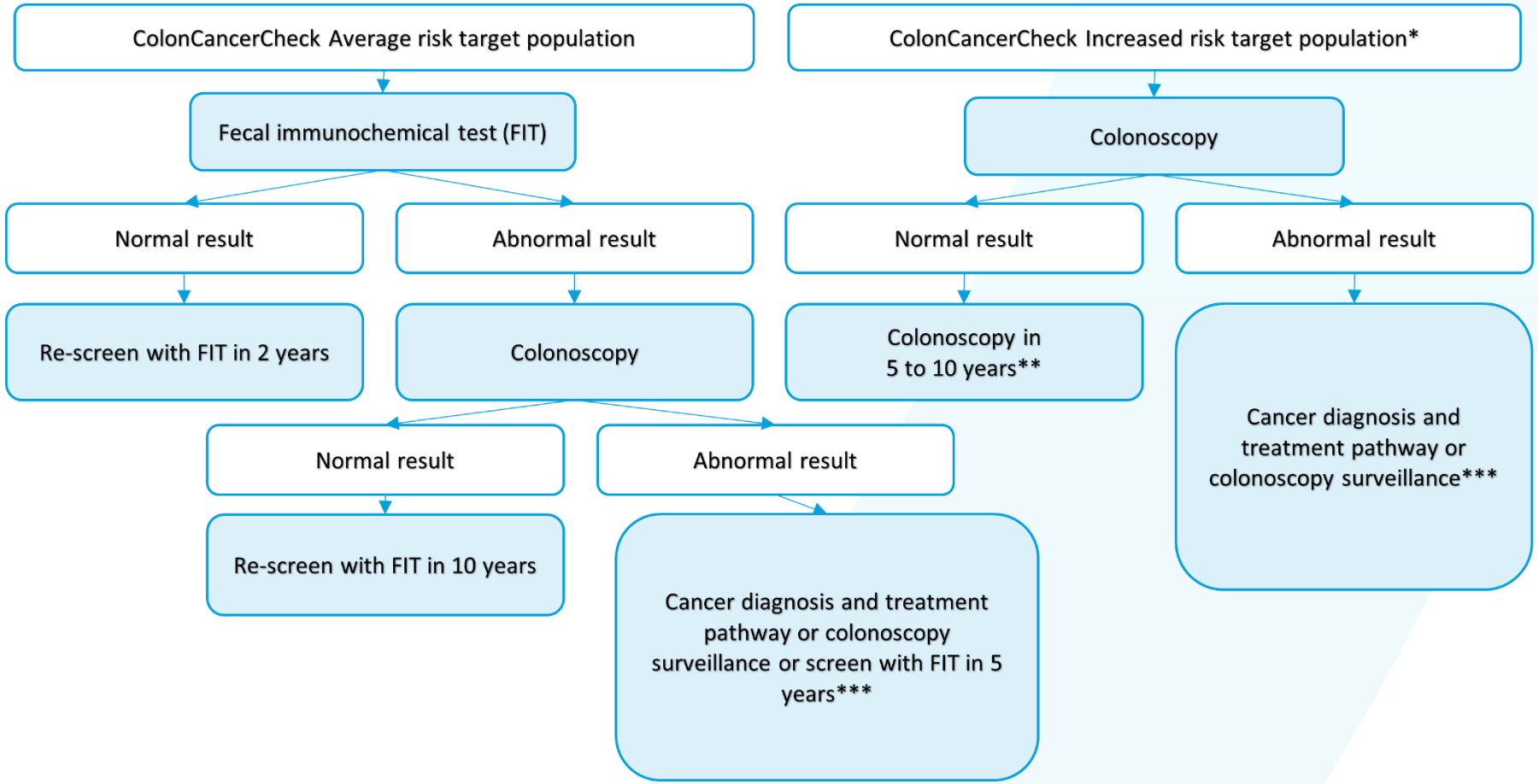
Figure 4: Ontario Cervical Screening Program (OCSP) Pathway



*Please refer to Colposcopy Clinical Guidance for clinical management in colposcopy pathways.

For a text version of Figure 4, refer to Appendix 2: Figure Descriptions.

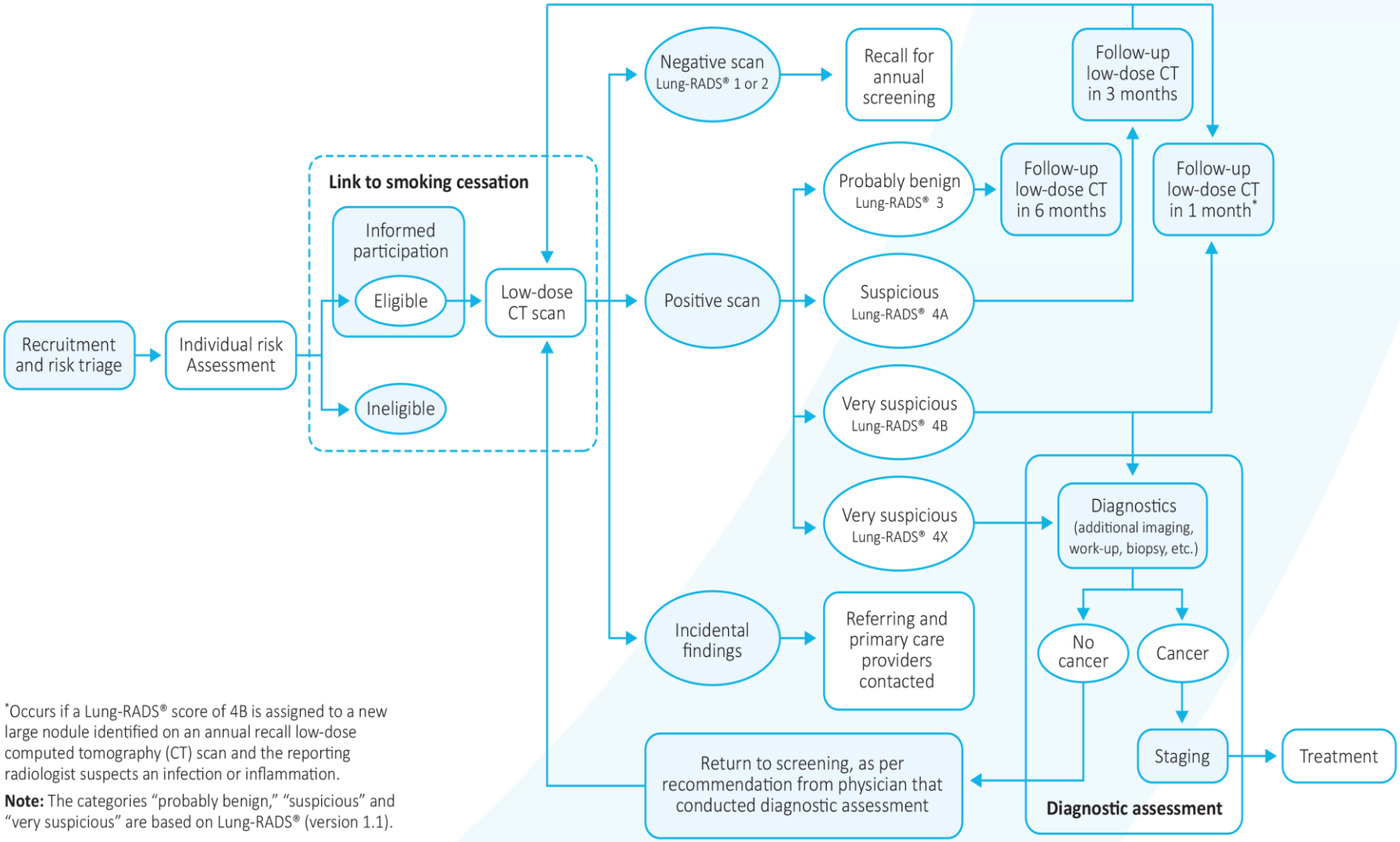
Figure 5: ColonCancerCheck Program Pathway



*The screening recommendations for people at increased risk for colorectal cancer are currently under review.
**Frequency of screening with colonoscopy depends on family history. People with a first-degree relative who was diagnosed with colorectal cancer before age 60 should be screened every 5 years starting at age 50, or 10 years earlier than the age their relative was diagnosed. People with a first-degree relative who was diagnosed with colorectal cancer at age 60 or older should be screened every 10 years starting at age 50. However, some people may need colonoscopy more often depending on the findings at their initial colonoscopy.
***Please refer to ColonCancerCheck's Recommendations for Post-Polypectomy Surveillance at cancercareontario.ca/CCCsurveillance

For a text version of Figure 5, refer to Appendix 2: Figure Descriptions.

Figure 6: Ontario Lung Screening Program (OLSP) Pathway



*Occurs if a Lung-RADS® score of 4B is assigned to a new large nodule identified on an annual recall low-dose computed tomography (CT) scan and the reporting radiologist suspects an infection or inflammation.

Note: The categories "probably benign," "suspicious" and "very suspicious" are based on Lung-RADS® (version 1.1).

For a text version of Figure 6, refer to Appendix 2: Figure Descriptions.

Health Equity in Cancer Screening

Health equity exists when people have a fair opportunity to reach their fullest health potential (12), and achieving health equity requires reducing unnecessary and avoidable differences in access and care that are unfair and unjust (13). Many causes of health inequities relate to social and environmental factors, such as income, social status, race, gender, education and physical environment. In addition, past or existing health policies may create or reinforce existing health inequities. Inequities may be unintended consequences of a health policy; however, in some cases policies are created to purposely reinforce structural or institutional racism. Ontario Health is committed to reducing health inequities; equity has been identified as a strategic priority and an Equity, Inclusion, Diversity and Anti-Racism Framework (14) has been developed to guide future directions.

This report includes a focus on health equity, which is achieved in several ways:

- Sharing information about how Ontario Health is committed to advancing equity, inclusion and diversity, and addressing racism
- A Spotlight on Cancer Screening in First Nations, Inuit, Métis and Urban Indigenous Peoples
- Providing equity stratifications for key performance indicators
- Regional reporting and mapping to understand variations in program performance across different areas of the province
- Sharing information about initiatives aimed to improve equity in cancer screening in Ontario

Cancer affects all groups of people in the province of Ontario; however, some groups experience a higher burden of cancer due to social, environmental and economic disparities. Cancer disparities are differences in cancer outcomes (e.g., new cases of cancer, cancer deaths, quality of life) experiences and access to quality cancer care for certain groups of people.

Cancer disparities reflect the interplay among many factors, such as social determinants of health, behaviour, biology and genetics, all of which can have profound effects on health, including cancer risk and outcomes. Some people in Ontario experience cancer disparities because they are more likely to encounter obstacles in accessing health care. Someone's income may impact their access to primary care or screening services in a number of ways, such as where they can afford to live, how far they have to travel to get services and whether they have access to paid leave from work. Other barriers to accessing cancer screening services could include physical barriers to completing screening tests, level of health literacy, past trauma, and past experiences of racism, sexism, homophobia or transphobia in the health system.

Disparities in cancer screening have been well-documented in Ontario and other settings. For example, we reported in the 2016 *Ontario Cancer Screening Performance Report* (15) that not being cared for by a patient enrolment model physician and living in a low-income neighbourhood were associated with a higher likelihood of being overdue for breast, cervical and colorectal cancer screening. Other provincial and Canadian analyses have demonstrated that people who are immigrants, have a low income or live in rural areas experience disparities in cancer screening-related care (16–22). Cancer disparities also exist for Indigenous populations in Ontario (see page 41 for more information) (23–30).

Key Concepts and Definitions in Health Equity

Systemic racism (14): Organizational culture, policies, directives, practices or procedures that exclude, displace or marginalize some racialized groups or create unfair barriers for them to access valuable benefits and opportunities. **This is often the result of institutional biases in organizational culture, policies, directives, practices, and procedures that may appear neutral but have the effect of privileging some groups and disadvantaging others.**

Anti-racism (14): **A systematic method of analysis and a proactive course of action. The anti-racism approach recognizes the existence of racism, including systemic racism, and actively seeks to identify and prevent actions that sustain these inequities.**

Anti-Black racism (14): **The policies and practices rooted in Canadian institutions, such as education, health care and justice, that mirror and reinforce beliefs, attitudes, prejudice, stereotyping and discrimination towards Black people and communities.**

Anti-Indigenous racism (14): **Ongoing race-based discrimination, negative stereotyping and injustice experienced by Indigenous Peoples in Canada. It includes ideas and practices that establish, maintain and perpetuate power imbalances, systemic barriers and inequitable outcomes that stem from the legacy of colonial policies and practices in Canada.**

Health (12): **A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.**

Health equity (13): **When all people (individuals, groups and communities) have a fair chance to reach their full health potential and are not disadvantaged by social, economic and environmental conditions.**

Health inequality (13): **Measurable differences in health between individuals, groups or communities. It is sometimes used interchangeably with the term "health disparities."**

Health inequity (13): A subset of health inequality and refers to differences in health associated with social disadvantages that are modifiable and considered unfair.

Inclusion (14): Inclusion recognizes, welcomes and makes space for diversity.

Equity, Inclusion, Diversity and Anti-Racism at Ontario Health

Ontario Health is committed to advancing equity, inclusion and diversity, and addressing racism to achieve better outcomes for all people with health conditions, their families and providers in Ontario's health system. Working together with health system partners from across the province, Ontario Health has developed a framework that builds on existing legislated commitments and relationships with Indigenous peoples and Francophone communities, and recognizes the need to take an intersectional approach to this work. To learn more about this framework, visit the *Equity, Inclusion, Diversity and Anti-Racism* page on the Ontario Health website.

The *Ontario Cancer Plan 5 (2019–2023)* (31) also provided a road map for how Ontario Health will work with the Regional Cancer Programs and other health system partners. The plan identified improving health equity across the cancer system as one of six goals and linked this goal to detailed strategic objectives that the organization made progress towards achieving during this period. At the time of writing, development of the *Ontario Cancer Plan 6* is underway with plans to expand on the equity goals in the *Ontario Cancer Plan 5*.

Since 2004, multi-year provincial Indigenous cancer strategies have addressed and led to improvements in cancer care for Indigenous people in Ontario. The *First Nations, Inuit, Métis and Urban Indigenous Cancer Strategy 2019–2023* continues the work set out in the first three strategies. At the time of writing, development of Strategy 5 is underway with First Nations, Inuit, Métis and Urban Indigenous partners across the province.

Analysis of Neighbourhood-Level Equity Using the Ontario Marginalization Index

Identifying health disparities is one of the steps required to addressing them. To assess equity in cancer screening in Ontario, a series of analyses that use the Ontario Marginalization Index (ON-Marg) were completed and are presented in this report. The ON-Marg was created by Public Health Ontario in collaboration with the Centre for Urban Health Solutions at St. Michael's Hospital using 2016 census data. The ON-Marg (32) is a composite index that combines multiple demographic indicators into four dimensions of marginalization. See Table 7 for detailed definitions of each dimension and a list of included indicators. For the analyses performed in this report, the material deprivation and ethnic concentration domains were used to stratify selected key performance indicators for each program.

In the absence of individual-level equity data, neighbourhood-level measures, such as the ON-Marg, are the best available source of data on equity and marginalization for population-based analyses in Ontario. However, the ON-Marg has some limitations. People living in institutions (e.g., penitentiaries, care homes) are not counted in census data and are not included in the ON-Marg. Additionally, people living on First Nations reserves are under-counted in the census and therefore under-represented in the ON-Marg. Finally, as an area-level measure, the ON-Marg does not provide information about individual levels of marginalization.

Table 7: ON-Marg Dimension Definitions and Included Indicators (32)

ON-Marg Dimension	Definition	Included Indicators
Residential Instability	Concentration of people in an area who experience high rates of family or housing instability	• Proportion of population living alone • Proportion of population who are not ages 5 to 15 • Average number of people per dwelling • Proportion of dwellings that are apartment buildings • Proportion of the population that is single, divorced or widowed • Proportion of dwellings that are not owned • Proportion of the population who moved during the past 5 years

ON-Marg Dimension	Definition	Included Indicators
Material Deprivation	Inability of individuals and communities to access basic material needs	• Proportion of population age 20 and older without a high school diploma • Proportion of families that are lone parent families • Proportion of total income for people age 15 and older from government transfer payments • Proportion of population age 15 and older who are unemployed • Proportion of population considered low income • Proportion of households living in dwellings in need of major repair
Dependency	Concentration of people in an area who do not get income from employment, including seniors, children and adults whose work is not compensated	• Proportion of population age 65 and older • Dependency ratio (total population ages 0 to 4, and 65 and older/total population ages 15 to 64) • Proportion of population age 15 and older not participating in the labour force
Ethnic Concentration	Area-level concentration of people who are recent immigrants and/or people belonging to a visible minority group (defined by Statistics Canada as "persons, other than aboriginal peoples, who are non-Caucasian in race or non-white in colour")	• Proportion of the population who are recent immigrants, having arrived in the past 5 years • Proportion of people who self-identify as a visible minority

Spotlight on Cancer Screening in First Nations, Inuit, Métis and Urban Indigenous Peoples

Shared with permission from the Grand Council Treaty #3 Cancer Survivorship Campaign

While historically uncommon in Indigenous populations in Ontario, cancer is now a leading cause of morbidity and mortality (33,34). Ontario Health's *First Nations, Inuit, Métis and Urban Indigenous Cancer Strategy* identifies cancer screening as one of seven priority areas for improving cancer care (35). The Canadian Partnership Against Cancer has also identified the lack of cancer screening programs for First Nations, Inuit and Métis peoples as a key gap in cancer control in Canada (36).

Although cancer screening has been shown to be effective in reducing cancer burden and there are four organized cancer screening programs in Ontario, Indigenous people in Ontario experience disparities in cancer screening. First Nations people living off-reserve are less likely than other people in Ontario to have completed cervical, colorectal and breast cancer screening (37). Métis women are less likely to be screened for colorectal and breast cancer than other women in Ontario (27,30,37,38). Although similar data for cervical, colorectal and breast cancer screening are not available for Inuit in Ontario, other Canadian data suggest that Inuit may be less likely to be screened than the general population (22,39).

Lung cancer screening has only recently been introduced in Ontario and there are no data on the participation of First Nations, Inuit and Métis people at the population level. This work has been foundational in terms of describing screening in Indigenous populations in Ontario, but it has methodological limitations, such as lack of or limited datasets with First Nations, Inuit and Métis identifiers in Ontario, relying on postal codes geography to approximate Indigenous identity and relying on self-reported screening participation data.

Many factors might contribute to observed disparities in cancer screening for Indigenous people. They can be classified in terms of individual barriers (e.g., limited awareness of cancer screening, fear, distrust in the health system), community or interpersonal barriers (e.g., competing priorities, negative experience with health care providers), structural barriers (e.g., shortage of health care providers in or near communities, poor integration of services, difficulties with travel required for screening, lack of cultural safety throughout cancer care systems) and social or historical factors (e.g., consequences of colonialism, such as legislated health inequities resulting from Indian hospitals and intergenerational trauma resulting from the residential school system) (40–42). Further exploration and attention to improving the cancer screening experience for Indigenous people in Ontario is warranted.

Overview of Ontario Health's Indigenous Cancer Screening Work

In line with strategic priority 4 in Ontario Health's *First Nations, Inuit, Métis and Urban Indigenous Cancer Strategy 2019-2023*, Ontario Health's Indigenous Cancer Care Unit (ICCU) continues to work with First Nations, Inuit, Métis and urban Indigenous communities throughout Ontario to understand and address barriers to cancer screening. This work includes efforts to improve access to and participation in screening, improve coordination and integration of screening services, and support specific initiatives to improve the organized screening programs so that they better meet the needs of First Nations, Inuit, Métis and urban Indigenous peoples. Examples of these efforts include the Sioux Lookout and Zone Screening Activity Report, the Sioux Lookout and Area fecal immunochemical test kit initiative, the

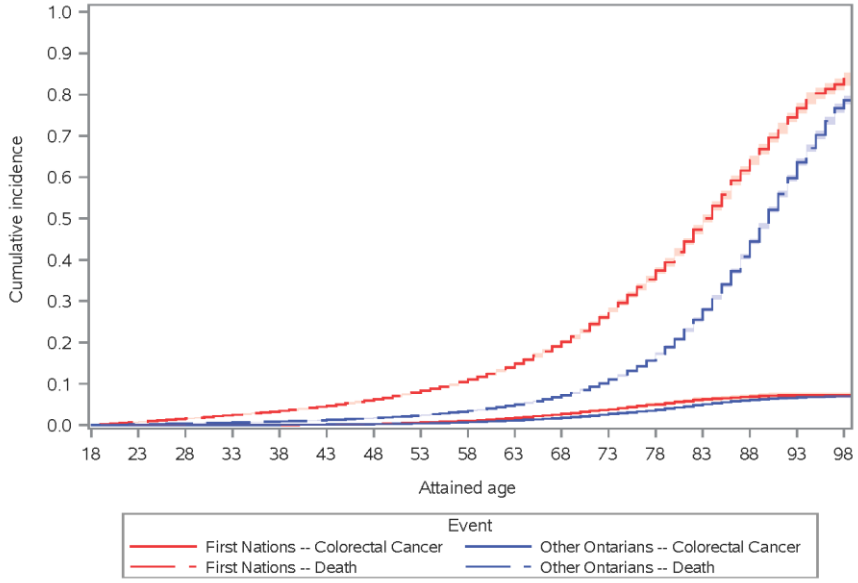
development of distinct First Nations, Inuit and Métis-specific screening education resources, and a collaborative Canadian Institutes of Health Research-funded program that aims to understand and better support cancer screening in Indigenous communities in Ontario. We have provided a brief overview of three selected projects as examples of the ICCU's work with First Nations, Inuit and Métis community partners and have highlighted urban Indigenous community involvement throughout each project overview.

"Catching Cancers Early" Research Project

The Catching Cancers Early research project is co-led by the ICCU, scientists from the screening programs at Ontario Health and the Sunnybrook Research Institute, and it is funded by the Canadian Institutes of Health Research. It was initiated at the direction of the Joint Ontario Indigenous Cancer Care Committee (JOICC), which provides input and guidance to Ontario Health as it develops, implements and evaluates its Indigenous cancer strategies.

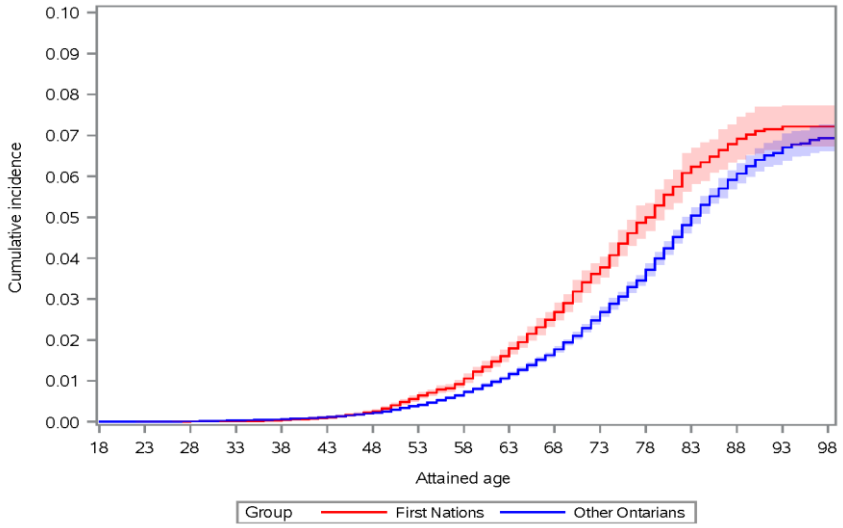
JOICC highlighted concerns from Indigenous communities across Ontario that screening program cancers are presenting in community members before they reach screen-eligible ages, these cancers present at later stages and community members experience challenges accessing screening services in the province. These reports are concerning because cancer screening has been shown to improve outcomes by either preventing cancer or detecting it at an earlier stage when treatment is more likely to be effective. To investigate these concerns, the research team examined the time to screening cancer diagnosis in matched cohorts of First Nations and other people in Ontario, accounting for the competing event of death. Datasets held at IC/ES linked to Ontario Health screening program datasets were used. Indigenous datasets were used in accordance with formal data governance and data sharing agreements, and research was carried out collaboratively with communities. This project also included additional research aims, which are reported elsewhere.

Figure 7: Example* of Cumulative Incidence of Colorectal Cancer Diagnosis (Primary Event) and Death (Competing Event), Comparing First Nations People To Other People in Ontario



*** Similar curves were generated for breast, cervix and lung cancers and are summarized in Table 8.**

Figure 8: Example* of Cumulative Incidence of Colorectal Cancer Taking Death As The Competing Event, Comparing First Nations People To Other People in Ontario



* Similar curves were generated for breast, cervix and lung cancers and are summarized in Table 8.

First Nations people are 42% more likely to develop colorectal cancer compared to other people in Ontario (adjusted hazard ratio of 1.42, 95% CI 1.32 – 1.53).

The findings from this work validate concerns that Ontario Health's First Nations partners about their community members developing certain screening program cancers at an earlier age and later stage than other people in Ontario (see Figure 8 and Table 8). These findings are concerning and merit closer attention. Investigators have shared the results from this study with the screening programs, which are reviewing the results and considering implications for screening recommendations for Indigenous people in Ontario.

Table 8: Summary of Selected Study Findings: "Catching Cancers Early"

Screening program cancer type	Age at diagnosis for First Nations people compared to other people in Ontario	Cancer stage of diagnosis for First Nations people compared to other people in Ontario
Breast	No difference	No difference
Cervical	First Nations women are diagnosed at a younger age	No difference
Colorectal	First Nations people are diagnosed at a younger age	First Nations people are diagnosed at later cancer stages
Lung	First Nations people are diagnosed at a younger age	First Nations people are diagnosed at later cancer stages

First Nations people experience higher risk of death from causes other than cancers covered by Ontario Health screening programs (breast, cervical, colorectal, and lung cancer).

Building Pathways to an Inuit-Informed Lung Cancer Screening Initiative in Ontario

This project is co-led by Akausivik Inuit Family Health Team and Ontario Health's Indigenous Cancer Care Unit, and is funded by the Canadian Partnership Against Cancer. Approximately 73% of Inuit in Canada live in 53 communities across the northern regions of Canada in Inuit Nunangat. A growing percentage of Inuit live in other parts of Canada, particularly in southern urban centres (43). According to the 2021 census, Ottawa-Gatineau had the largest Inuit population in a southern urban centre (44). The Ontario Lung Screening Program (OLSP) is for people ages 55 to 74 who have accumulated at least 20 years of tobacco smoking. The program was launched after a multi-site pilot for people at high risk for lung cancer. Approximately 4% of participants in the pilot identified as First Nations, Inuit or Métis, with Inuit participation being very low (45).

First Nations, Inuit and Métis populations are often under-represented in screening programs and experience barriers in accessing screening services. Smoking rates in these populations are the highest in the province (27,30,38). Given the higher prevalence of smoking and higher incidence of lung cancer in these populations, more effort and tailored recruitment strategies are necessary. Akausivik Inuit Family Health Team, the province's only Inuit primary care provider, has raised concerns that the provincially established age criteria set for participation is too high (especially because Inuit life expectancy is 10 years lower than other people in Canada) and that a risk predictor criterion (as opposed to age-based criterion only) would enable more Inuit participants. These discussions also revealed other barriers to cancer screening participation stemming from Inuit-specific determinants of health, such as jurisdictional challenges and a mistrust of colonial systems.

The three project aims are to:

1) Develop an increased understanding of the systemic barriers within the journey to lung cancer screening participation, to receiving test results, to treatment and to follow up care for Inuit in the Ottawa/Champlain region of Ontario from the perspective of both a) health care providers who serve Inuit and b) Inuit community members.

2) Examine lung cancer risk factors among Indigenous people and apply them to the existing risk prediction model to assess feasibility of younger age eligibility for lung cancer screening in this population.

3) Use the knowledge gained to identify a suitable model and age for starting screening. Data for aim 2 will come from retrospective clinical chart review from the Akausivik Inuit Family Health Team to assess risk for Inuit in the Ottawa/Champlain region of Ontario and longitudinal cohort data from the *Ontario Health Study on First Nations, Inuit and Métis Peoples in the Province.*

Métis Cancer Screening Research Project

The Métis Cancer Screening Research Project was co-led by Métis Nation of Ontario, Sunnybrook Research Institute and the Ontario Health's Indigenous Cancer Care Unit and was funded by the Canadian Institutes of Health Research. Embedded within a larger Canadian Institutes of Health Research-funded community-policy-research grant that focused on improving cancer screening in Ontario First Nations, Inuit and Métis communities, the Métis Cancer Screening Research Project built on Métis Nation of Ontario's program of participatory research to explore perceptions of and experiences with cancer screening in the Métis Nation of Ontario (citizens, families and the community at large).

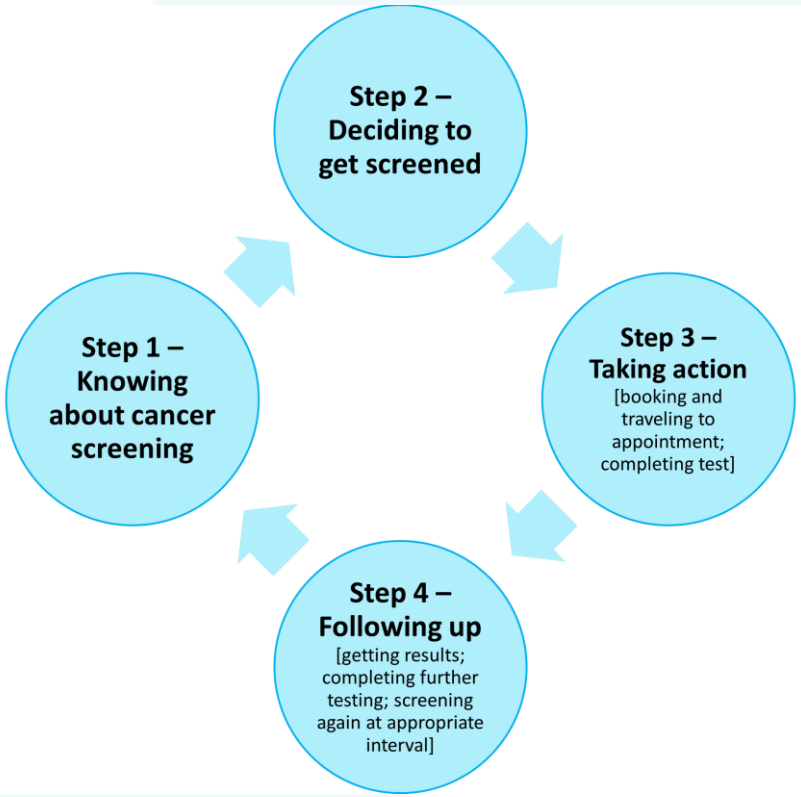
Relationships, Governance and Research Approach

The research partners developed a research collaboration agreement that formalized a commitment to respecting Métis collective and self-determined data management and governance. The Métis Cancer Screening Research Project Working Group designed and implemented the project with ongoing direction from leadership from each of the project partners. Mixed methods were used to learn about barriers and facilitators of cancer screening in Métis Nation of Ontario communities. Focus groups and surveys were conducted with 66 Métis Nation of Ontario healing and wellness frontline workers and Métis Nation of Ontario citizens across Ontario.

Summary of Key Findings

Using Ontario Health's proposed 'ideal state' cancer screening pathway as a frame of reference, the research data were analysed collaboratively. The pathway was streamlined into four key steps in cancer screening, as understood by the Métis Nation of Ontario (Figure 9).

Figure 9: Key Steps in the Cancer Screening Pathway, as Understood by Métis Nation of Ontario Citizens



Factors that impede participation in cancer screening among the Métis Nation of Ontario, as well as those that serve as supports, were identified in relation to this streamlined pathway. Three overarching factors that are central to cancer screening experiences among the Métis Nation of Ontario were identified and are included along with an illustrative participant quote.

1) Awareness and perceptions (e.g., education needed for providers who serve Métis Nation of Ontario citizens about Métis culture and healthcare experiences; screening education needed for Métis Nation of Ontario citizens).

"…in the Métis community, you have to find a more creative way to connect…using…storytelling or symbolisms…might hit home…a little bit better than just having a poster, or an ad with some statistics…" (MNO Healing & Wellness staff)

2) Access to cancer screening services (e.g., geographic and socioeconomic factors that make it difficult to access primary care and screening).

"I think a huge barrier in the north, and I hear time and again…it's transportation…for the Métis. How to get there. It's not easy. They can't just hop a bus and get to this." (MNO citizen)

3) Cultural safety of cancer screening services (e.g., cultural safety among providers and health systems needed to respect and support Métis Nation of Ontario citizens throughout the screening process).

"You're treated like a piece of meat and it's just like bang, bang, bang and there's no information passed to the family, to the patient all the way through that whole process and it's just…so rushed…" (MNO citizen)

This research identified key service gaps and culture-based strategies for improving cancer screening services among Métis Nation of Ontario. Several recommendations to improve cancer screening uptake for Métis Nation of Ontario were proposed, and are detailed in the community research report.

Cancer Screening Among First Nations, Inuit, Métis and Urban Indigenous Peoples: Focused Cancer and Screening Resources

Cancer and Screening Toolkit

The toolkit helps people talk with their health care providers about cancer screening. It has culturally appropriate cancer information for First Nations, Inuit, Métis and urban Indigenous peoples, and their health care providers.

Steps in Cancer Screening – Guide for First Nations Community Members in Northwestern Ontario

The screening guide outlines the steps in breast, colorectal and cervical screening. It provides information for First Nations communities in Northwestern Ontario. It was developed in partnership with Wequedong Lodge of Thunder Bay as part of a cancer screening research project.

Cancer Screening Posters and Postcards

These culturally appropriate, Nation-distinct posters and postcards promote cancer screening and support prevention initiatives in First Nations, Inuit, Métis and urban Indigenous communities. Health centres, Friendship Centres, community centres and other groups that support these communities can use the posters and postcards to raise awareness about the importance of cancer screening.

Cancer Screening Fact Sheets

The fact sheets provide summaries of breast, colorectal and cervical screening. Each set of fact sheets is customized with culturally appropriate information for First Nations, Inuit or Métis peoples.

Cancer 101 Toolkit for First Nations, Inuit and Métis Peoples

The toolkit provides basic cancer information for First Nations, Inuit and Métis peoples. It can be used to learn or help teach others about cancer, and how to prevent and treat it.

Cancer Comic Books

Silent Enemy is a comic designed to provide education and awareness to First Nations youth about cancer. ᓇᒧᖖᒐᐅᕙᒡᓚᐊᓂᖅᐳᑦ (*Our Journey*) is a comic that aims to provide education and awareness about cancer prevention, screening, treatment and survivorship for Inuit community members and their families. *Miyoo Kiikew (Well-Healed)* is a comic that aims to provide education and awareness about cancer prevention, screening, treatment and survivorship for Métis community members and their families.

Health Equity Impact Assessment (HEIA) – Indigenous Lens Tool

The HEIA is a Ministry of Health decision support tool that guides users through the steps of identifying how a program, policy or similar initiative will impact population groups in different ways. The Indigenous Lens Tool supplement aims to support people using the HEIA to further consider Indigenous health experiences and perspectives, so they can more effectively identify and address unintended impacts of initiatives on the health and well-being of Indigenous people. The tool provides suggestions on how to include Indigenous knowledge and values about health and well-being in program and policy development, while also recognizing the diversity within First Nations, Inuit, Métis and urban Indigenous populations.

Ontario Cancer Screening Program Performance: 2017 to 2021

Integrated Evaluation Framework and Indicators

In 2008, with support from Cancer Care Ontario (now Ontario Health), the Canadian Partnership Against Cancer developed an integrated evaluation framework for cancer screening programs (46) in Canada through the Screening Performance Measures Group. This framework has been adopted by other screening programs. The goal of the framework is to promote consistency when reporting, calculating and interpreting cancer screening performance measures. The framework identifies five performance domains that reflect the screening pathway, and each performance domain has recommended performance indicators. In this report, this framework is used to present data on key cancer screening program performance indicators.

Table 9: Cancer Screening Program Evaluation Framework

Domain	Recommended Performance Measures
Coverage	• Participation • Retention
Follow-Up	• Proportion of results that are abnormal • Follow-up of abnormal results • Diagnostic interval (time between abnormal screening test result and diagnosis)
Quality of Screening	• Sensitivity of screening test • Positive predictive value of screening test
Detection	• Pre-cancer detection rate • Invasive cancer detection rate
Disease Extent at Diagnosis	• Early stage invasive cancer detection rate

Understanding Cancer Screening Performance in the context of the COVID-19 Pandemic

On March 11, 2020, the outbreak of coronavirus disease 2019 (COVID-19) was declared a global pandemic affecting countries worldwide, including Canada. In March 2020, the Ontario government directed all hospitals and regulated health care professionals to ramp down elective and non-emergent clinical services to limit the transmission of COVID-19, and to preserve health system capacity to treat COVID-19 cases and other critical illnesses. In response, Ontario Health recommended that all routine cancer screening services be deferred as of March 23, 2020. It also suspended the mailing of cancer screening correspondence (except for normal and abnormal results letters) and fecal immunochemical test kits.

Following a decrease in COVID-19 transmission in Ontario at the end of May 2020, the gradual resumption of deferred health services was permitted. Ontario Health released several pandemic clinical guidance documents to support Regional Cancer Programs, health care providers and health system partners with the deferral, prioritization and gradual resumption of cancer screening and associated diagnostic services during all pandemic waves.

As a result of the directive to pause non-emergent health services, including cancer screening, substantial reductions in the overall volume of cancer screening tests and follow-up procedures were observed (47–51). Screening services were deferred from March 23 to May 26, 2020, with a phased approach to resumption according to Ontario Health guidance.

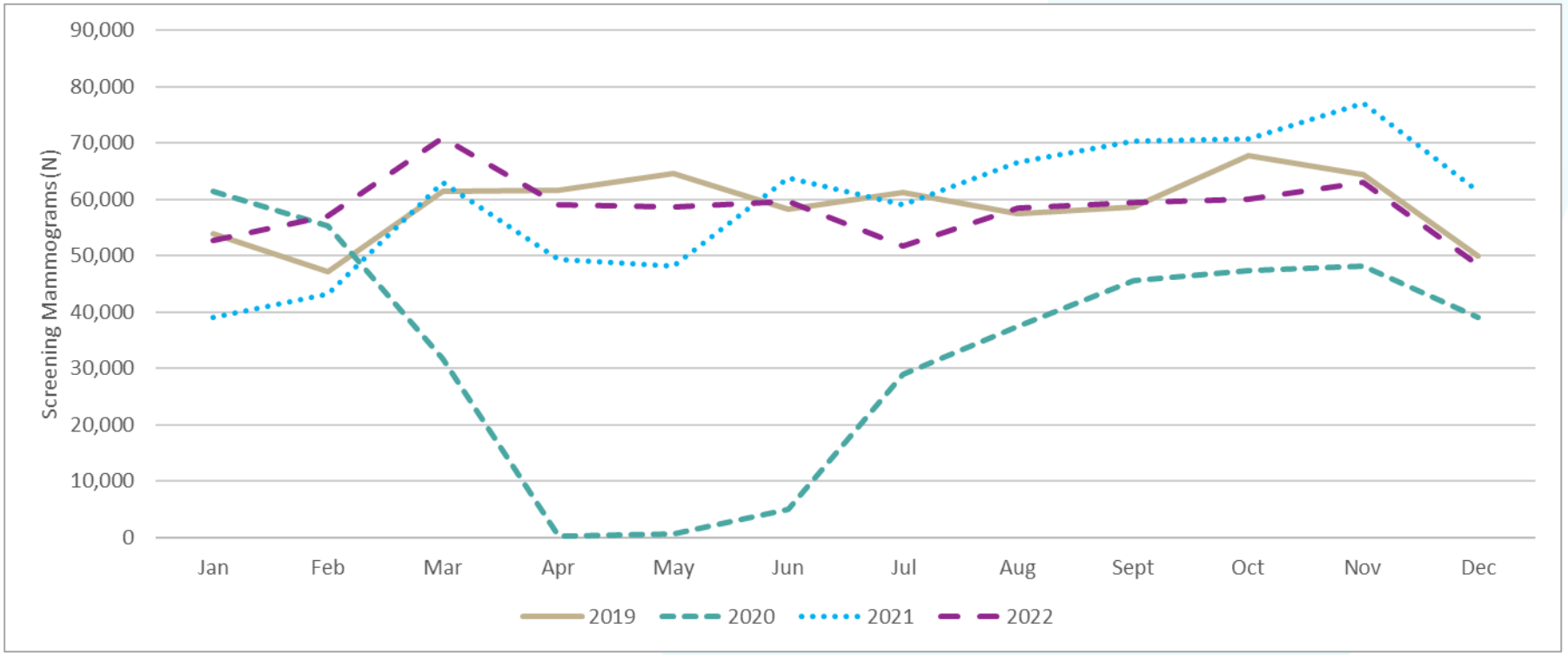
While some programs were able to recover screening volumes to pre-pandemic levels more quickly, recovery for other programs has taken longer. For example, recovery of cervical screening volumes may have been impacted by ongoing challenges with access to in-person health care visits due to the shift towards virtual models of care and limited opportunities for preventive care during ongoing pandemic waves. Resumption of mailing FIT kits was also done gradually to ensure that downstream health services would not be overwhelmed. The initial priority was to clear the backlog of requests for kits that had accumulated during the deferral of screening services, and it was not until October 20, 2020, that primary care providers were able to request FIT kits for all screen-eligible people. In addition, full resumption of all correspondence letter campaigns was not complete until September 2021.

Ontario Health continues to support the recovery of cancer screening services through ongoing initiatives to reduce backlogs and promote uptake of cancer screening among screen-eligible people, such as releasing monthly planning tools for all programs to help Regional Cancer Programs monitor and manage screening service backlogs. Additional activities included providing inserts with correspondence letters to promote screening, translating cancer screening awareness materials into more languages and providing additional tools for primary care providers; such as scripts for phoning patients who are overdue or due for screening and images to share on waiting room video monitors.

Ontario Breast Screening Program (OBSP) and High Risk OBSP Performance

OBSP Volumes

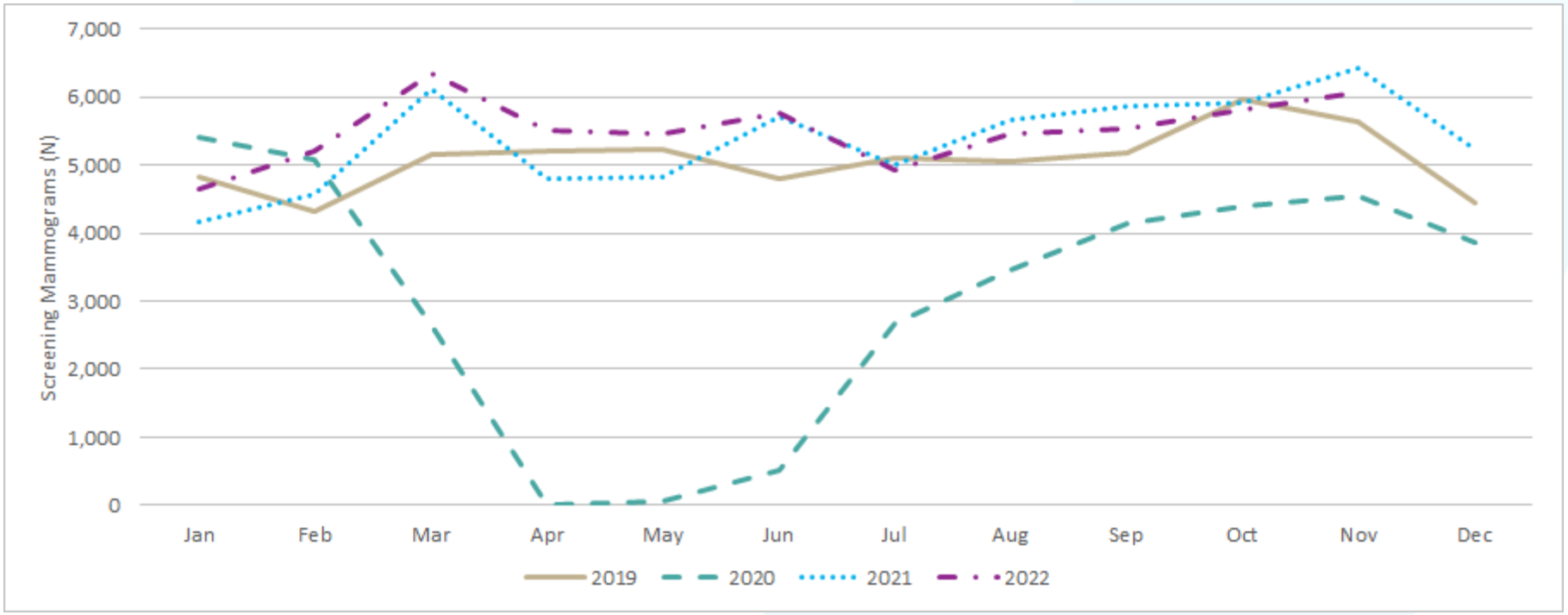
Figure 10: Number of Ontario Breast Screening Program (OBSP) and High Risk OBSP Screening Mammograms, by Month, 2019 to 2022



For data, see Table 3 in Appendix 1.

Mammogram volumes were reduced substantially from March to May 2020 due to the deferral of all non-emergent or urgent health care services in Ontario during this period. Volumes began to recover in June 2020 once cancer screening services were able to resume on a gradual basis, although mammogram volumes were still below 2019 levels as of December 2020. Volumes began to consistently meet or exceed pre-pandemic levels in mid-2021, with some fluctuation corresponding to pandemic waves and regular screening trends (e.g., travel patterns in winter and summer, fluctuations in recall volumes).

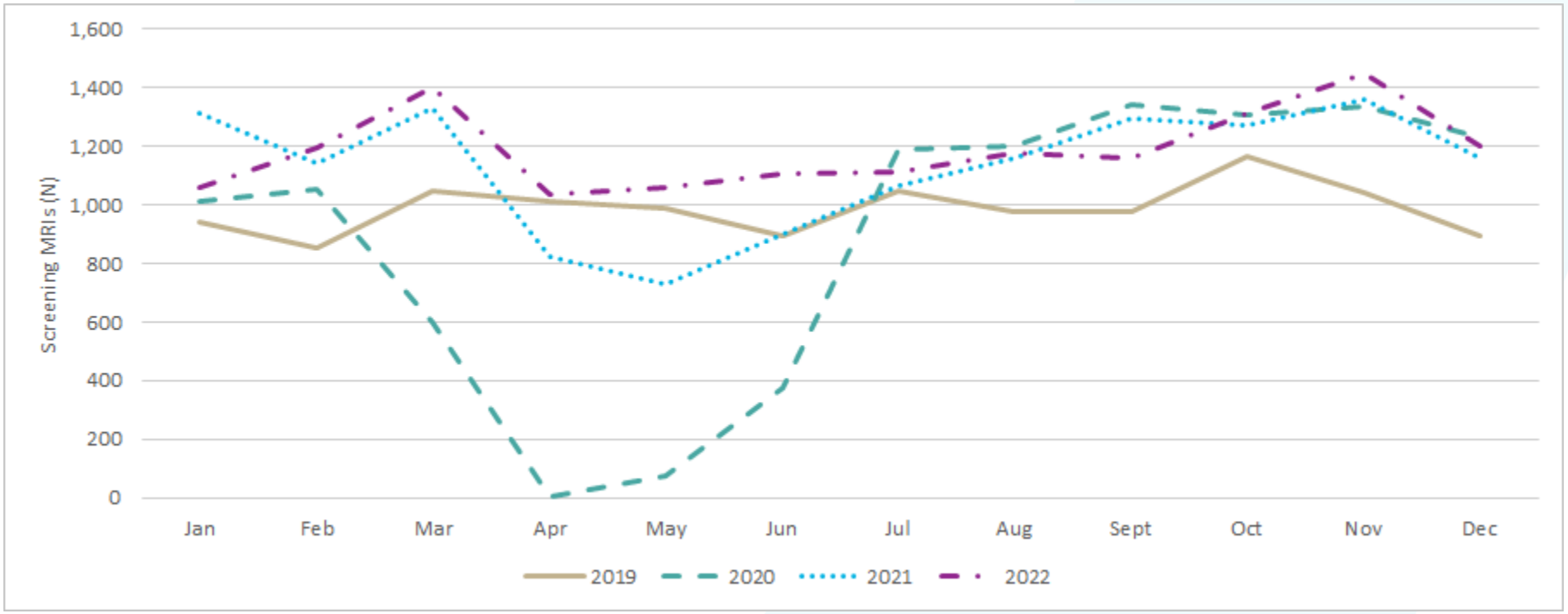
Figure 11: Number of Abnormal Screening Mammograms with Breast Assessment Performed in Ontario, by Month, 2019 to 2022



For data, see Table 4 in Appendix 1.

The volume of abnormal OBSP screening mammograms followed by breast assessment was impacted by the COVID-19 pandemic and the deferral of routine cancer screening services from March to May 2020. Volumes began to recover in June 2020 as screening gradually resumed, although volumes were still below 2019 levels by December 2020. Volumes had recovered by early 2021. Breast assessments for people with abnormal OBSP screening mammogram results were classified as the highest priority in Ontario Health's clinical guidance for prioritization of breast cancer screening services during the COVID-19 pandemic.

Figure 12: Number of High Risk OBSP Magnetic Resonance Imaging (MRIs) Performed in Ontario, by Month, 2019 to 2022

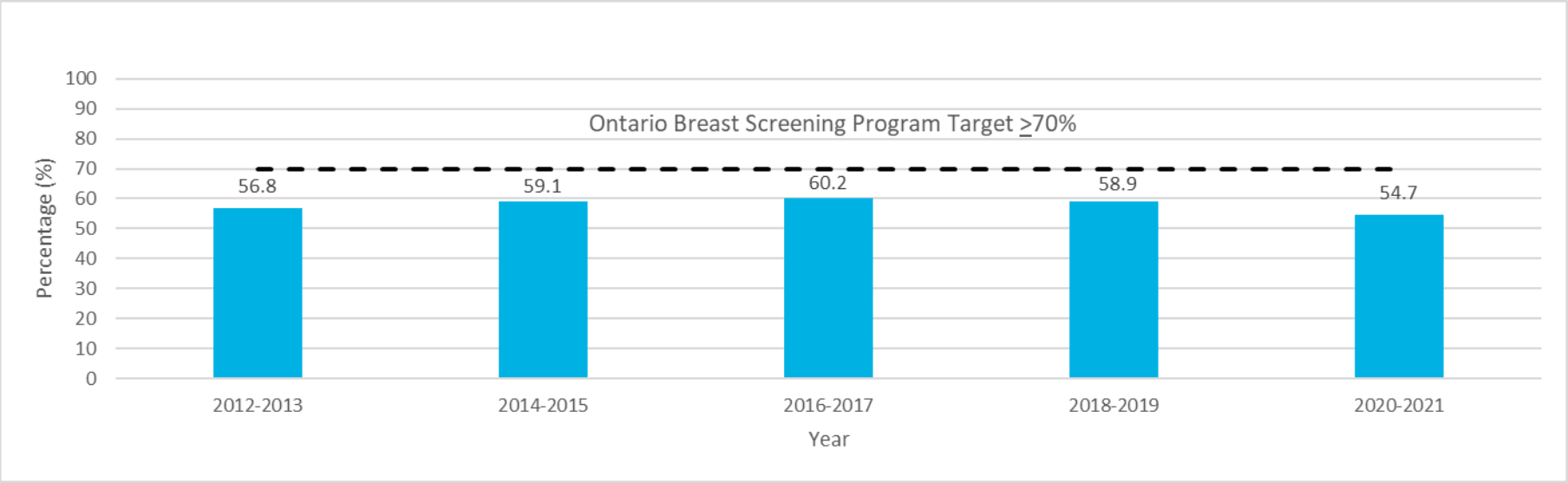


For data, see Table 5 in Appendix 1.

The volume of breast MRIs performed in the High Risk OBSP was impacted by the COVID-19 pandemic and the pause in routine screening services that occurred from March to May 2020, but it recovered to pre-pandemic levels by July 2020. High Risk OBSP screening breast MRI volumes recovered more quickly than screening mammogram volumes because these services were prioritized according to Ontario Health COVID-19 clinical guidance. Additionally, because there are fewer people eligible for the High Risk OBSP, the pandemic backlog was likely smaller.

OBSP Coverage

Figure 13: Percentage of Ontario Screen-Eligible Women*, Ages 50 to 74, Who Completed at Least 1 Mammogram Within a 30-Month Period, 2012–2013 to 2020–2021



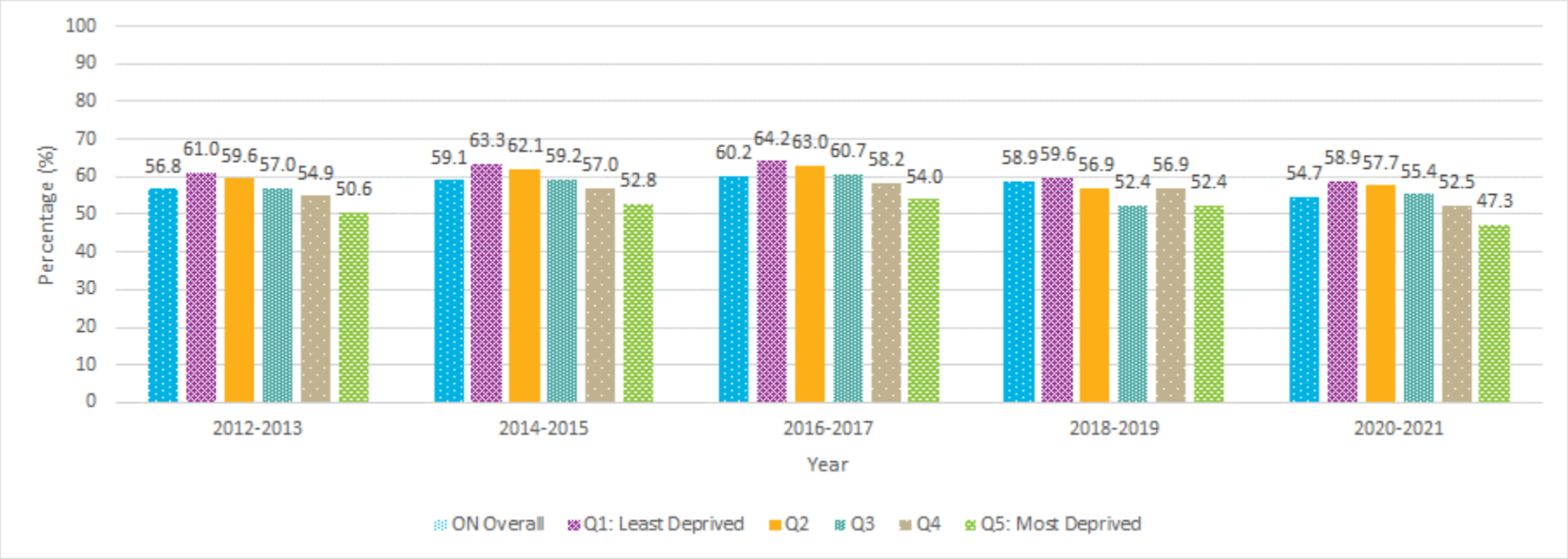
* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as "male" or "female" only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

For data, see Table 6 in Appendix 1.

In 2020–2021, 54.7% of screen-eligible people in Ontario had at least one screening mammogram within a 30-month period. Performance for 2020–2021 falls below the OBSP target of greater than or equal to 70% (52). Breast screening participation has varied over time; it was 56.8% in 2012–2013, then increased to 60.2% in 2016–2017 before decreasing again. The decrease observed in 2018–2019 (58.9%) and 2020–2021 (54.7%) is likely due to the deferral of cancer screening services during the first wave of the COVID-19 pandemic and the prioritization of services based on breast cancer risk according to Ontario Health pandemic clinical guidance during subsequent pandemic waves. Screening outside of the OBSP continues to decrease over time, with only 2.1% of all breast screening mammograms performed outside the program in 2020–2021 (data not shown). This means that most people accessing breast cancer screening in Ontario are receiving the full benefits of an organized screening program.

OBSP Participation - Equity Analyses: Material Deprivation

Figure 14: Percentage of Screen-Eligible Women* in Ontario, Ages 50 to 74, Who Completed at Least 1 Mammogram Within a 30-Month Period, by Material Deprivation, 2012–2013 to 2020–2021



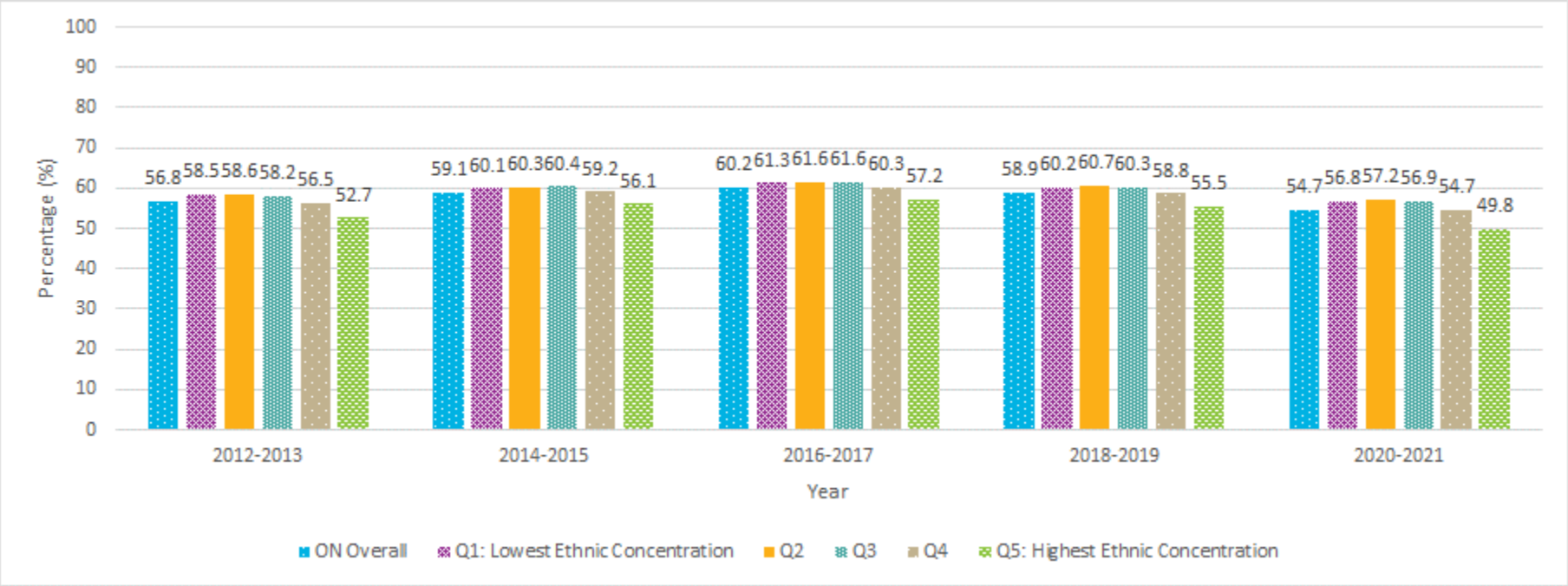
* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as "male" or "female" only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

For data, see Table 7 in Appendix 1.

In most reporting years, there was a relationship between breast cancer screening participation and material deprivation. People living in more materially deprived neighbourhoods had lower breast cancer screening participation rates than those living in less materially deprived neighbourhoods. Breast cancer screening participation rates in the most materially deprived neighbourhoods (Q5) were lower than the overall participation rates in Ontario and the OBSP target of greater than or equal to 70% (52). The gap in screening participation between people living in the least deprived (Q1) and the most deprived (Q5) neighbourhoods remained relatively consistent from 10.2% in 2012–2013 to 10.5% in 2018–2019, but increased to 11.5% in 2020–2021. This may be related to worsening of health disparities during the COVID-19 pandemic.

OBSP Participation - Equity Analyses: Ethnic Concentration

Figure 15: Percentage of Screen-Eligible Women* in Ontario, Ages 50 to 74, Who Completed at Least 1 Mammogram Within a 30-Month Period, by Ethnic Concentration, 2012–2013 to 2020–2021

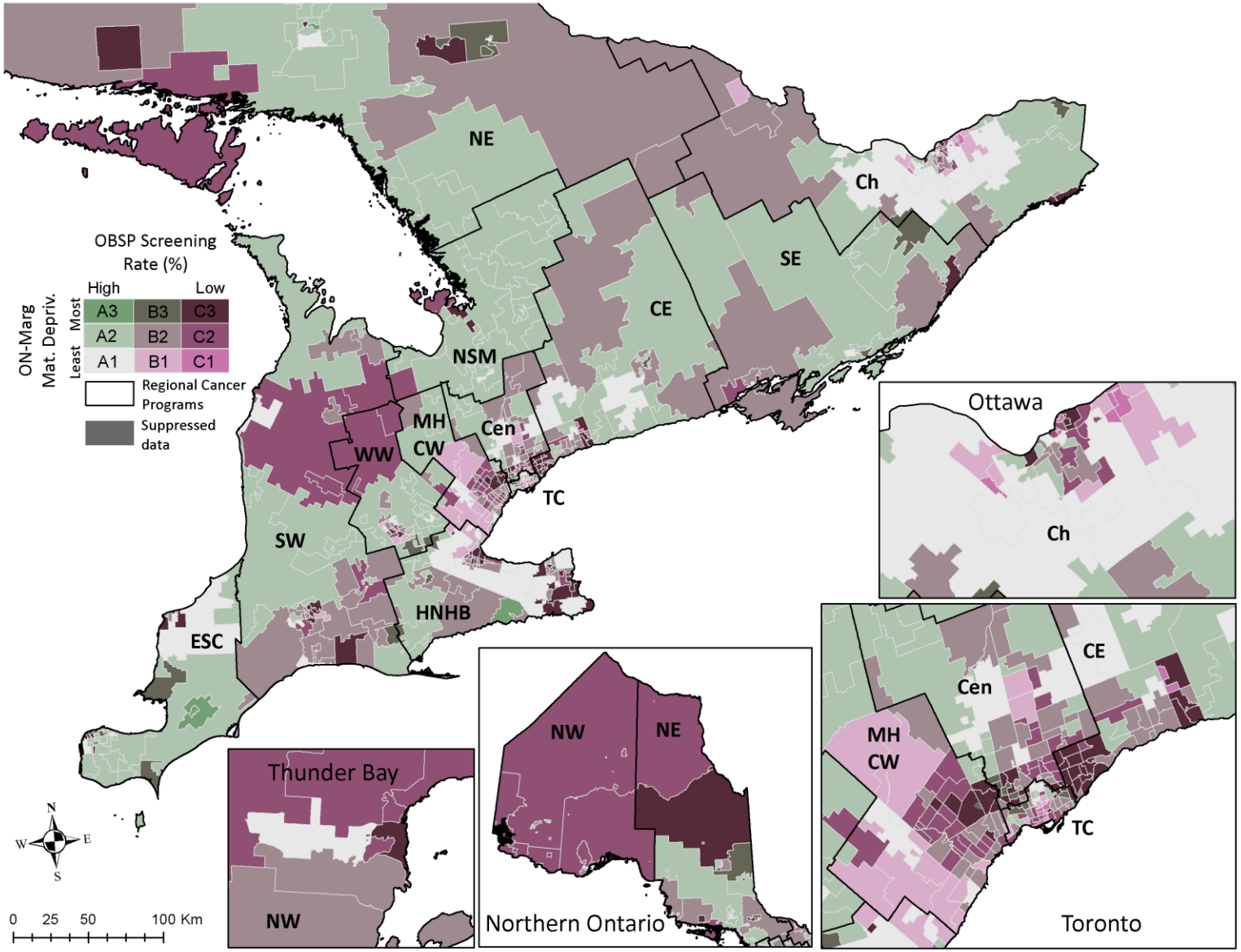


* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as "male" or "female" only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

For data, see Table 8 in Appendix 1.

Across all reporting years, people living in the most ethnically concentrated neighbourhoods (Q5) had lower breast cancer screening participation rates than people living in less ethnically concentrated neighbourhoods. Breast cancer screening participation rates in the most ethnically concentrated neighbourhoods (Q5) were lower than overall participation rates in Ontario and the OBSP target of greater than or equal to 70% (52). While the gap in screening participation between people living in the least ethnically concentrated (Q1) and most ethnically concentrated (Q5) neighbourhoods decreased from 5.8% in 2012–2013 to approximately 4% in 2014–2015 and 2016–2017, it increased to 7.0% in 2020–2021. This may be related to worsening of health disparities during the COVID-19 pandemic.

Figure 16: Map Showing Percentage of Screen-Eligible Women* in Ontario, Ages 50 to 74, Who Completed at Least 1 Mammogram Within a 30-Month Period by Material Deprivation



Regional Cancer Programs: ESC = Erie St. Clair, SW = South West, WW = Waterloo Wellington, HNHB = Hamilton Niagara Haldimand Brant, CW = Central West, MH = Mississauga Halton, TC = Toronto Central, Cen = Central, CE = Central East, SE = South East, Ch= Champlain, NSM = North Simcoe Muskoka, NE = North East, NW = North West

Data notes: Neighbourhoods are mapped at the forward sortation area level. Participation data is for the 2020-2021 reporting period. Bivariate choropleth (shaded) map. Major boundary lines reflect Regional Cancer Program boundaries. If you require data in an alternative format, please contact us by email (OH-CCO_ScreeningPerformanceReport@OntarioHealth.ca).

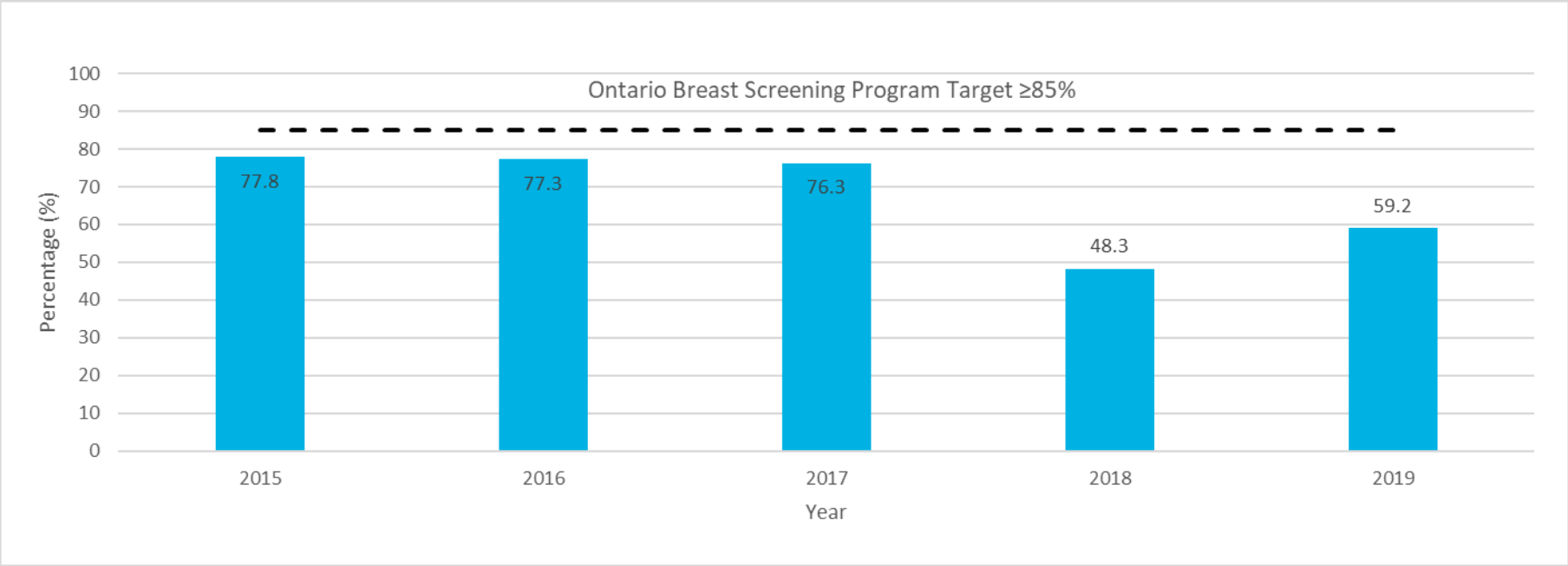
Breast Screening Participation

- **A (high participation): >57.8%**
- **B (medium participation): 52.5% to 57.8%**
- **C (low participation): <52.5%**

* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as "male" or "female" only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

Within the boundaries of each Regional Cancer Program, there are areas of high screening participation with low material deprivation, as well as areas of low screening participation with high material deprivation. The North West and North East Regional Cancer Programs have a large proportion of neighbourhoods containing the greatest level of material deprivation with low breast screening participation (less than 52.5%), including the area surrounding Thunder Bay. There are also clusters of neighbourhoods containing the highest level of material deprivation with low screening participation throughout the greater Toronto area, including neighbourhoods around the downtown core (Toronto Central Regional Cancer Program), West North York and North Etobicoke (Central Regional Cancer Program), Scarborough and parts of Oshawa (Central East Regional Cancer Program), Brampton and Mississauga (Mississauga Halton and Central West Regional Cancer Programs).

Figure 17: Percentage of Ontario Screen-Eligible People, Ages 50 to 74, Who Had a Subsequent Mammogram Within 30 Months of a Previous Program Mammogram, 2015 to 2019

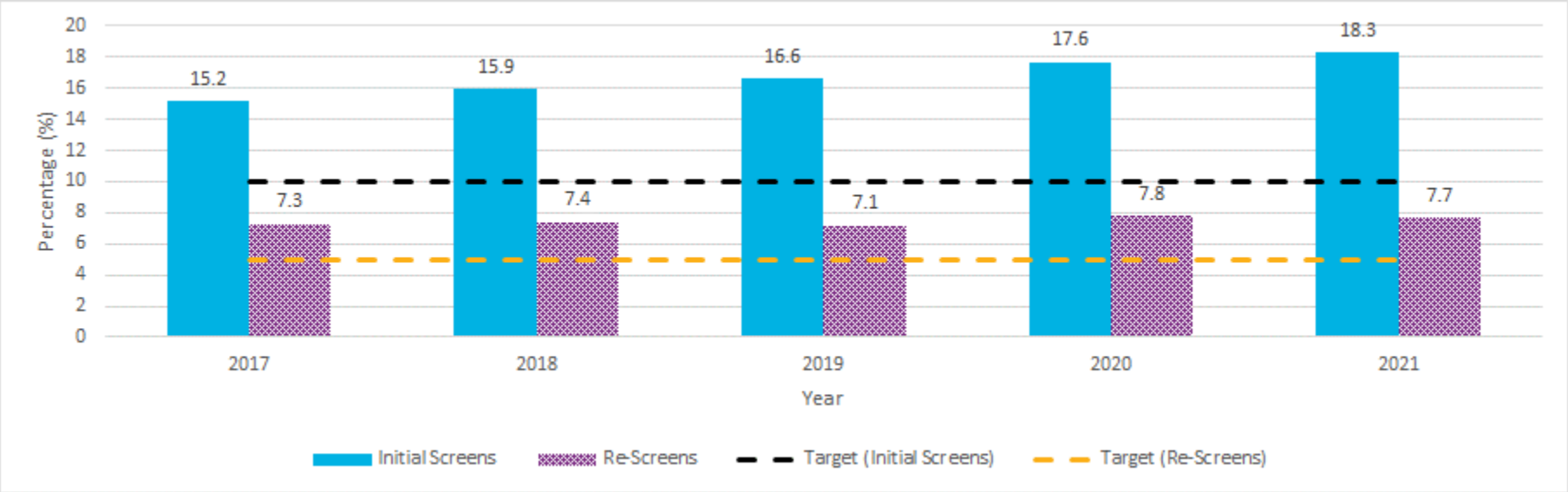


For data, see Table 9 in Appendix 1.

Breast cancer screening retention decreased (worsened) from 77.8% in 2015 to 59.2% in 2019 and did not meet the OBSP target of ≥85% (52). While retention was stable at approximately 76% to 78% from 2015 to 2017, it decreased to 48.3% in 2018. The 2018 reporting year reflects people who would have been due for a subsequent screen in 2020. Thus, this decrease may be due to impacts of the COVID-19 pandemic, including the deferral of cancer screening services during the first pandemic wave, participant or provider deferrals of screening during subsequent pandemic waves, prioritizing screening for people at highest risk for breast cancer according to Ontario Health pandemic guidance, and the pause and gradual restart of cancer screening correspondence. Retention improved by more than 10 percentage points from 2018 to 2019, suggesting that screening retention is beginning to recover.

OBSP: Follow-Up of Abnormal Results

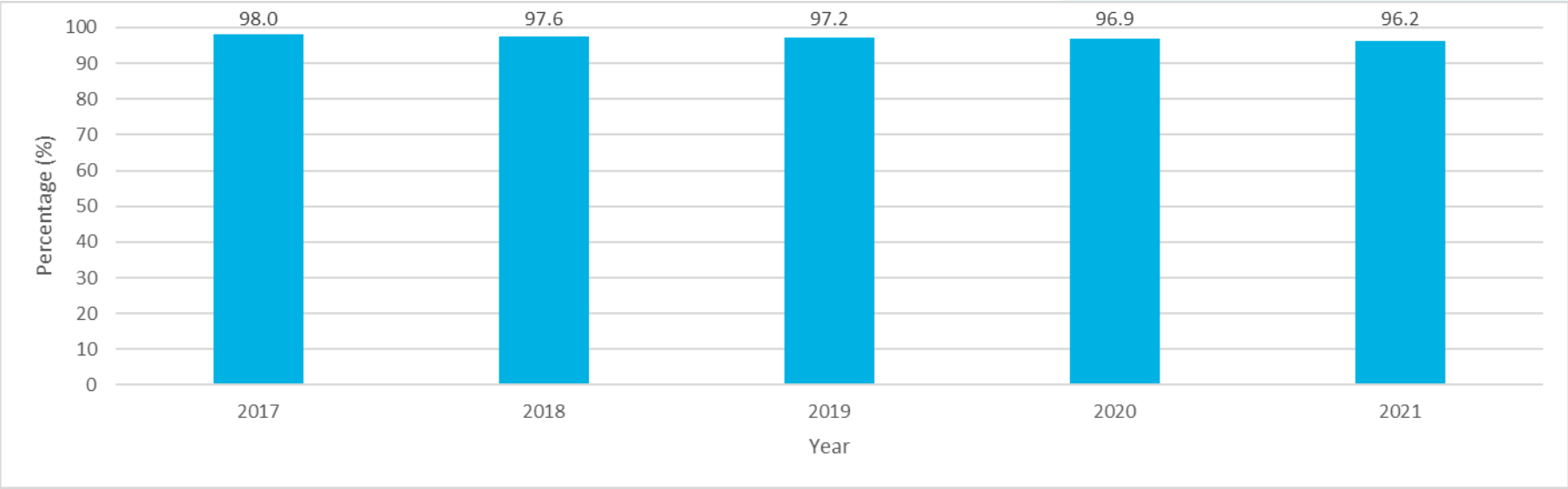
Figure 18: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Ontario Breast Screening Program Mammogram Result, 2017 to 2021



For data, see Table 10 in Appendix 1.

Abnormal call rate measures the percentage of OBSP participants referred for further testing after an abnormal screening mammogram. This indicator is an important measure of screening program performance because screening programs with very low abnormal call rates may have lower cancer detection rates and higher post-screen cancer rates, and programs with very high abnormal call rates may have higher rates of potential harms to screening participants. In the OBSP, the abnormal call rate for initial screens increased from 15.2% in 2017 to 18.3% in 2021. Performance on this indicator did not meet the program target of less than 10% (52). The abnormal call rate for re-screens remained stable from 2017 (7.3%) to 2019 (7.1%) and increased in 2020 (7.8%) and 2021 (7.7%). The abnormal call rate for re-screens did not meet the national or program target of less than 5% (52). The increase in abnormal call rate for re-screens in 2020 and 2021 may reflect prioritizing mammograms for participants at higher risk for breast cancer screening during the pandemic according to Ontario Health guidance.

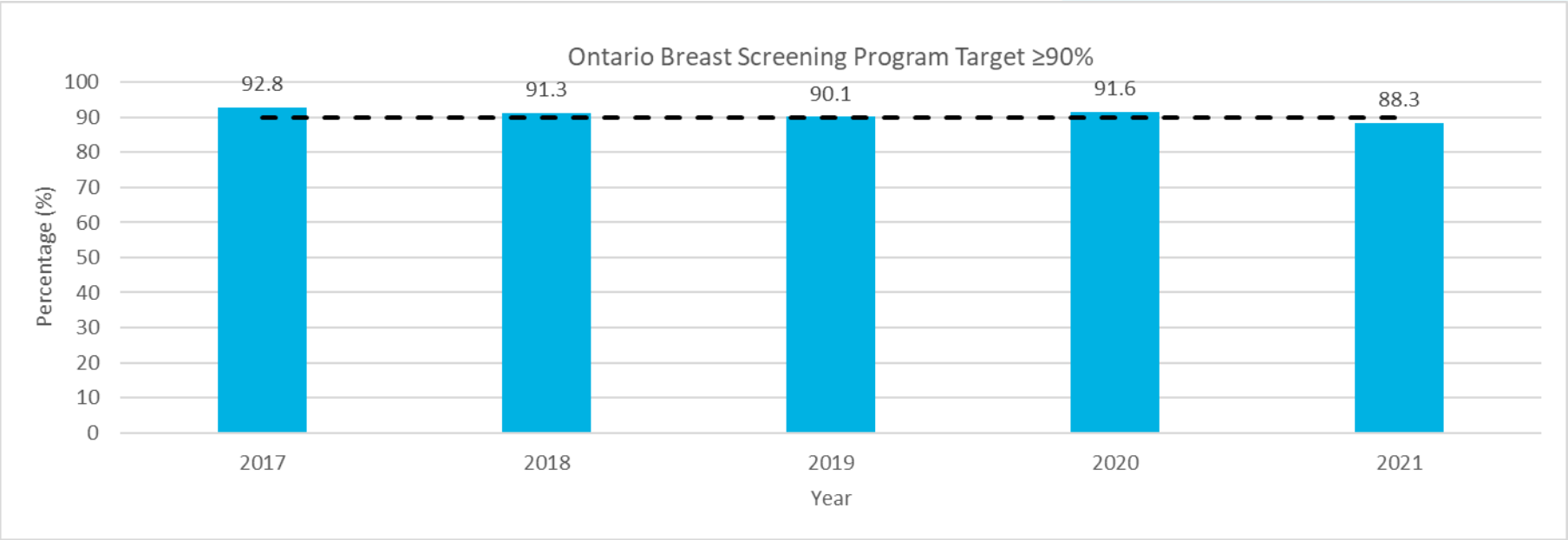
Figure 19: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Who Were Diagnosed (Benign or Cancer) Within 6 Months of the Abnormal Screen Date, 2017 to 2021



For data, see Table 11 in Appendix 1.

The percentage of people with an abnormal OBSP screening mammogram who received a definitive diagnosis within six months has remained consistently high (greater than 95%) since 2017. The stable performance for this indicator through the COVID-19 pandemic in 2020 and 2021 likely reflects prioritizing follow-up of abnormal mammogram results based on Ontario Health guidance during the pandemic.

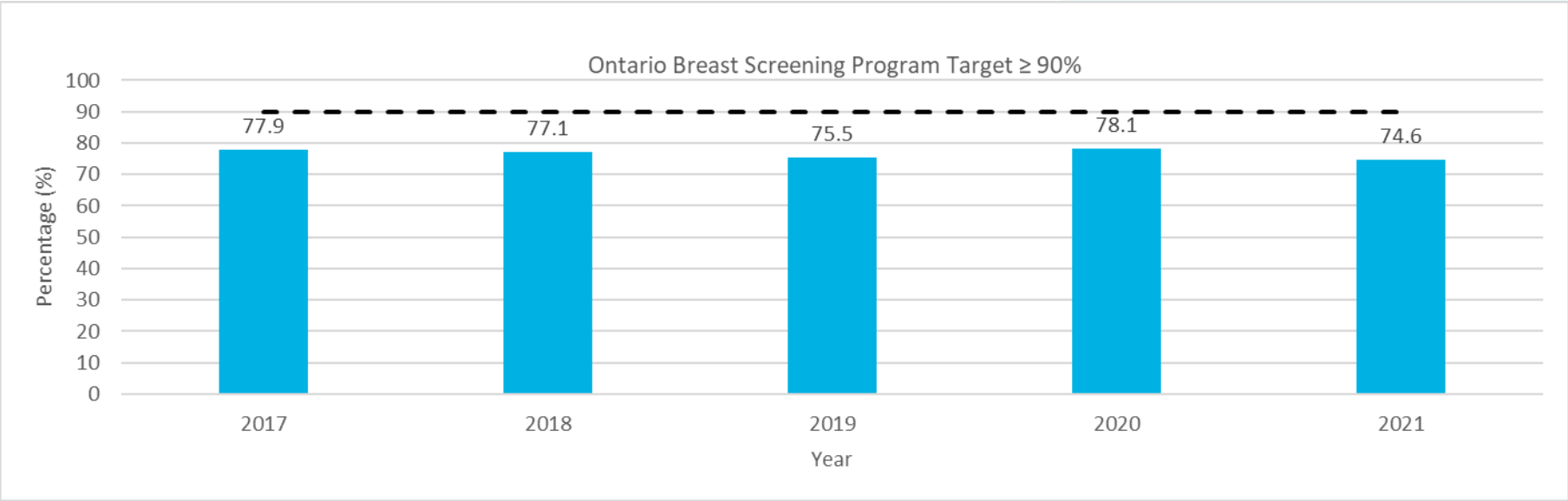
Figure 20: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Did Not Need Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 5 Weeks of the Abnormal Screen Date, 2017 to 2021



For data, see Table 12 in Appendix 1.

The percentage of people with an abnormal OBSP screening mammogram result who did not need a tissue biopsy and were diagnosed within five weeks was 88.3% in 2021. This is the first time since 2017 that performance did not meet the program target of 90% or greater (52). The decrease in performance in 2021 may reflect the higher number of abnormal mammograms in 2021 that did not require tissue biopsy, which could have led to increased wait times for breast assessment services. This decrease in performance may also have been partly due to the widespread health human resource challenges that currently exist in the Ontario health care system, which may have impacted wait times for breast assessment and diagnostic services.

Figure 21: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Needed Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 7 Weeks of the Abnormal Screen Date, 2017 to 2021

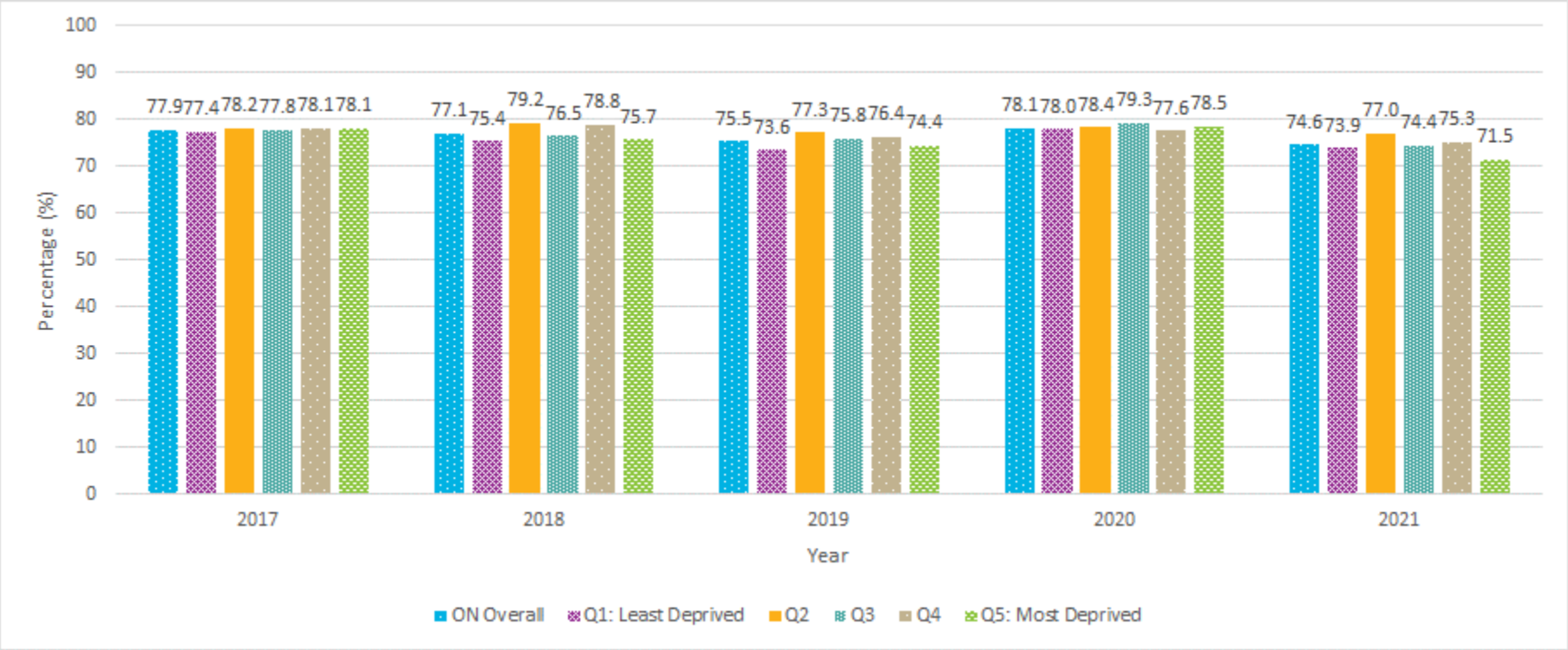


For data, see Table 13 in Appendix 1.

The percentage of people with an abnormal OBSP screening mammogram result who needed a tissue biopsy and were diagnosed within seven weeks of their abnormal screen date decreased (worsened) from 77.9% in 2017 to 74.6% in 2021. Performance for this indicator did not meet the program target of 90% or greater (52). There was a short-term increase (improvement) in performance for this indicator from 2019 to 2020, which may have been due to several factors, including prioritizing diagnostic assessments following abnormal screening mammograms during the pandemic according to Ontario Health guidance and the lower volume of screening mammograms performed in 2020 due to the deferral of all cancer screening during the first wave of the COVID-19 pandemic. The decrease in performance in 2021 may reflect the return of mammogram volumes to pre-pandemic levels and the widespread health human resource challenges that currently exist in the Ontario health care system which may have impacted wait times for breast assessment and diagnostic services.

OBSP Follow-Up of Abnormal Results – Equity Analyses: Material Deprivation

Figure 22: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Needed a Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 7 Weeks of the Abnormal Screen Date, by Material Deprivation, 2017 to 2021

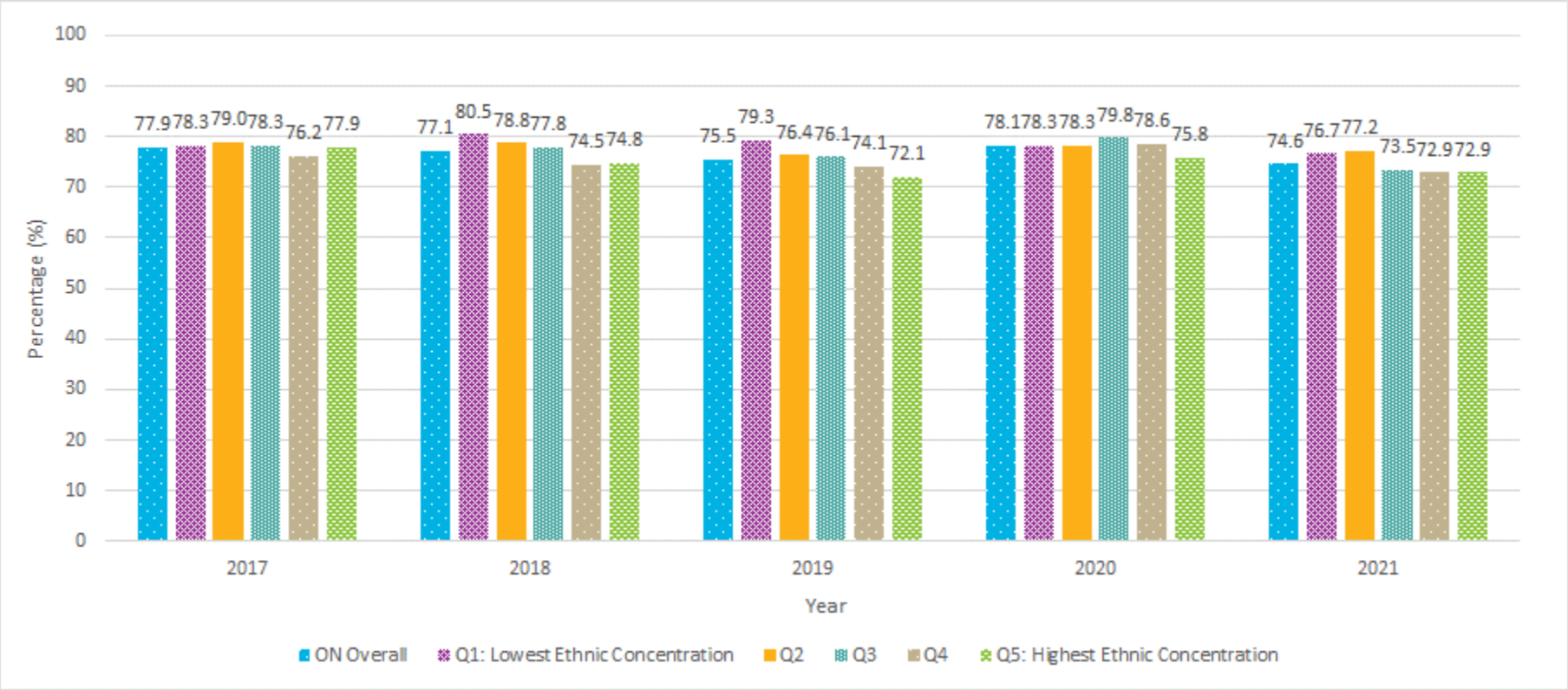


For data, see Table 14 in Appendix 1.

No consistent relationship was observed between neighbourhood material deprivation and diagnostic interval (seven weeks with tissue biopsy) in the OBSP. In the 2017 to 2020 reporting years, the percentage of people diagnosed within seven weeks of their abnormal mammogram was approximately the same between the least deprived (Q1) and most deprived (Q5) neighbourhoods; however, the percentage of people diagnosed within seven weeks was lower in the most deprived quintile in 2021. This finding will be monitored to assess whether it persists over time.

OBSP Follow-Up of Abnormal Results – Equity Analyses: Ethnic Concentration

Figure 23: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Needed a Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 7 Weeks of the Abnormal Screen Date, by Ethnic Concentration, 2017 to 2021

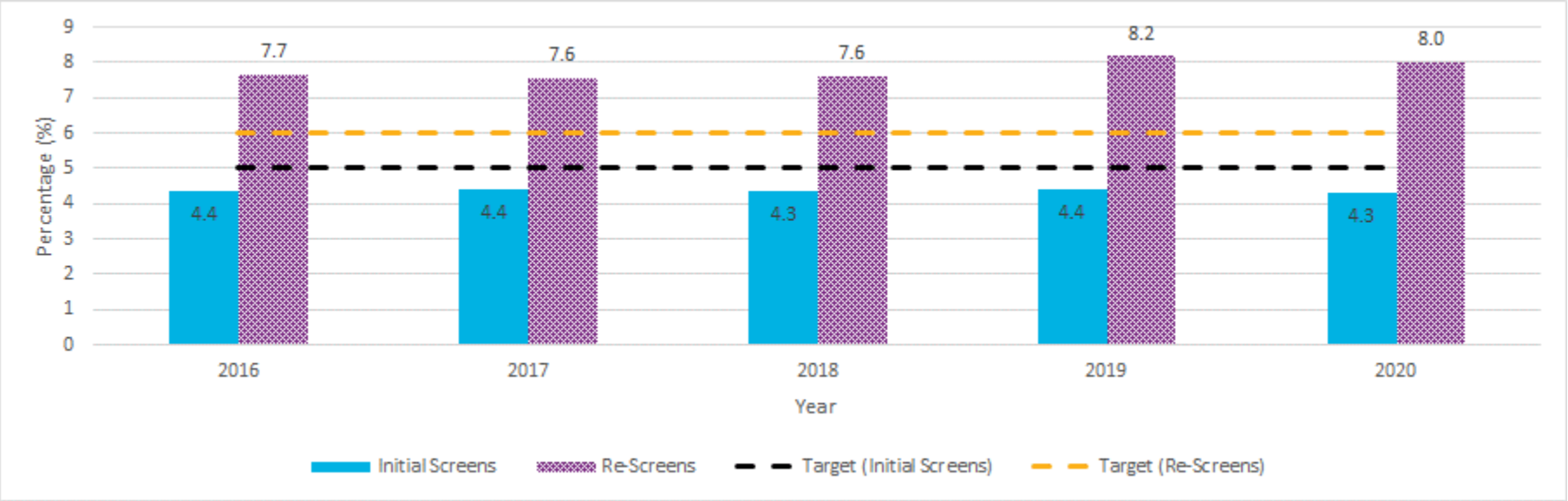


For data, see Table 15 in Appendix 1.

Across all reporting years, there was a relationship between neighbourhood ethnic concentration and diagnostic interval (seven weeks with tissue biopsy) in the OBSP. The percentage of people diagnosed within seven weeks of their abnormal screening result was higher in less ethnically concentrated neighbourhoods. The gap between the least concentrated (Q1) and most concentrated (Q5) neighbourhoods fluctuated over this period, with the largest gap observed in 2019.

OBSP: Quality of Screening

Figure 24: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Were Diagnosed With Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer) After Diagnostic Workup, 2016 to 2020

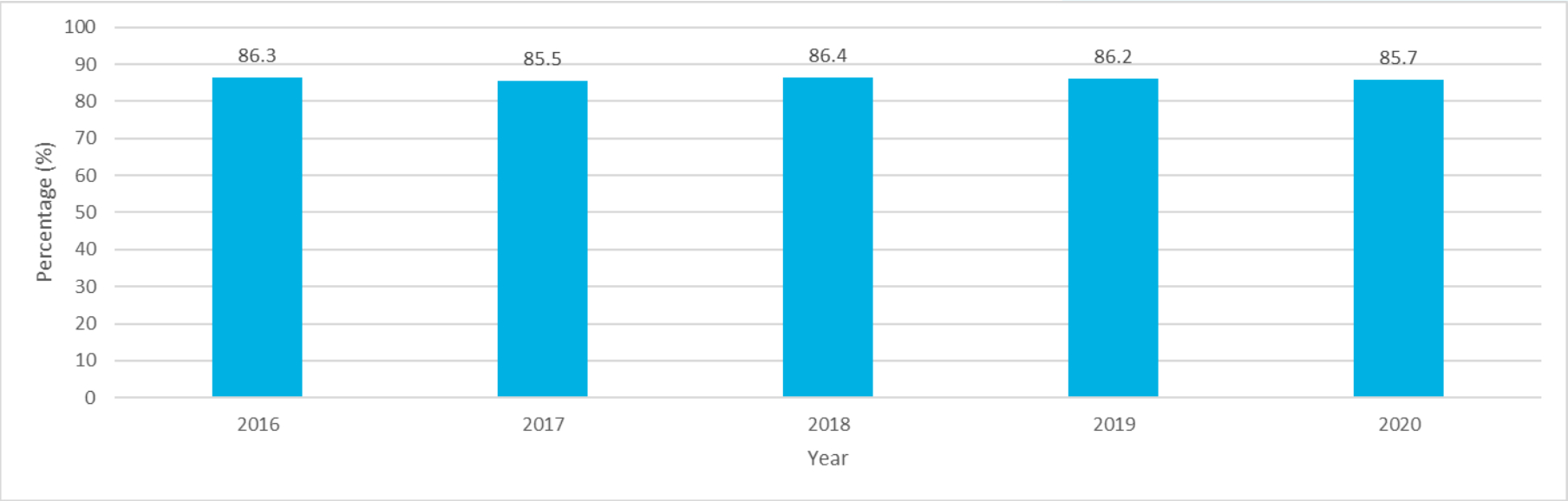


For data, see Table 16 in Appendix 1.

Positive predictive value (PPV) is the probability that someone with a positive cancer screening test has pre-cancer or cancer. The PPV of a screening test depends on the underlying prevalence of a disease in the population being screened and increases with age. The PPV for initial screens in the OBSP remained stable at 4.3% to 4.4% from 2016 to 2020. Performance on this indicator did not meet the program target of 5% or greater (52) for initial screens from 2016 to 2020.

PPV is typically higher for re-screens than initial screens, which is observed in Ontario. The PPV for re-screens in the OBSP remained consistent (from 7.6% to 7.7%) from 2016 to 2018 and then increased above 8% in 2019. Performance on this indicator for re-screens met the program target of 6% or greater (52) from 2017 to 2020. The increase in PPV for re-screens from 2019 to 2020 may be related to prioritization of screening for people at highest risk for breast cancer according to Ontario Health pandemic guidance, the return to screening by people who are overdue because of pandemic deferrals and population aging.

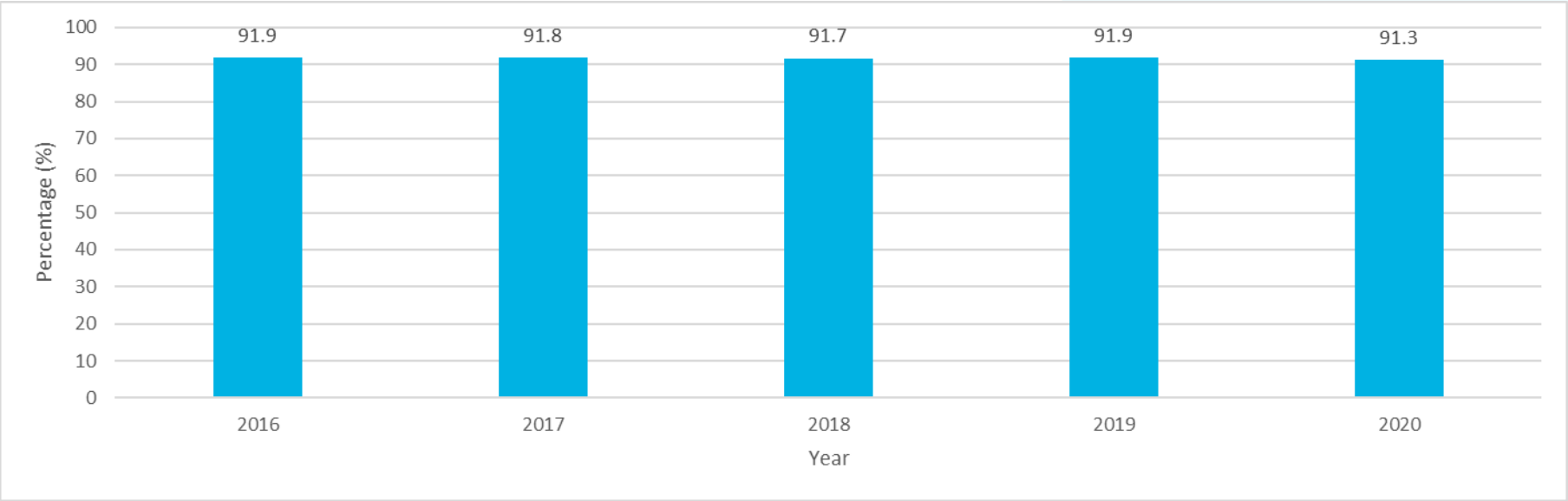
Figure 25: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Correctly Diagnosed With Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer) After an Abnormal Ontario Breast Screening Program Mammogram And Diagnostic Workup, 2016 to 2020



For data, see Table 17 in Appendix 1.

Sensitivity is the effectiveness of a screening test in detecting cancer in people who truly have cancer. Maintaining a high sensitivity for a screening test is important as this means there will be a lower rate of interval cancers (cancers found between routine screening tests). Mammogram sensitivity in the OBSP remained steady (from 85.5% to 86.4%) from 2016 to 2020.

Figure 26: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Without A Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer) Diagnosis Who Were Correctly Identified As Having A Normal Ontario Breast Screening Program Mammogram, 2016 to 2020

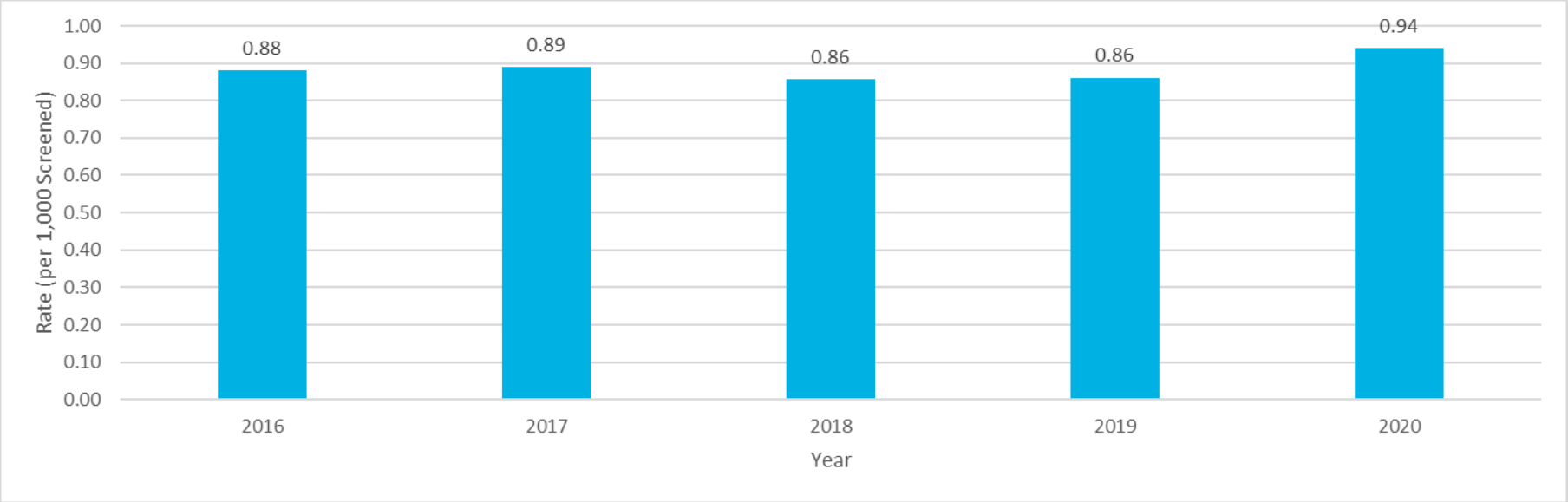


For data, see Table 18 in Appendix 1.

Specificity is the effectiveness of a screening test in accurately identifying people who truly do not have cancer. High specificity of a screening test results in fewer false-positive results (e.g., people with an abnormal OBSP screening mammogram who receive follow-up, but do not have cancer). The specificity of mammography in the OBSP remained consistently high at over 90% from 2016 to 2020.

OBSP: Breast Cancer Detection

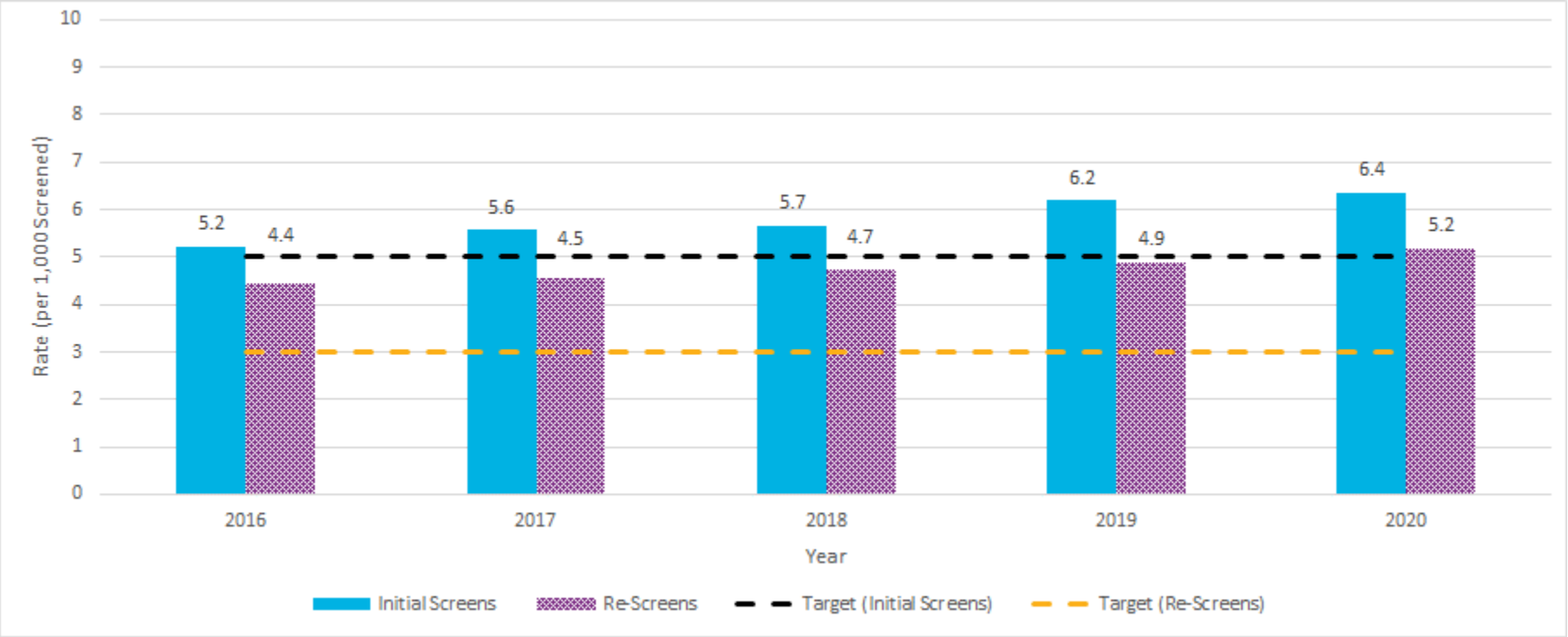
Figure 27: Number of Screen-Eligible People in Ontario, Ages 50 to 74, With a Screen-Detected Ductal Carcinoma In Situ per 1,000 People Screened, 2016 to 2020



For data, see Table 19 in Appendix 1.

From 2016 to 2019, the ductal carcinoma in-situ (DCIS) detection rate was stable from 0.86 to 0.89 per 1,000 people screened. However, the rate increased in 2020 to 0.94 per 1,000. The increase in the DCIS detection rate in 2020 may reflect the prioritization of screening for people at highest risk for breast cancer according to Ontario Health pandemic guidance.

Figure 28: Number of Screen-Eligible People in Ontario, Ages 50 to 74, With a Screen-Detected Invasive Breast Cancer per 1,000 People Screened, 2016 to 2020



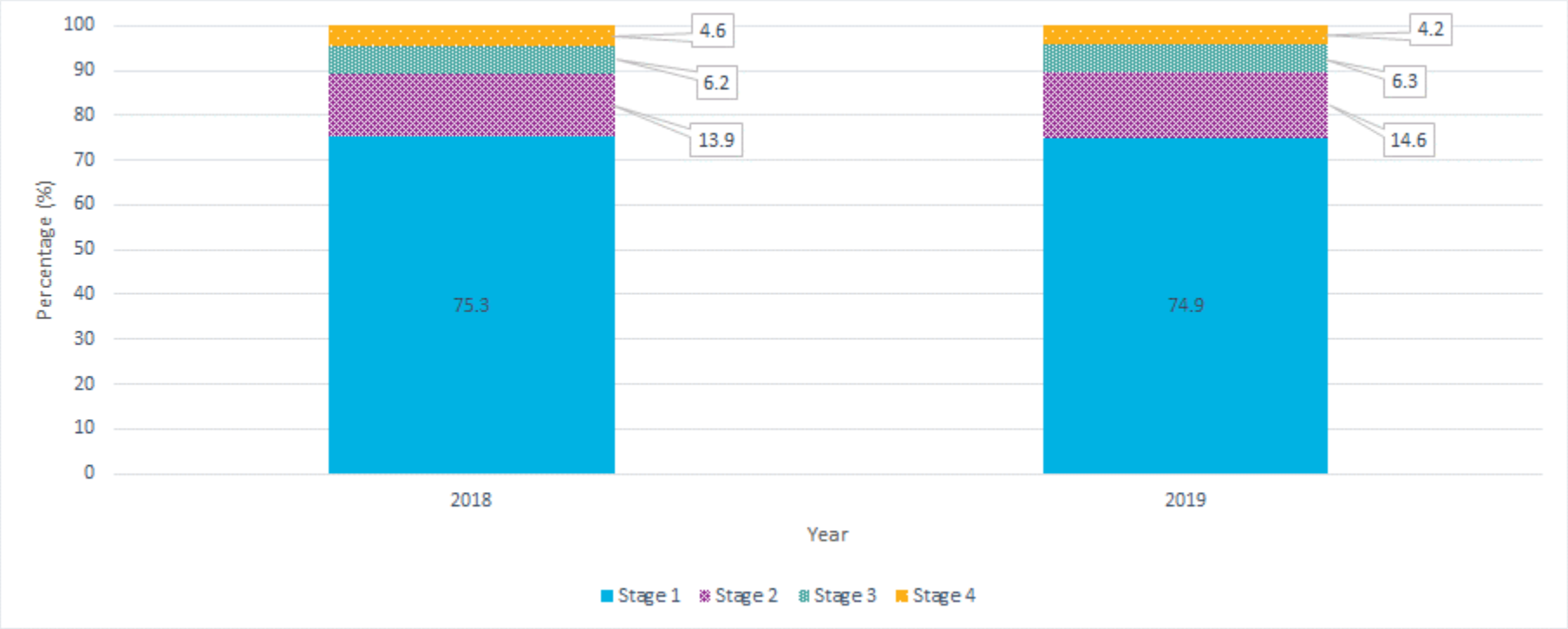
For data, see Table 20 in Appendix 1.

The invasive breast cancer detection rate for initial screens increased steadily from 5.2 per 1,000 people screened in 2016 to 6.4 per 1,000 people screened in 2020. Performance on this indicator for initial screens met the program target of greater than 5.0 per 1,000 (52) from 2016 to 2020. The invasive cancer detection rate is typically higher for initial screens than re-screens because initial screens detect mostly prevalent cancers. The invasive breast cancer detection rate for re-screens also increased over time, from 4.4 per 1,000 in 2016 to 5.2 per 1,000 in 2020. Performance for re-screens also consistently exceeded the Canadian target of greater than 3 per 1,000 (52).

The increase in invasive cancer detection rate for both initial and re-screens over time may be due to several factors, such as population aging and the transition of mammography technology from screen film and computed radiography to digital direct radiography. The increase seen in 2020 may also reflect the prioritization of breast cancer screening services according to breast cancer risk in alignment with Ontario Health pandemic guidance during the early waves of the COVID-19 pandemic.

OBSP: Disease Extent at Diagnosis

Figure 29: Stage Distribution of All Invasive Breast Cancers Diagnosed in Ontario, Ages 50 to 74, 2018 to 2019

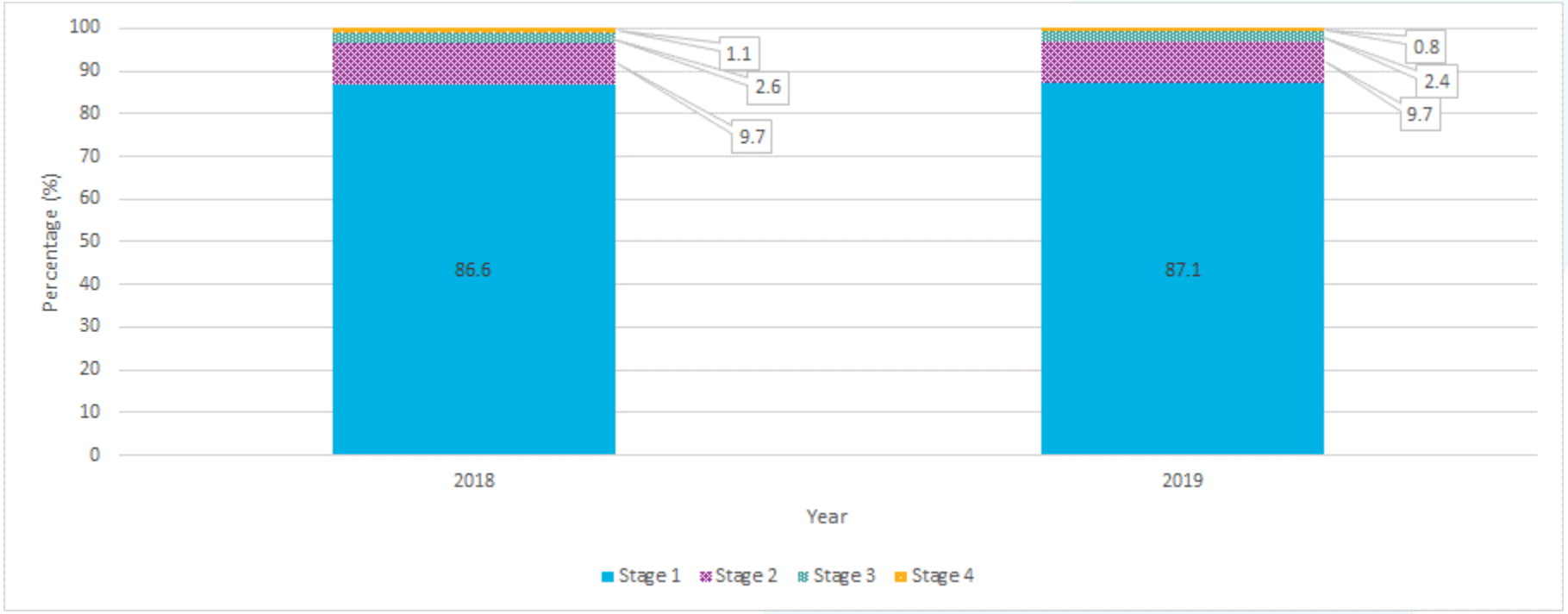


Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

For data, see Table 21 in Appendix 1.

This indicator reports the stage at diagnosis for all invasive breast cancers diagnosed in Ontario. Early-stage (stage 1) breast cancers accounted for approximately 75% of all breast cancers diagnosed in 2018 and 2019. The percentages of breast cancers diagnosed at later stages (stages 3 and 4) were also comparable for 2018 (6.2% stage 3 and 4.6% stage 4) and 2019 (6.3% stage 3 and 4.2% stage 4.) The proportion of breast cancers diagnosed at stage 2 increased slightly, from 13.9% in 2018 to 14.6% in 2019.

Figure 30: Stage Distribution of Screen-Detected Invasive Breast Cancers Diagnosed in Ontario, Ages 50 to 74, 2018 to 2019



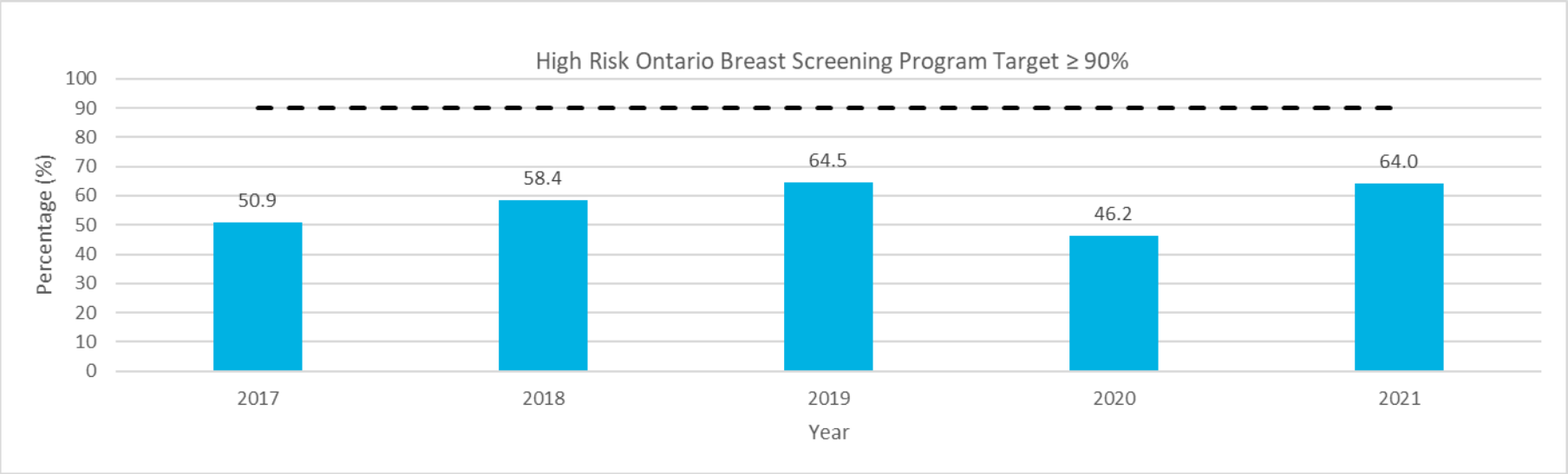
Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

For data, see Table 22 in Appendix 1.

Compared to all invasive breast cancers diagnosed in Ontario (Figure 29), more screen-detected invasive breast cancers were diagnosed at an early stage (stage 1). In 2018 and 2019, approximately 87% of screen-detected invasive breast cancers were detected at stage 1. This finding reflects the benefits of organized breast cancer screening in detecting breast cancers at an earlier stage when treatment is more likely to be effective.

High Risk OBSP: Coverage

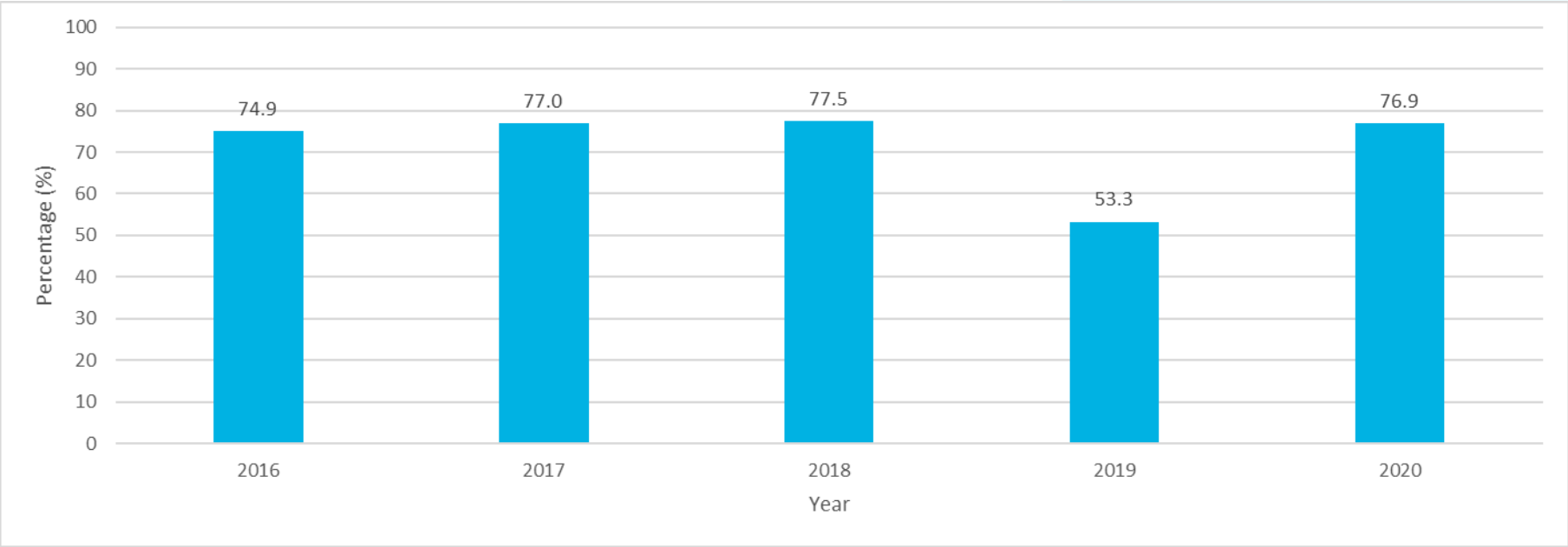
Figure 31: Percentage of People in Ontario, Ages 30 to 69, Screened With Magnetic Resonance Imaging or Ultrasound Within 90 Days of Confirmation of Eligibility for the High Risk Ontario Breast Screening Program, 2017 to 2021



For data, see Table 23 in Appendix 1.

This indicator measures the percentage of participants screened with breast magnetic resonance imaging (MRI) or ultrasound within 90 days of confirming their eligibility for the High Risk OBSP. For High Risk OBSP participants, screening with breast MRI in addition to mammography is recommended because mammography alone is less sensitive than breast MRI and mammography combined (53). Overall, performance on this indicator was below the program target of at least 90% from 2017 to 2021. A key challenge that impacts performance on this indicator is limited MRI capacity within the province. Despite MRI capacity constraints, performance improved from 50.9% in 2017 to 64.5% in 2019. Performance worsened in 2020, when only 46.2% of people were screened within 90 days of confirmation of their eligibility for the High Risk OBSP. This decrease was likely due to the deferral of cancer screening services during the first wave of the COVID-19 pandemic. In 2021, 64.0% of people were screened within 90 days of confirmation of their eligibility for the High Risk OBSP, which is sightly below 2019 performance. This improvement may reflect ongoing prioritization of heath care services for people at highest risk for breast cancer in accordance with Ontario Health pandemic guidance.

Figure 32: Percentage of People in Ontario, Ages 30 to 68, Who Had a Subsequent High Risk Ontario Breast Screening Program (OBSP) Screen (i.e., Breast Magnetic Resonance Imaging or Ultrasound) Within 15 Months of a Previous High Risk OBSP Screen, 2016 to 2020

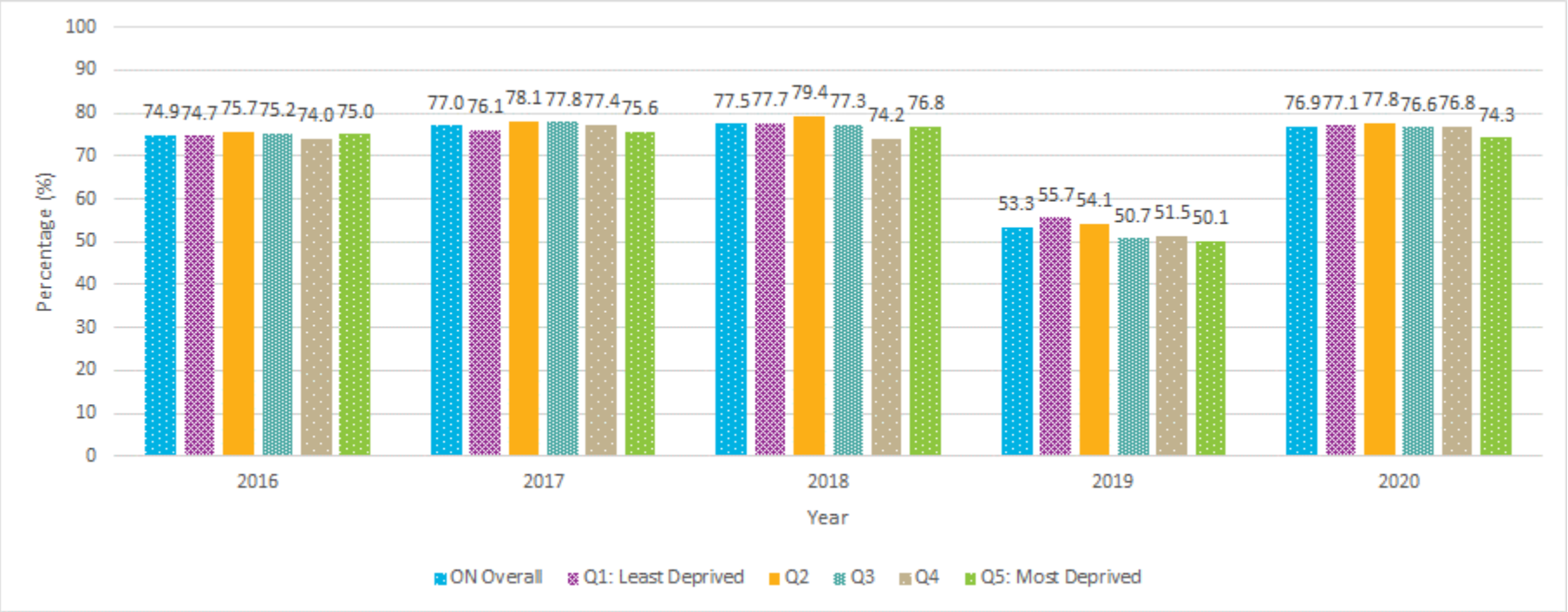


For data, see Table 24 in Appendix 1.

The percentage of people returning to the High Risk OBSP for screening within 15 months increased from 74.9% in 2016 to 77.5% in 2018. The years in the graph represent the date of the initial screening test that the return date is measured against. However, performance declined substantially in 2019 to 53.3%. This decline may be due to impacts of the COVID-19 pandemic, such as deferral of cancer screening during early waves of the pandemic. Deferral of screening services during the first wave of the pandemic may have affected people with a normal screening result in 2019 who would have been due for screening in 2020. The percentage of people who had a normal result in 2020 and returned for their next annual screen improved substantially to 76.9%, which is slightly below the peak performance in 2018. This improvement in performance likely reflects continued prioritization of High Risk OBSP screening services according to Ontario Health pandemic guidance.

High Risk OBSP Retention - Equity Analyses: Material Deprivation

Figure 33: Percentage of People in Ontario, Ages 30 to 68, Who Had a Subsequent High Risk Ontario Breast Screening Program (OBSP) Screen (i.e., Breast Magnetic Resonance Imaging or Ultrasound) Within 15 Months of a Previous High Risk OBSP Screen, by Material Deprivation, 2016 to 2020

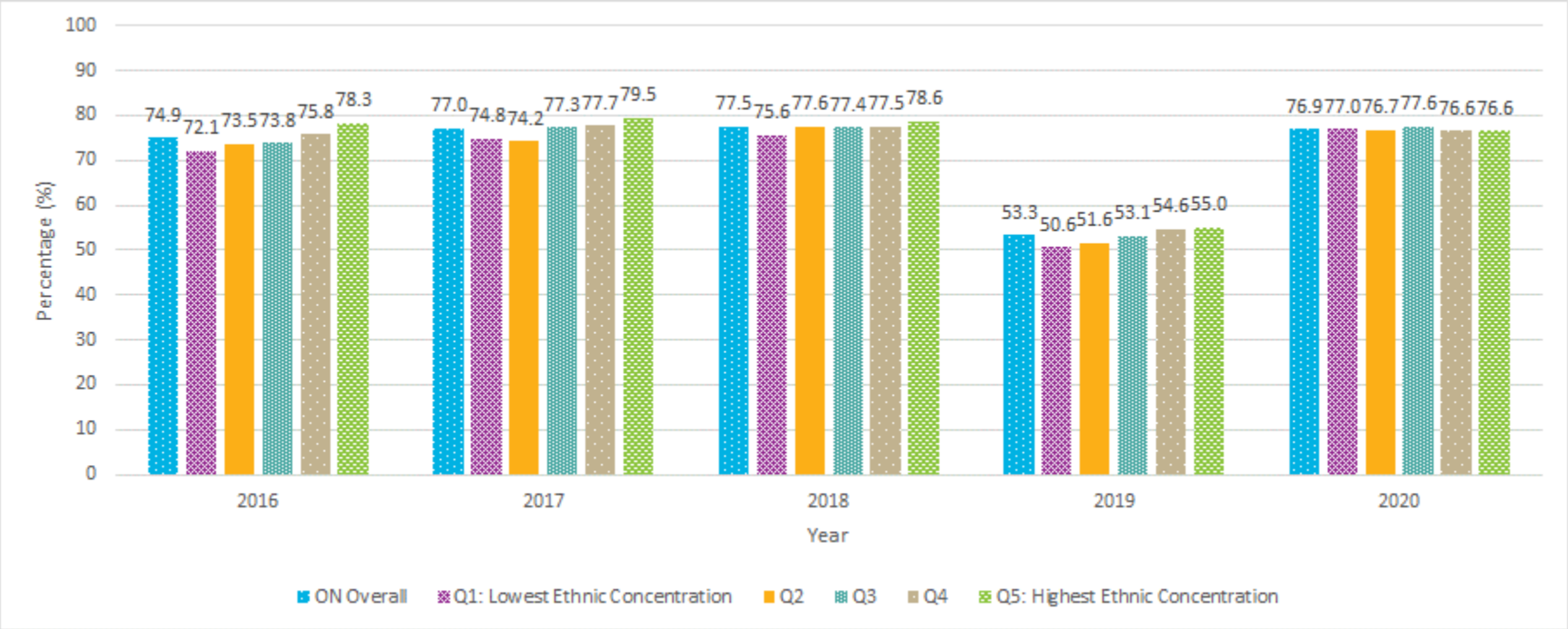


For data, see Table 25 in Appendix 1.

Retention in the High Risk OBSP was impacted by the COVID-19 pandemic, with people in the most materially deprived neighbourhoods being more affected. People in all neighbourhoods of material deprivation who were screened in 2019 and due for annual re-screening in 2020 had lower retention rates, which may reflect the deferral of cancer screening during early pandemic waves. In 2019 and 2020, retention rates were also lower among people living in more materially deprived neighbourhoods (e.g., 55.7% in Q1 vs. 50.1% in Q5 in 2019). This pattern was not seen in other reporting years and may reflect health disparities that were worsened by the COVID-19 pandemic.

High Risk OBSP Retention - Equity Analyses: Ethnic Concentration

Figure 34: Percentage of People in Ontario, Ages 30 to 68, Who Had a Subsequent High Risk Ontario Breast Screening Program (OBSP) Screen (i.e., Breast Magnetic Resonance Imaging or Ultrasound) Within 15 Months of a Previous High Risk OBSP Screen, by Ethnic Concentration, 2016 to 2020

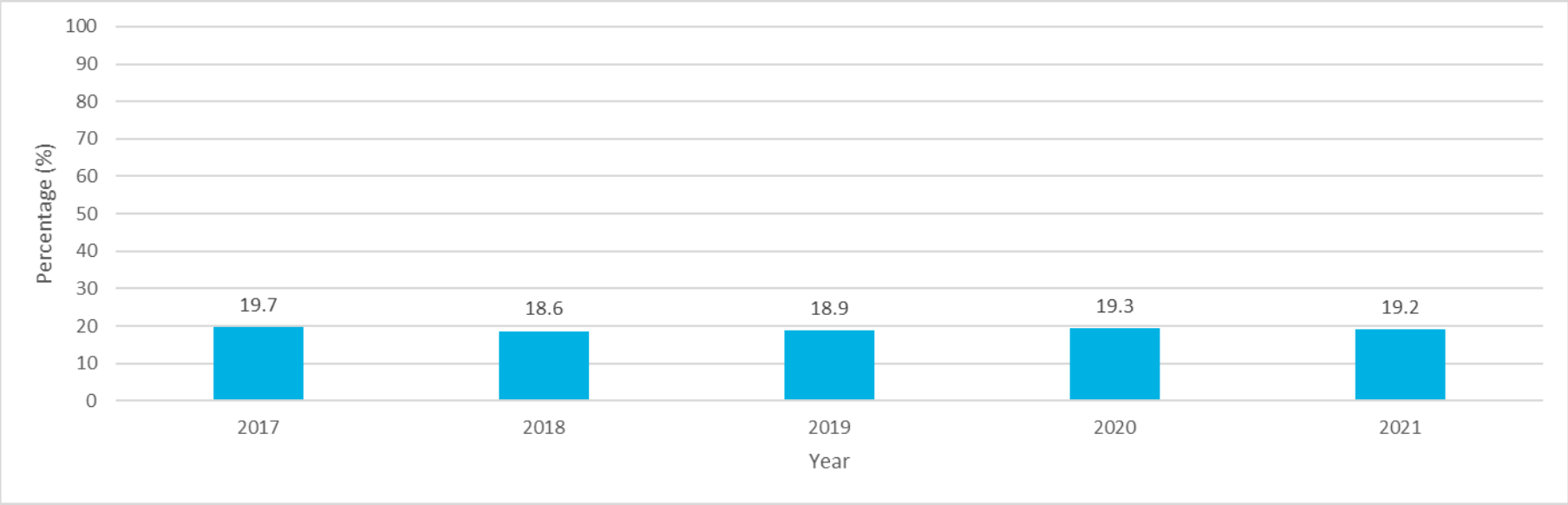


For data, see Table 26 in Appendix 1.

From 2016 to 2019, people living in the most ethnically concentrated neighbourhoods had higher rates of retention in the High Risk OBSP than people in neighbourhoods with the lowest ethnic concentration. In 2020, retention in the High Risk OBSP was similar across all neighbourhoods, by ethnic concentration. This finding may reflect efforts by the High Risk OBSP to ensure that eligible people returned for screening as soon as they were able to in accordance with Ontario Health COVID-19 pandemic guidance. The high retention of people living in the most ethnically concentrated neighbourhoods is a positive finding that may also reflect broader efforts by the High Risk OBSP to ensure that eligible people return for screening on an annual basis.

High Risk OBSP: Follow-Up and Quality of Screening

Figure 35: Percentage of People in Ontario, Ages 30 to 69, Screened in the High Risk Ontario Breast Screening Program With an Abnormal Screening Result, 2017 to 2021

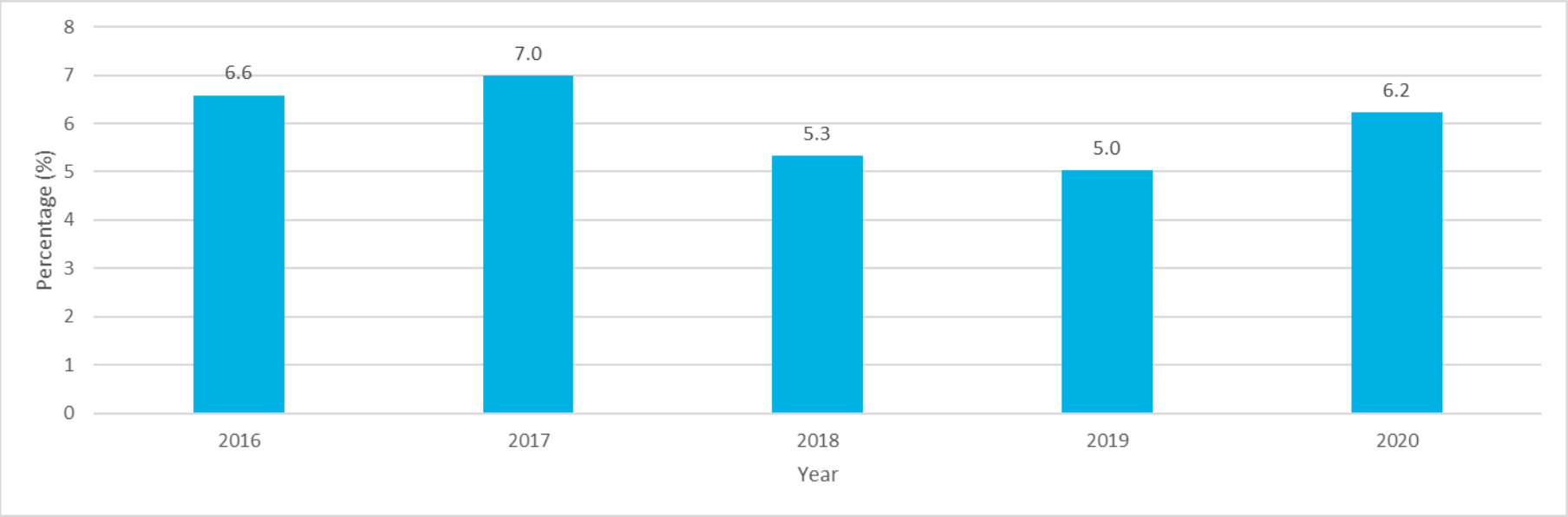


For data, see Table 27 in Appendix 1.

Abnormal call rate (percentage of people with an abnormal screening result) in the High Risk OBSP remained stable at 18.9% to 19.7% from 2017 to 2021.

Participants in the High Risk OBSP are at higher risk for breast cancer, so as expected, their abnormal call rate is greater than in the average risk OBSP cohort. In addition, participants in the High Risk OBSP undergo two screening tests (breast MRI and mammography or ultrasound), which are read independently. Discrepancies between the results of the two tests can also increase abnormal call rates.

Figure 36: Percentage of People in Ontario, Ages 30 to 69, With an Abnormal High Risk OBSP Screening Result Who Were Diagnosed With Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer), 2016 to 2020



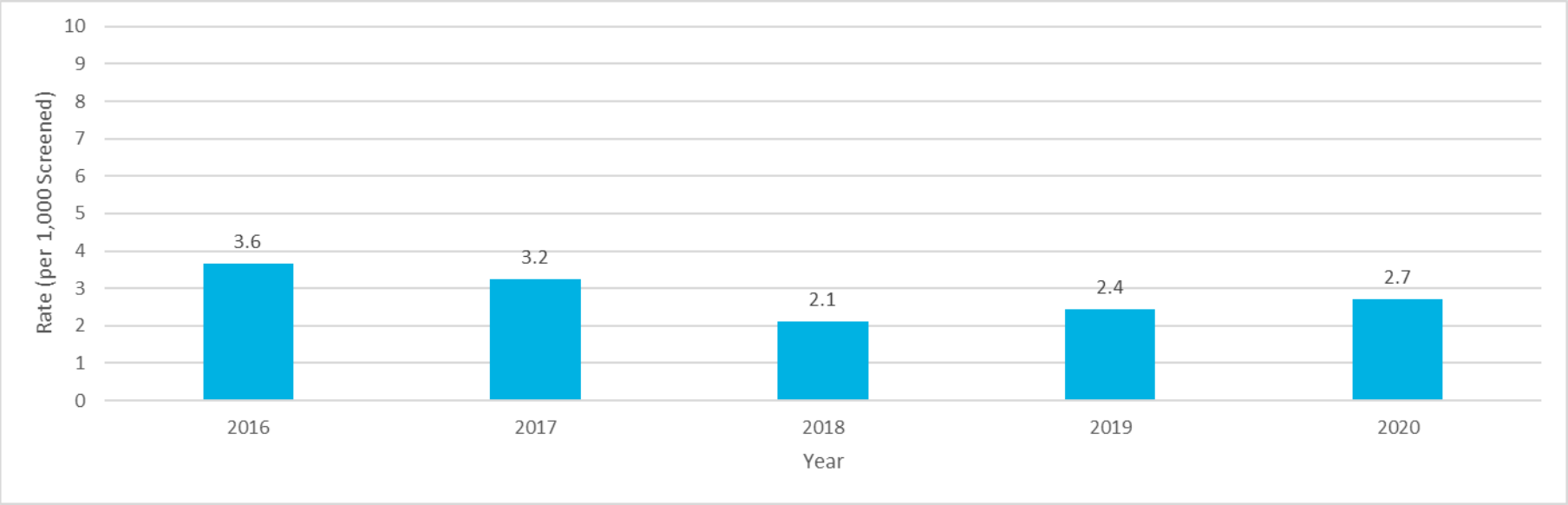
Note: This indicator is presented as a combined value for initial screens and re-screens.

For data, see Table 28 in Appendix 1.

From 2016 to 2020, the PPV for screening breast MRI and mammography in the High Risk OBSP fluctuated from 5.0% to 7.0%. The increase in PPV seen in 2020 compared to 2019 is likely due to prioritizing high risk breast cancer screening services according to breast cancer risk (e.g., the High Risk OBSP prioritized screening for people who are known mutation carriers and had never been screened or were overdue for screening) according to Ontario Health pandemic guidance.

High Risk OBSP: Breast Cancer Detection

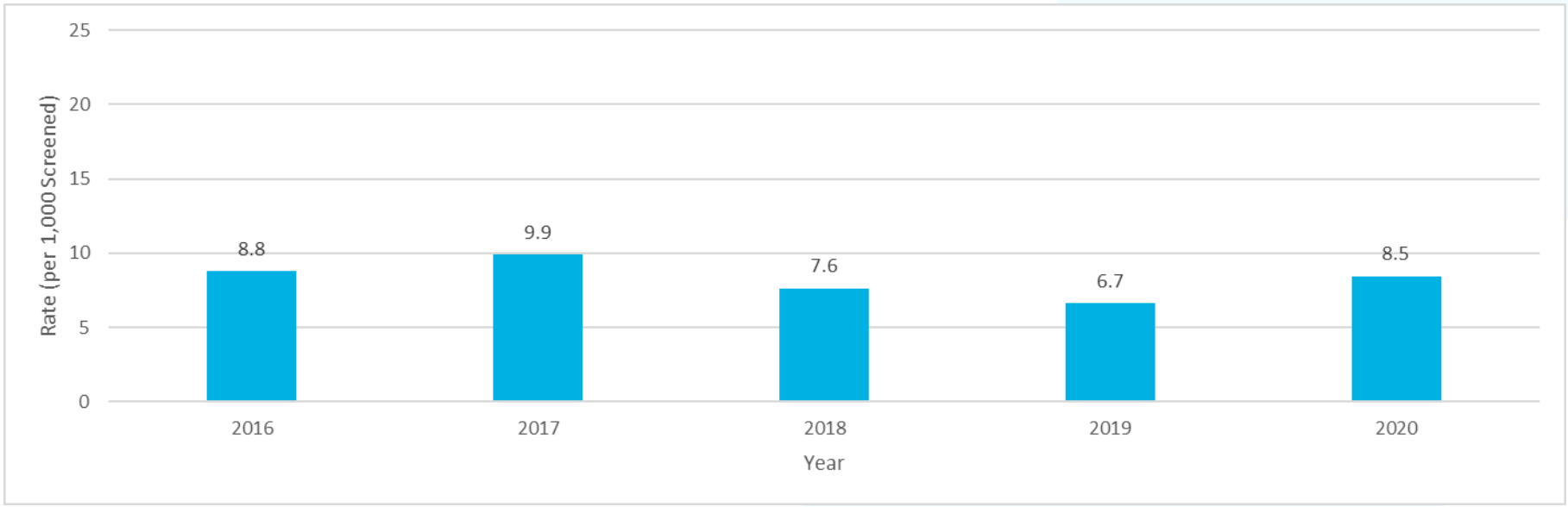
Figure 37: Number of People in Ontario, Ages 30 to 69, With Ductal Carcinoma In Situ per 1,000 People Screened in the High Risk Ontario Breast Screening Program, 2016 to 2020



For data, see Table 29 in Appendix 1.

There was variation in the DCIS detection rate in the High Risk OBSP from 2016 to 2020. The number of cases of DCIS detected each year in the High Risk OBSP is low, so small changes may lead to observable variability in the detection rate. The DCIS detection rate was highest (3.6 per 1,000 people screened) in 2016 and declined to 2.1 per 1,000 in 2018. The DCIS detection rate has been trending upward from 2018 to 2020, when it reached 2.7 per 1,000. The increase in DCIS detection rate in 2020 may reflect prioritizing breast cancer screening services based on breast cancer risk according to Ontario Health pandemic guidance during the early waves of the COVID-19 pandemic.

Figure 38: Number of People in Ontario, Ages 30 to 69, With Invasive Breast Cancer per 1,000 People Screened in the High Risk Ontario Breast Screening Program, 2016 to 2020

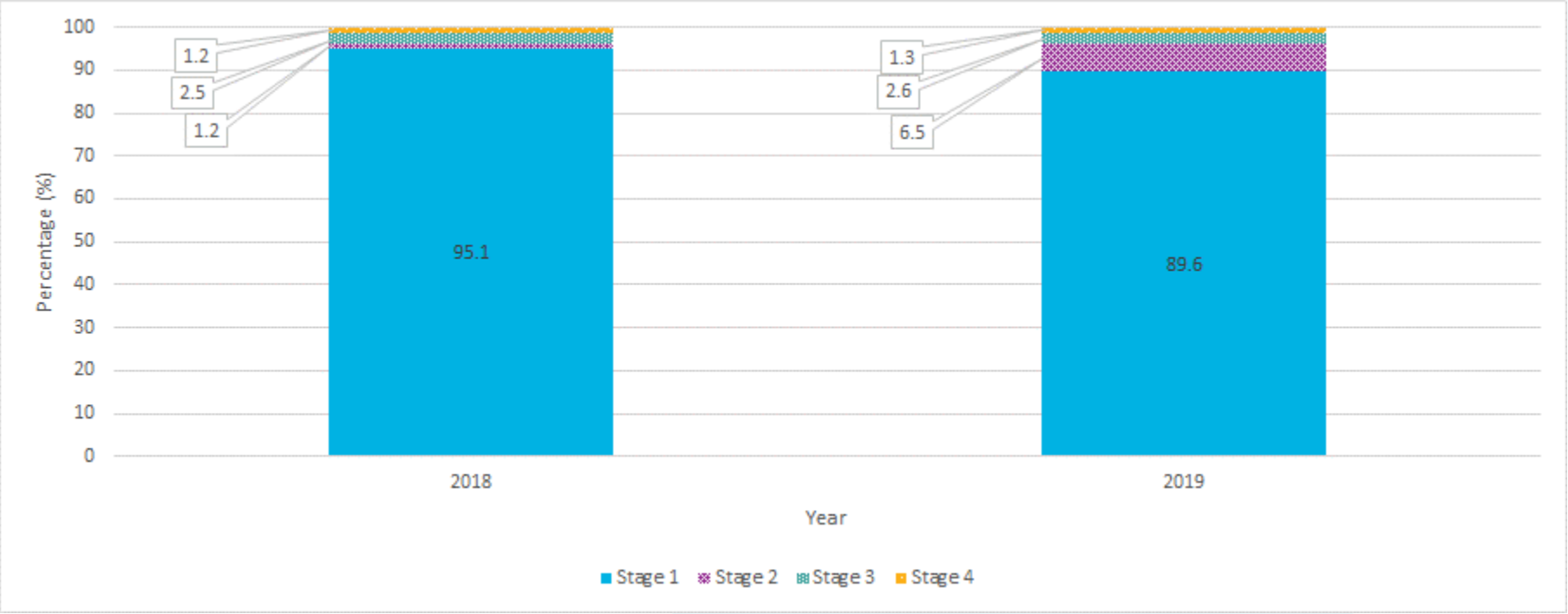


For data, see Table 30 in Appendix 1.

From 2016 to 2020, the invasive cancer detection rate in the High Risk OBSP fluctuated from 6.7 to 9.9 per 1,000 people screened. The number of cases of invasive breast cancer detected each year in the High Risk OBSP is low, so small changes may lead to observable variability in the detection rate. The increase from 6.7 per 1,000 in 2019 to 8.5 per 1,000 in 2020 may reflect the prioritization of high risk breast cancer screening services based on breast cancer risk according to Ontario Health pandemic guidance.

High Risk OBSP: Disease Extent at Diagnosis

Figure 39: Stage Distribution of Screen-Detected Invasive Breast Cancers Among People Ages 30 to 69 in The High Risk Ontario Breast Screening Program, by Stage at Diagnosis, 2018 to 2019



Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

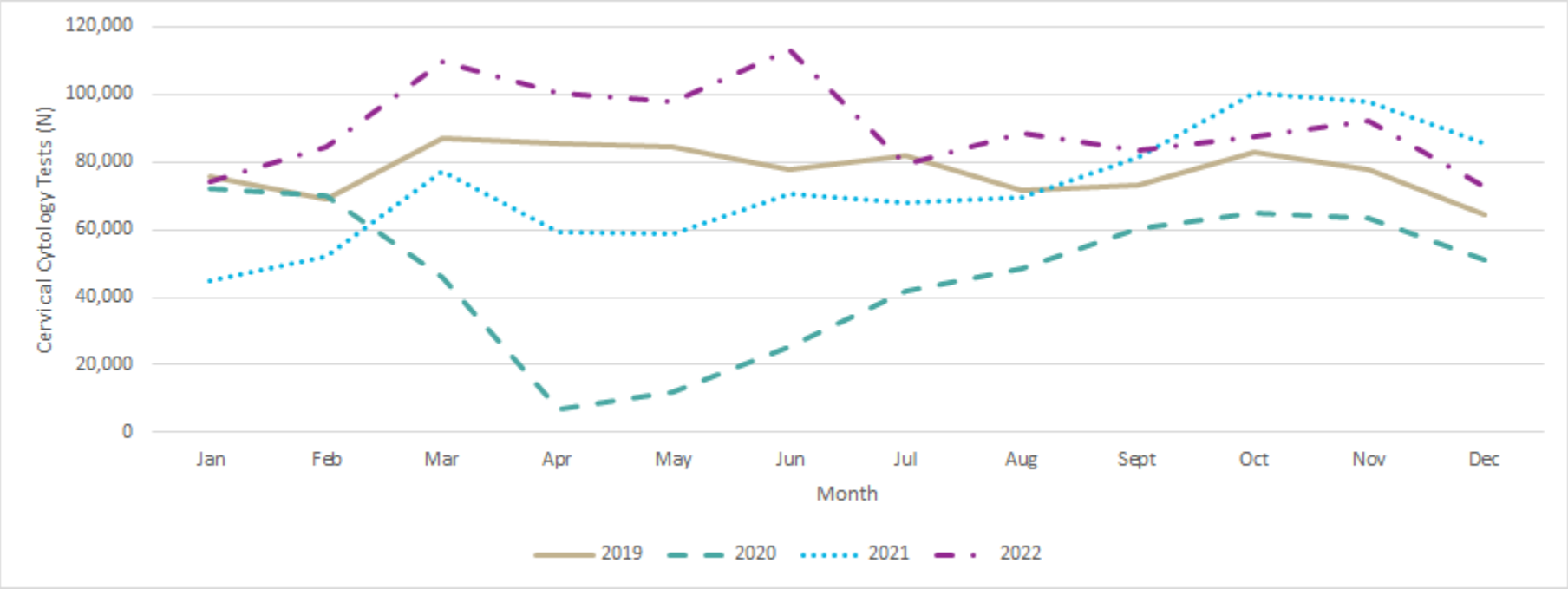
For data, see Table 31 in Appendix 1.

Most invasive breast cancers detected in the High Risk OBSP were stage 1 in 2018 (95.1%) and 2019 (89.6%). A small number of cancers are detected in the High Risk OBSP every year, which can lead to observable variability in stage distribution year-to-year (e.g. stage 2 breast cancers increased from 1.2% to 6.5% from 2018 to 2019).

Ontario Cervical Screening Program (OCSP): Program Performance

OCSP: Volumes

Figure 40: Number of Cervical Cytology Tests Performed in Ontario, Ages 21 to 69, by Month, 2019 to 2022

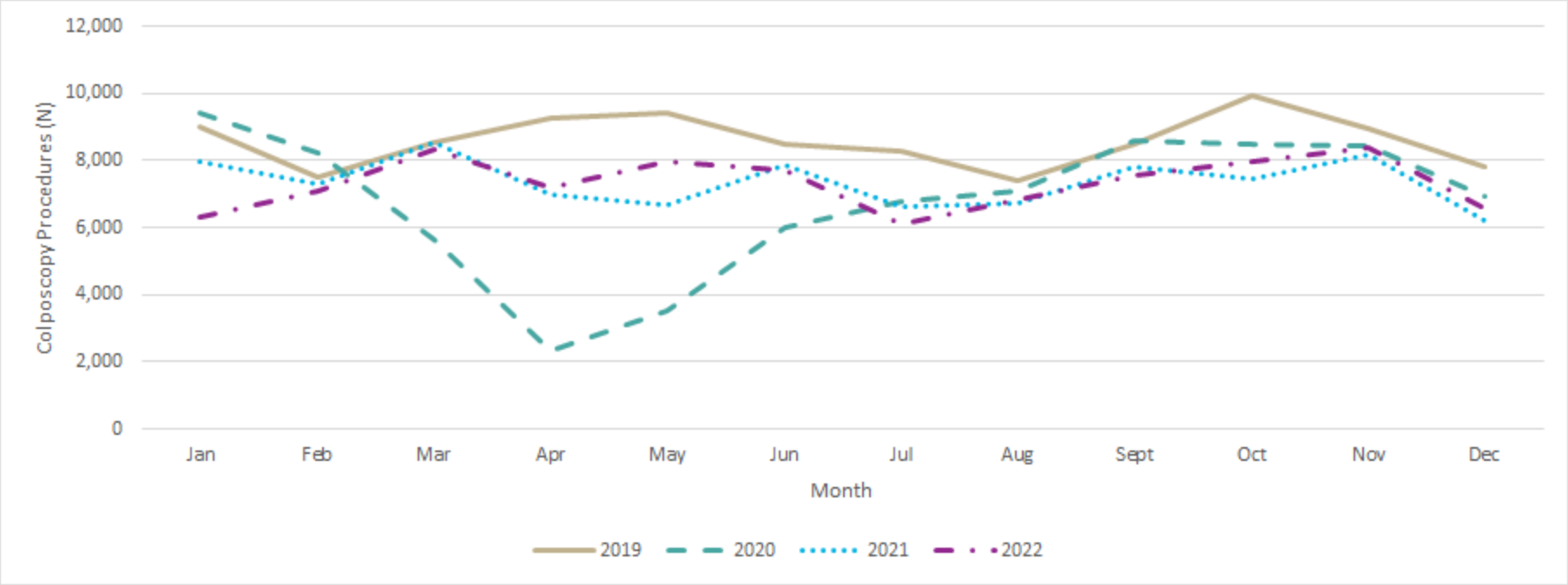


Note: These data are for cervical cytology tests performed in community labs only. Some of the cervical cytology tests may not be Ontario Cervical Screening Program screening tests and are done during colposcopy. Data for 2022 may be incomplete due to testing and reporting delays.

For data, see Table 32 in Appendix 1.

The decrease in volumes from March to May 2020 reflects the temporary pause in cancer screening in late March 2020 due to the COVID-19 pandemic. A gradual recovery began in May 2020, with cytology volumes returning to pre-pandemic levels in August 2021. Recovery to pre-pandemic volumes for cytology may have been delayed because cervical screening requires an in-person appointment with a health care provider.

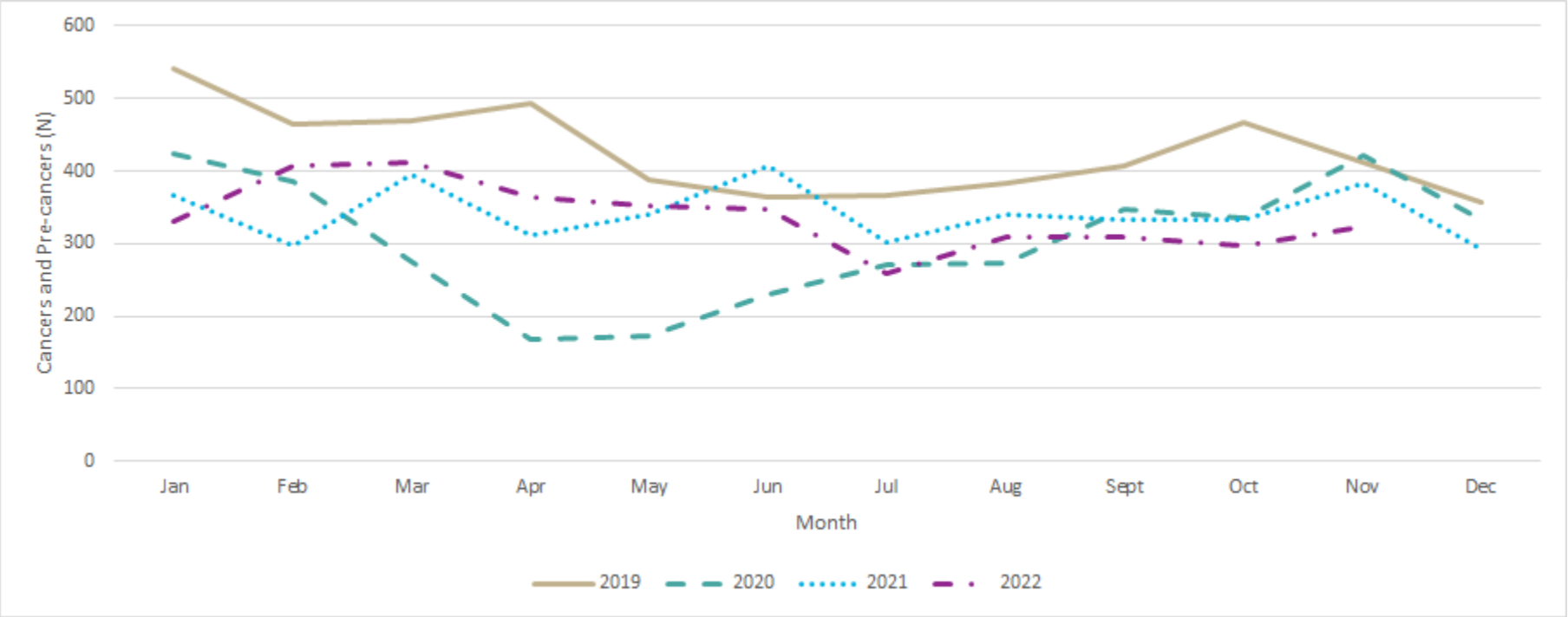
Figure 41: Number of Colposcopy Procedures Performed in Ontario, Ages 21 to 69, by Month, 2019 to 2022



For data, see Table 33 in Appendix 1.

Colposcopy volumes were also impacted by COVID-19. A decrease in volumes was observed beginning in March 2020 after the deferral of routine cancer screening due to the COVID-19 pandemic. Colposcopy volumes returned to pre-pandemic volumes starting in September 2020 and annual volumes increased by 8.5% from 2020 to 2021.

Figure 42: Number of Cervical Cancers and Pre-Cancers (Combined) in Ontario, Ages 21 to 69, by Month, 2019 to 2022

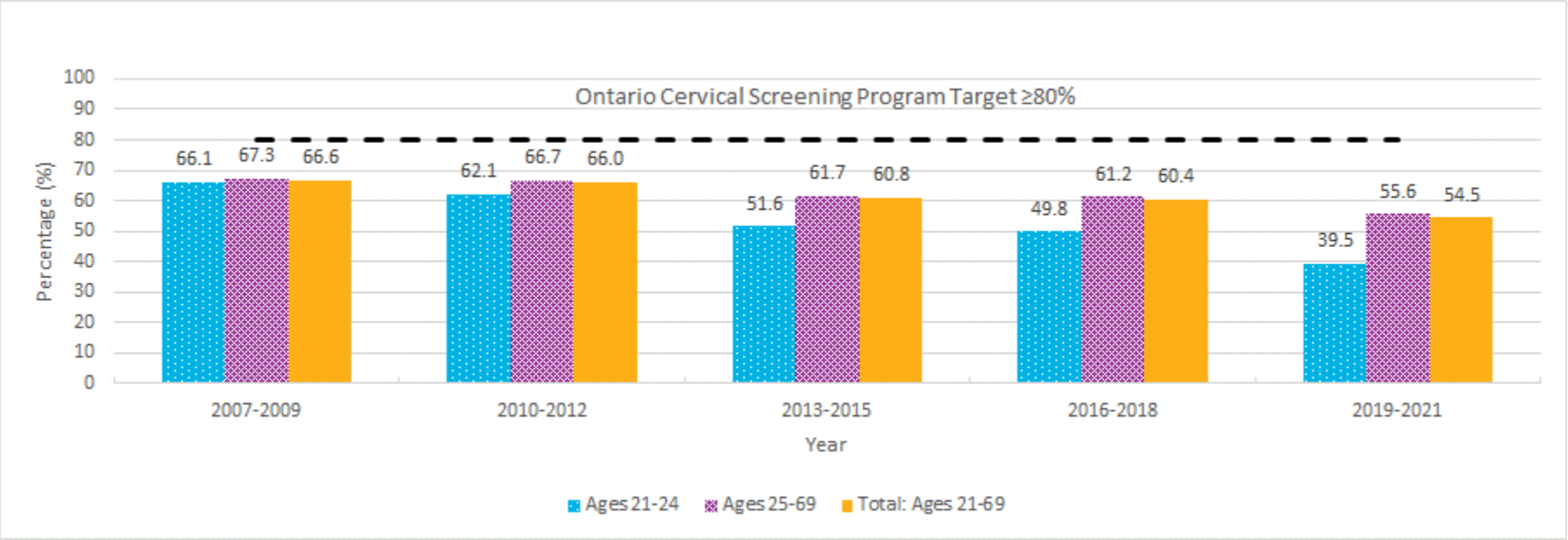


For data, see Table 34 in Appendix 1.

The number of cervical cancer and pre-cancers detected decreased from March to May 2020 after the deferral of routine screening in late March 2020 due to the COVID-19 pandemic. The number of cervical cancers and pre-cancers detected had not returned to pre-pandemic levels as of 2022. Fluctuations in numbers of pre-cancers and cancers detected month-to-month are expected and normal. There is a significant lag for 2022 data, which may impact the completeness of the 2022 data shown.

OCSP: Coverage

Figure 43: Percentage of Screen-Eligible Women* in Ontario, Ages 21 to 69, Who Had at Least 1 Cervical Cytology Test Within a 42-Month Period by Age Group, 2007–2009 to 2019–2021



* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as "male" or "female" only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for cervical screening, as well as the inclusion of some people who are not eligible for screening.

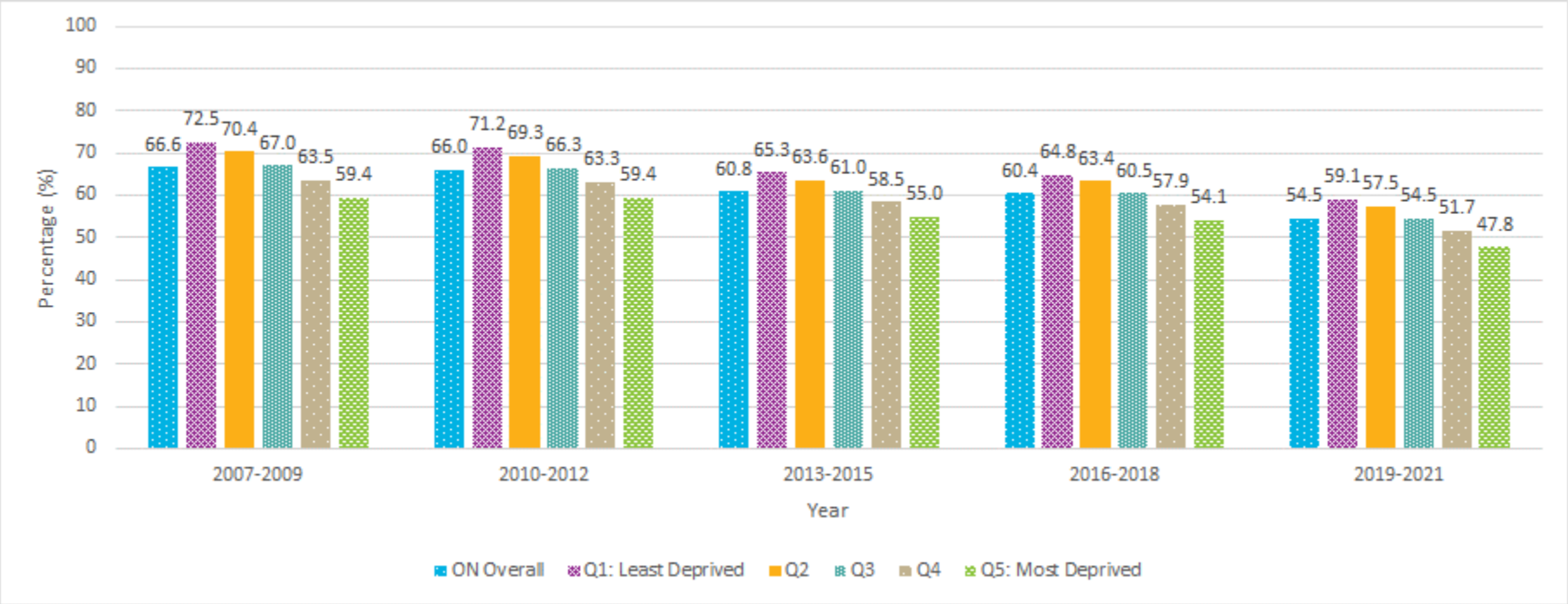
For data, see Table 35 in Appendix 1.

Participation in the OCSP has been decreasing over time, from 66.6% in 2007–2009 to 54.5% in 2019–2021. Performance has consistently not met the program target of 80% or greater (54). The decrease in participation seen in 2019–2021 may have been due to the impacts of the COVID-19 pandemic, such as the deferral of routine screening during the first pandemic wave in Ontario, which included the pause and gradual restart of the screening correspondence program (i.e., invitation, recall and reminder letters to participants). Additionally, the COVID-19 pandemic led to an increase in the use of virtual care and fewer in-person visits with health care providers for preventive care. This decrease in in-person visits may have reduced participation in cervical screening with cytology, which requires in-person care. Participants may have also been reluctant to screen during pandemic waves.

In 2020, health care providers were encouraged to initiate cytology-based screening at age 25 instead of age 21, except in people who are immunocompromised. This guidance was based on moderate quality evidence suggesting that people under age 25 do not benefit from cervical screening and it may have resulted in fewer people screening in 2019–2021. A substantial decrease in cervical screening by people ages 21 to 24 occurred in Ontario, with participation for this age group decreasing from 66.2% in 2007–2009 to 40% in 2019–2021. This trend is expected to continue and accelerate in the coming years as the age change policy (start screening at age 25 instead of age 21) becomes formalized as part of OCSP guidance.

OCSP Participation - Equity Analyses: Material Deprivation

Figure 44: Percentage of Screen-Eligible Women* in Ontario, Ages 21 to 69, Who Had at Least 1 Cervical Cytology Test Within a 42-Month Period, by Material Deprivation, 2007–2009 to 2019–2021



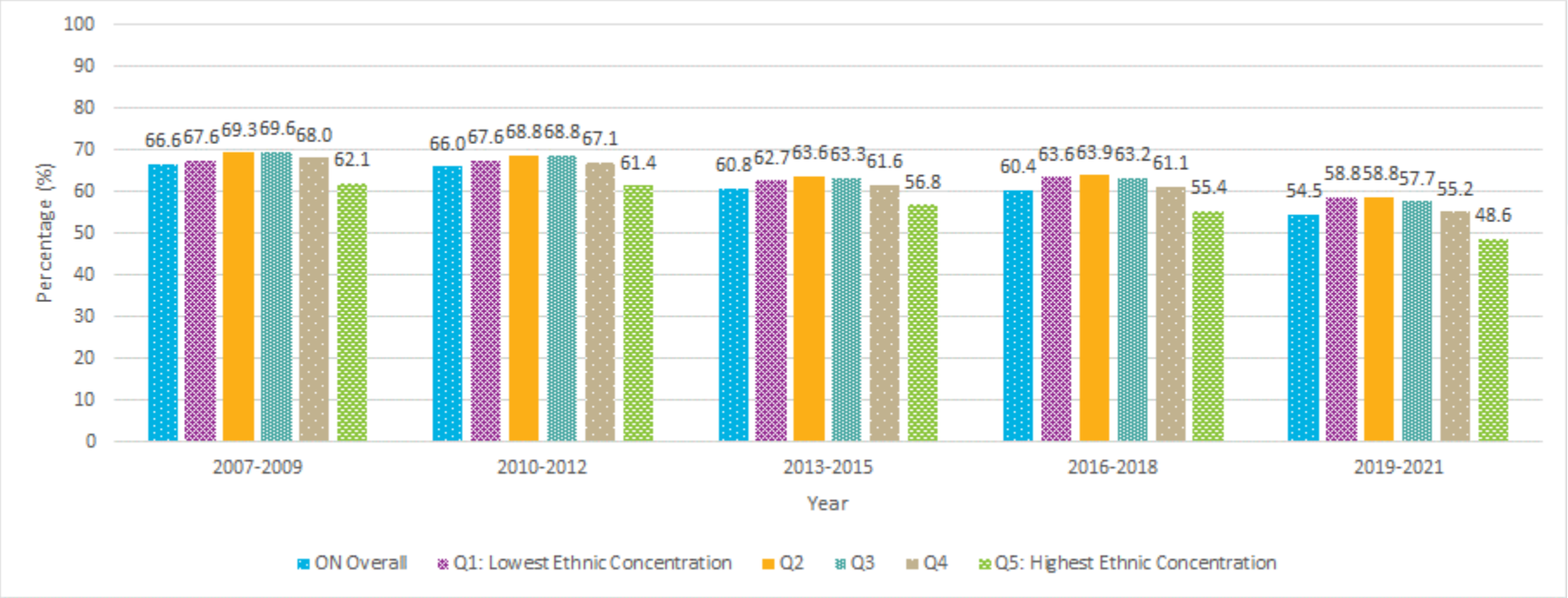
* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data and defines sex as "male" or "female" only). This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for cervical screening, as well as the inclusion of some people who are not eligible for screening.

For data, see Table 36 in Appendix 1.

Across all reporting periods, there was a relationship between material deprivation and cervical screening participation. People living in neighbourhoods with the least material deprivation (Q1, Q2) had higher participation in cervical screening than people living in more materially deprived neighbourhoods (Q3, Q4, Q5). While the gap between the least deprived quintile (Q1) and most deprived quintile (Q5) decreased slightly from 2007–2009 (when it was 13.1%) to 2019–2021, people living in more materially deprived neighbourhoods in 2019–2021 still had screening participation rates that were substantially below overall provincial rates and the program target of greater than or equal to 80% (54).

OCSP Participation - Equity Analyses: Ethnic Concentration

Figure 45: Percentage of Screen-Eligible Women* in Ontario, Ages 21 to 69, Who Had at Least 1 Cervical Cytology Test Within a 42-Month Period, by Ethnic Concentration, 2007–2009 to 2019–2021

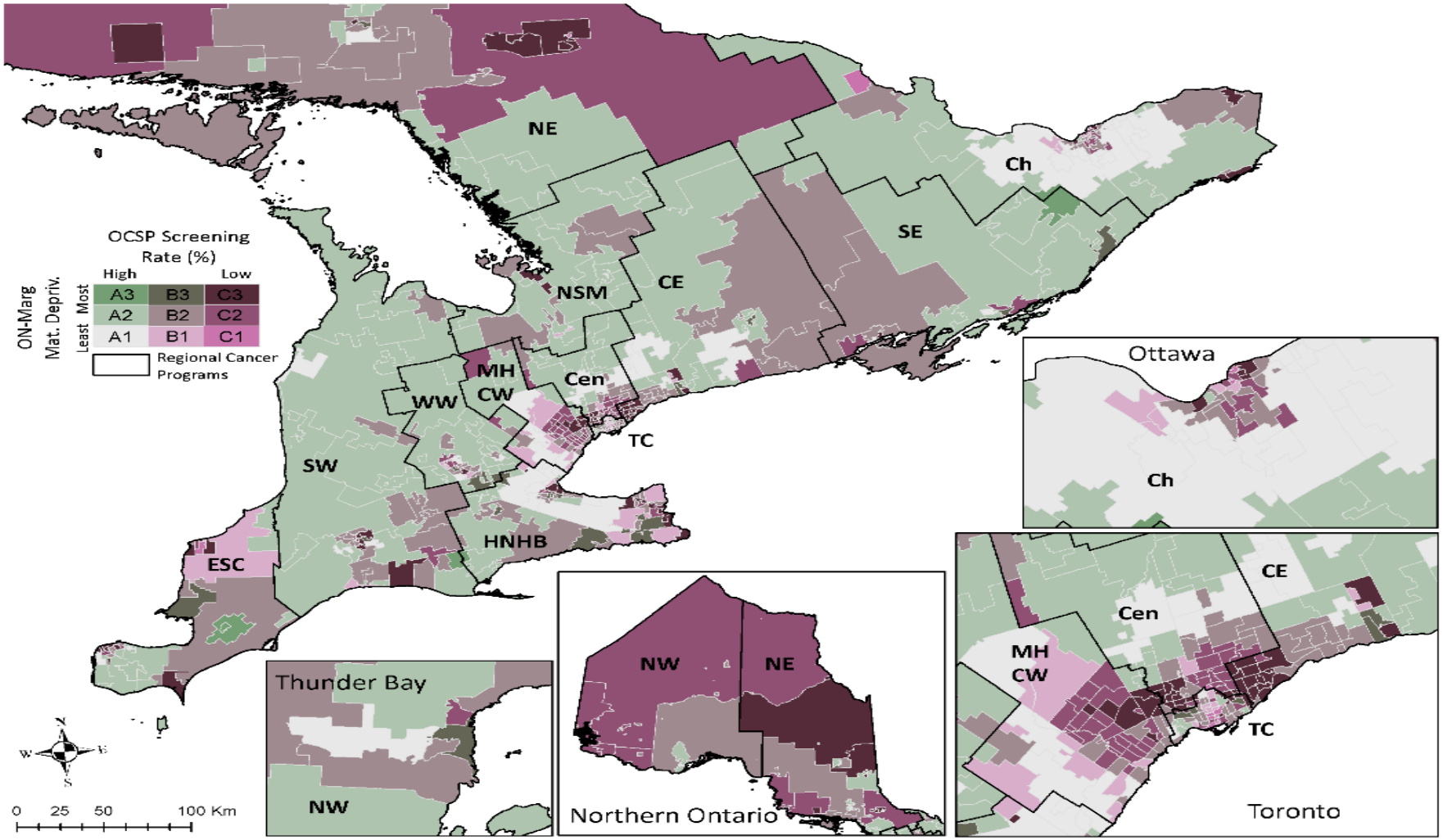


* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data and defines sex as "male" or "female" only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for cervical screening, as well as the inclusion of some people who are not eligible for screening.

For data, see Table 37 in Appendix 1.

Across all reporting periods, people living in the most ethnically concentrated neighbourhoods, (Q5) had lower cervical screening participation than people living in less ethnically concentrated neighbourhoods (Q1, Q2). People living in the most ethnically concentrated neighbourhoods had screening participation rates that are substantially below overall provincial rates and the program target of greater than or equal to 80%. The gap between the least ethnically concentrated neighbourhoods and the most ethnically concentrated neighbourhoods widened steadily, increasing from 5.5% in 2007–2009 to 10.1% in 2019–2021. The substantial increase in the gap in 2019–2020 may reflect health disparities that were worsened by the COVID-19 pandemic.

Figure 46: Map Showing Percentage of Screen-Eligible Women* in Ontario, Ages 21 to 69, Who Had at Least 1 Cervical Cytology Test Within a 42-Month Period, by Material Deprivation



Regional Cancer Programs: ESC = Erie St. Clair, SW = South West, WW = Waterloo Wellington, HNHB = Hamilton Niagara Haldimand Brant, CW = Central West, MH = Mississauga Halton, TC = Toronto Central, Cen = Central, CE = Central East, SE = South East, Ch= Champlain, NSM = North Simcoe Muskoka, NE = North East, NW = North West

Data notes: Neighbourhoods are mapped at the forward sortation area level. Participation data is for the 2019-2021 reporting period. Bivariate choropleth (shaded) map. Major boundary lines reflect Regional Cancer Program boundaries. If you require data in an alternative format, please contact us by email (OH-CCO_ScreeningPerformanceReport@OntarioHealth.ca).

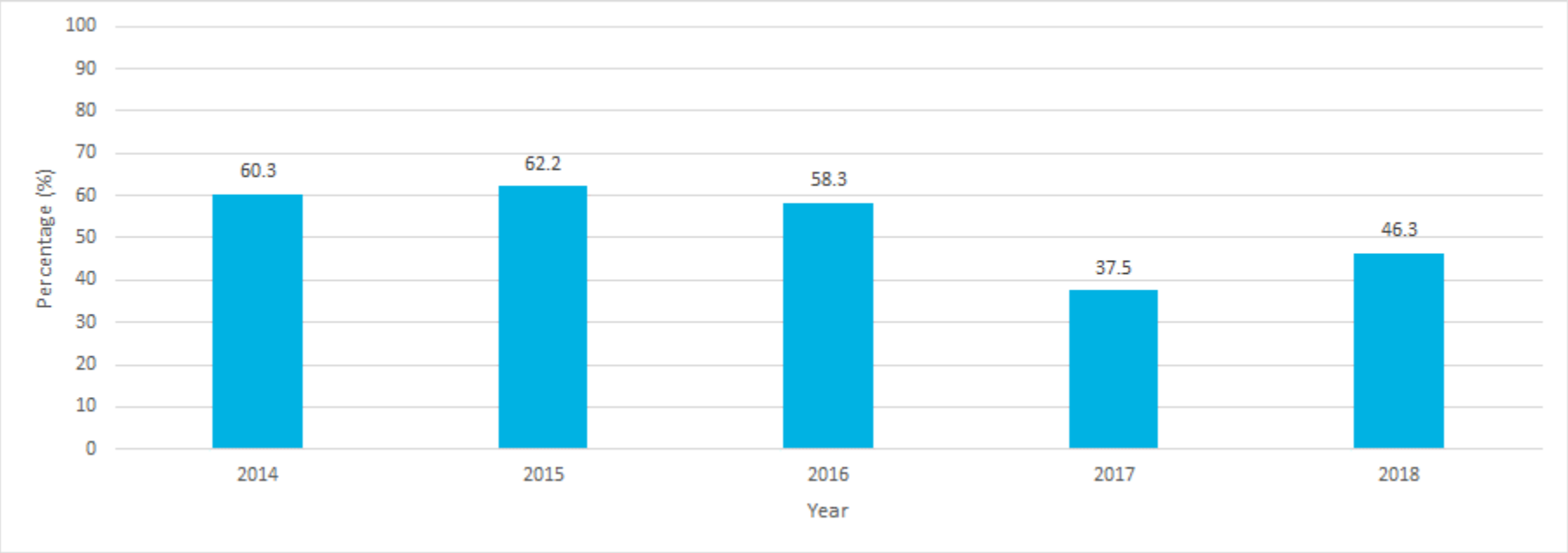
Ontario Cervical Screening Program Participation:

- **A (high participation): >58.7%**
- **B (medium participation): 52.2% to 58.7%**
- **C (low participation): <52.2%**

*The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data and defines sex as "male" or "female" only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for cervical screening, as well as the inclusion of some people who are not eligible for cervical screening.

There was variability across the province and within most regional cancer programs in cervical screening participation by level of material deprivation. The North West and North East regional cancer programs had a large proportion of neighbourhoods with the highest level of material deprivation (the darkest purple colour on the map) and low cervical screening participation (less than 52.2%). Similar to the patterns observed in other screening programs, neighbourhoods throughout the Greater Toronto Area with the highest level of material deprivation also had low cervical screening participation. These neighbourhoods include areas around the downtown core in Toronto Central, West North York and North Etobicoke in the Central regional cancer program, Scarborough and parts of Oshawa in the Central East regional cancer program, and parts of Brampton and Mississauga in the Mississauga Halton and Central West regional cancer programs.

Figure 47: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, Who Had a Subsequent Cervical Cytology Test Within 42 Months of a Normal Cytology Test Result, 2014 to 2018



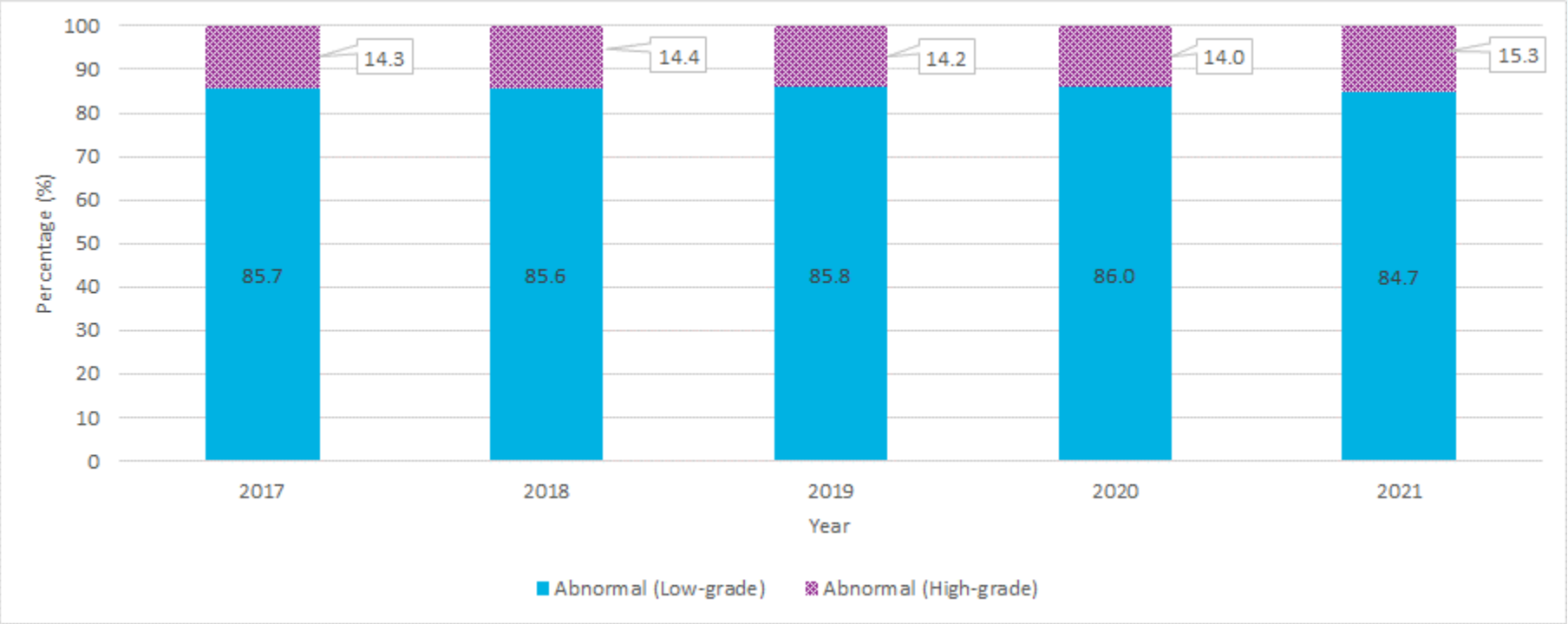
For data, see Table 38 in Appendix 1.

Cervical screening retention represents the proportion of participants returning for a screening test within 42 months (3.5 years) of a normal cytology test. The years in the graph represent the date of the initial screening test that the return date is measured against. Retention in the OCSP decreased from 60.3% in 2014 to 46.3% in 2018. The substantial decrease in retention observed in 2017 may be due to the impacts of the COVID-19 pandemic because people screened in 2017 were due to re-screen in 2020.

Possible pandemic impacts include the deferral of cervical screening during the first pandemic wave in Ontario, the pause and gradual restart of screening correspondence, and participant or provider screening deferrals during subsequent pandemic waves (i.e., the increase in virtual care during the pandemic led to fewer in-person appointments and less cervical screening, which requires in-person care). Retention improved by almost 10 percentage points in 2018, suggesting that screening retention was beginning to recover.

OCSP: Follow-Up

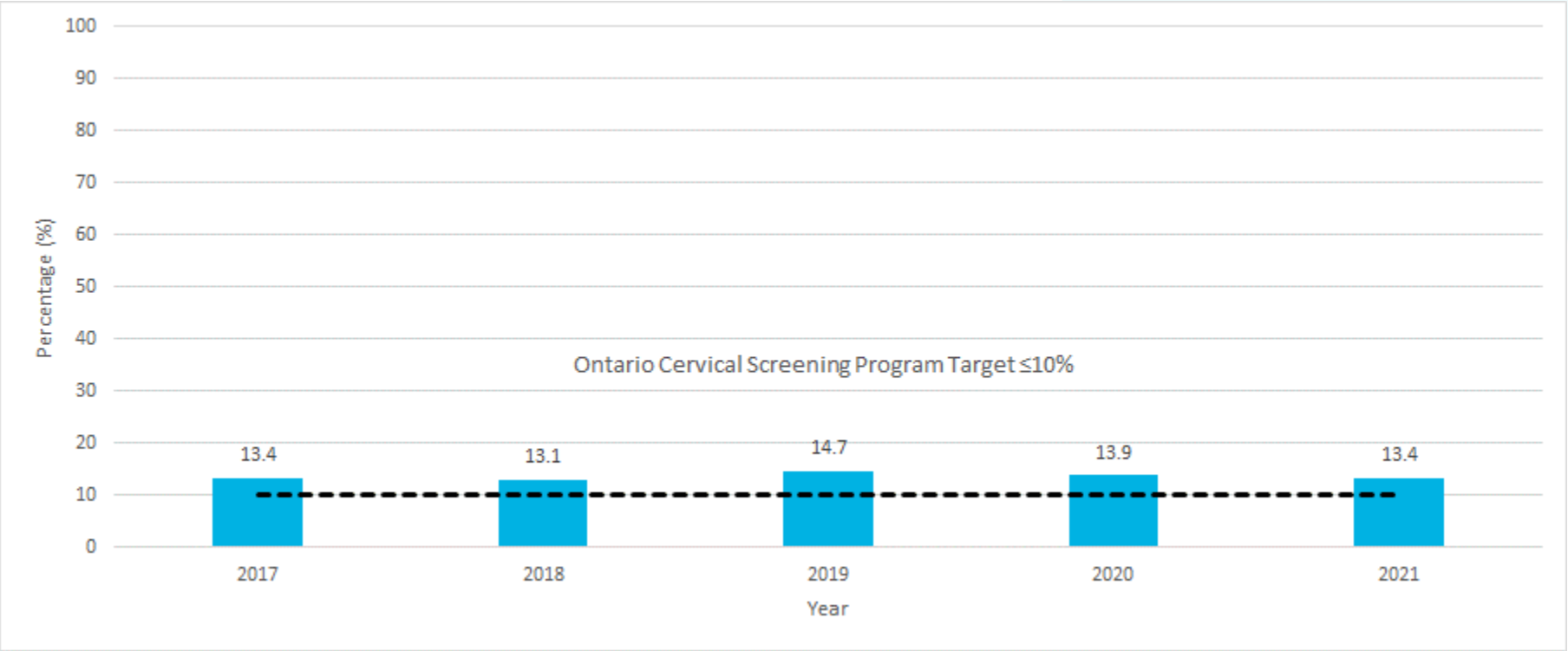
Figure 48: Distribution of Abnormal Cervical Cytology Results, 2017 to 2021



For data, see Table 39 in Appendix 1.

The proportion of abnormal cytology tests with low-grade results remained steady at approximately 86% from 2017 to 2020 and then decreased slightly to 84.7% in 2021. The proportion of abnormal cytology tests with high-grade results was also steady at approximately 14% from 2017 to 2020, but then it increased to 15.3% in 2021. These trends may be due to providers prioritizing cervical screening for higher risk participants (e.g., people who are immunocompromised) early in the pandemic, leading to more abnormal findings. The increase in high-grade results may also be because people overdue for cytology testing returned to screening after pandemic deferrals, which meant their cervical cell changes had more time to develop.

Figure 49: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With a High-Grade Cervical Cytology Result Who Did Not Undergo Colposcopy or Definitive Treatment Within 6 Months of the High-Grade Abnormal Result, 2017 to 2021

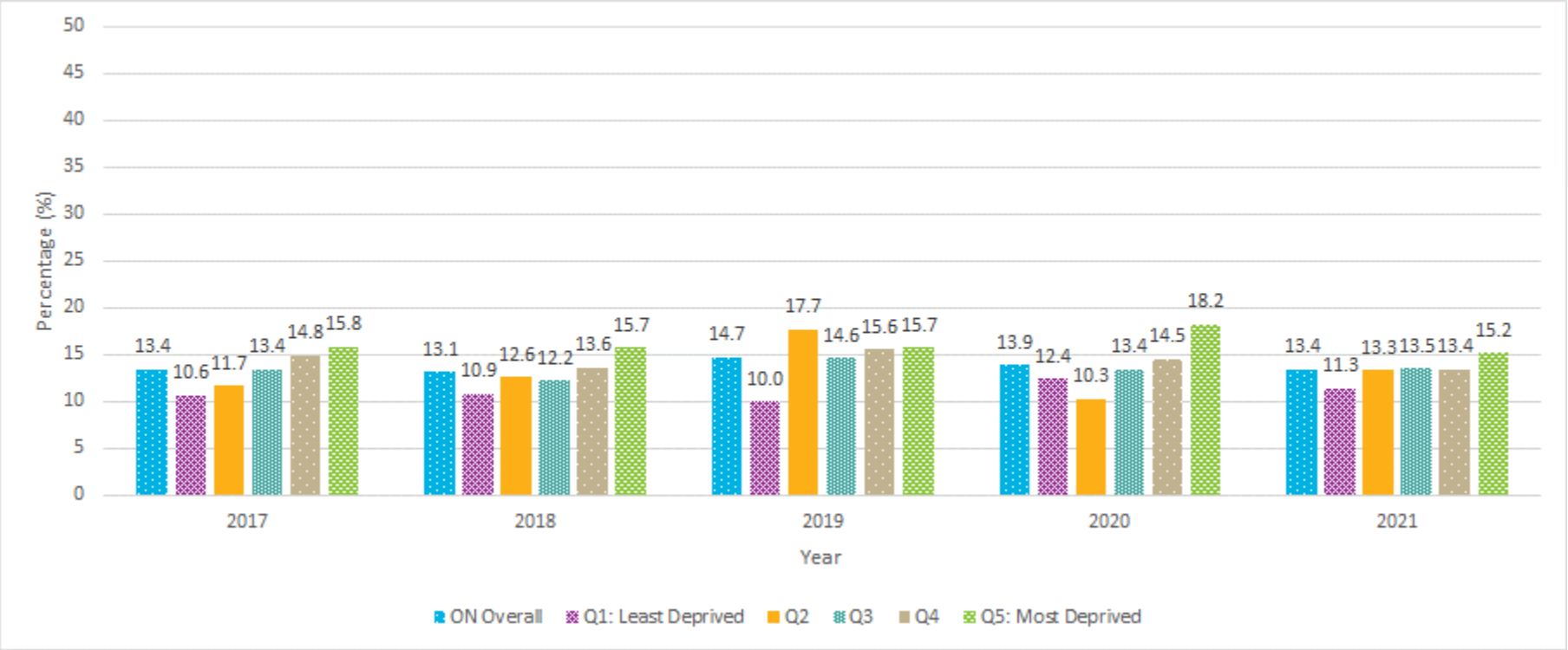


For data, see Table 40 in Appendix 1.

The percentage of participants that did not receive colposcopy or definitive treatment within six months of a high-grade abnormal cytology test result was stable at about 13% from 2017 to 2021, with the exception of 2019 when it increased (worsened) to 14.7%. The increase observed in 2019 may be because people with high-grade cytology results later that year may have experienced delays in accessing colposcopy during the first wave of the COVID-19 pandemic when colposcopy capacity was reduced. Recovery of this indicator in 2020 and 2021 may reflect uptake of Ontario Health pandemic clinical guidance to prioritize colposcopy services for people with high-grade cytology results. Performance for this indicator has not met the program target of less than or equal to 10% (54) since 2017.

OCSP Follow-Up of Abnormal Results - Equity Analyses: Material Deprivation

Figure 50: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With a High-Grade Abnormal Cervical Cytology Test Result Who Did Not Undergo Colposcopy or Definitive Treatment Within 6 Months of the High-Grade Abnormal Result, By Material Deprivation, 2017 to 2021

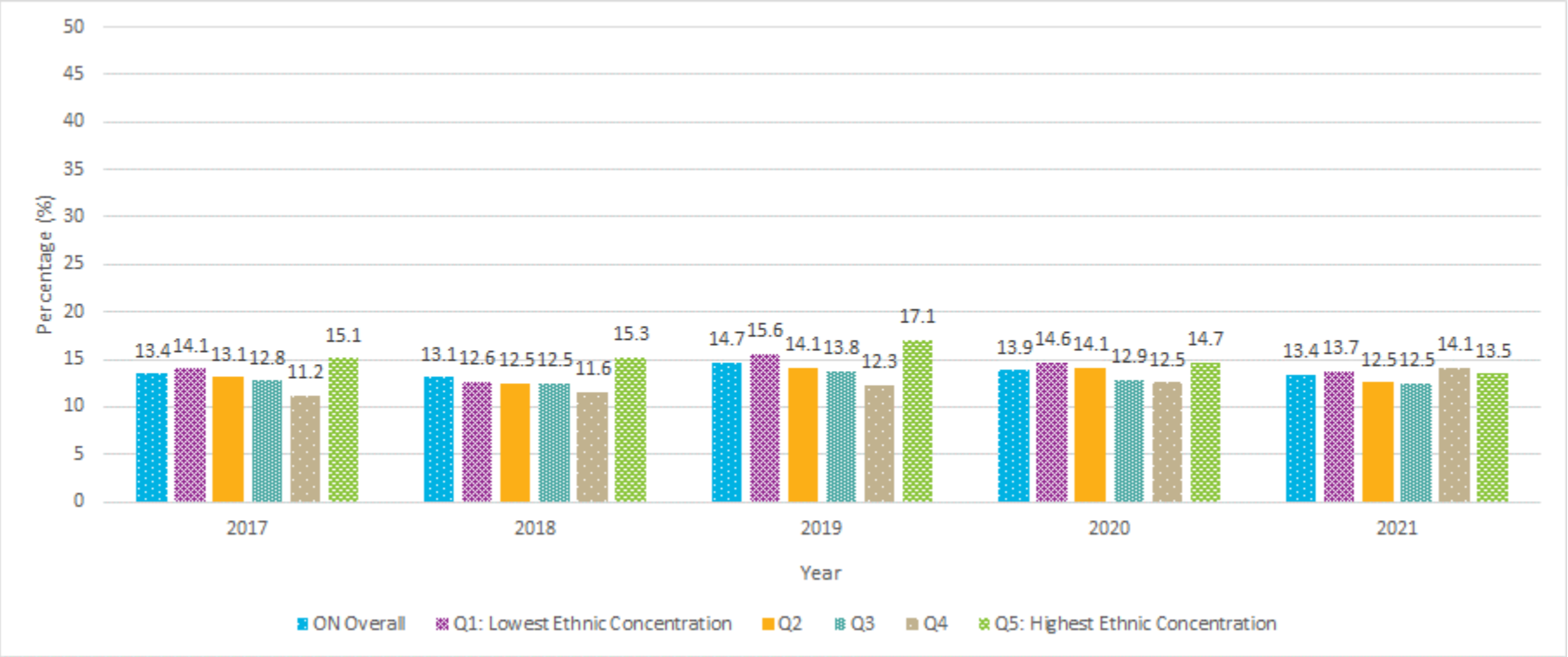


For data, see Table 41 in Appendix 1.

In most reporting years, people living in the most materially deprived neighbourhoods were less likely to receive follow-up of abnormal cytology test results than people living in less materially deprived neighbourhoods. The gap between the most deprived (Q5) and least deprived (Q1) neighbourhoods ranged from 3.9% (2021) to 5.8% (2020). The larger gap observed in 2020 may reflect health disparities that were worsened during the first year of the COVID-19 pandemic.

OCSP Follow-Up of Abnormal Results - Equity Analyses: Ethnic Concentration

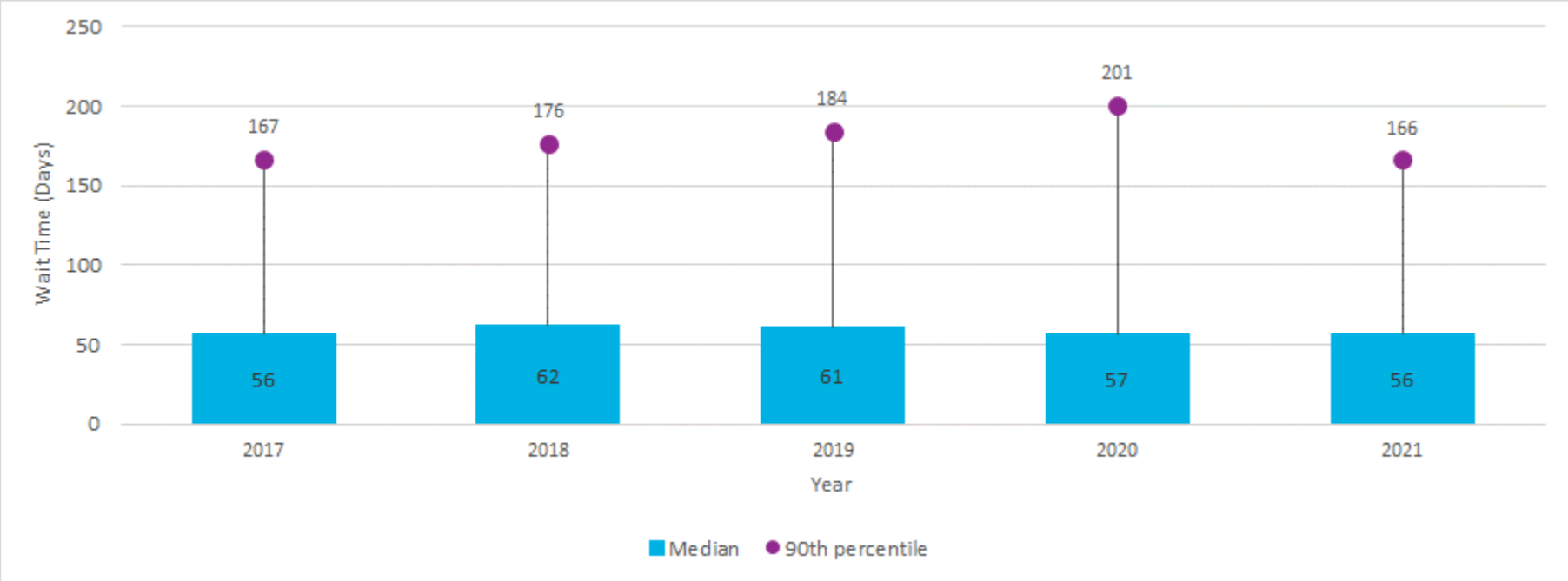
Figure 51: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With a High-Grade Cervical Cytology Test Result Who Did Not Undergo Colposcopy or Definitive Treatment Within 6 Months of the High-Grade Abnormal Result, by Ethnic Concentration, 2017 to 2021



For data, see Table 42 in Appendix 1.

From 2017 to 2020, people living in the most ethnically concentrated neighbourhoods (Q5) were less likely to undergo follow-up of a high-grade abnormal cytology test result within six months, compared to people living in less ethnically concentrated neighbourhoods. The gap between the most and least ethnically concentrated neighbourhoods decreased over time and was nearly eliminated in 2020 and 2021. It is unclear what contributed to this positive finding. Performance of this indicator will continue to be monitored to inform relevant program improvements.

Figure 52: Wait Time (in Days) for Screen-Eligible People in Ontario, Ages 21 to 69, From High-Grade Cervical Cytology Test Result to Colposcopy, 2017 to 2021

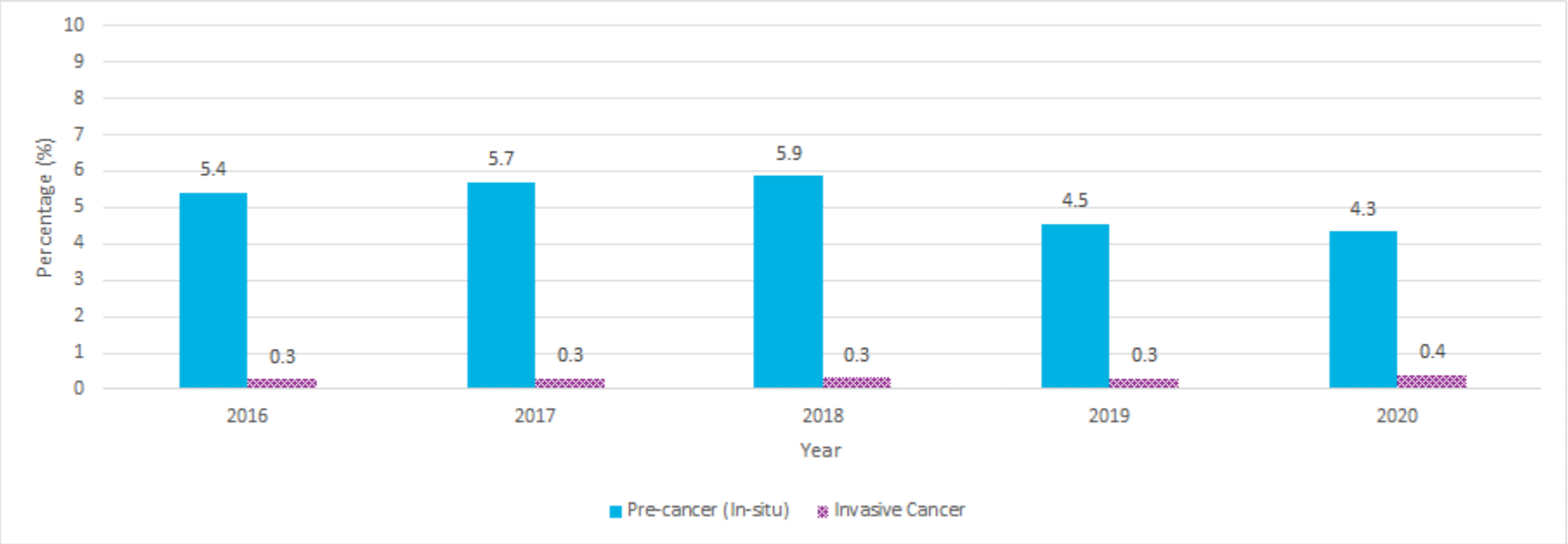


For data, see Table 43 in Appendix 1.

The wait time to colposcopy after a high-grade result varied from 2017 to 2021 (median and 90th percentile). The median wait time ranged from 56 days to 62 days, and the 90th percentile wait time ranged from 166 days to 201 days. The peak 90th percentile wait time of 201 days was observed in 2020, which may be due to the impact of the first wave of the COVID-19 pandemic when routine cervical screening services were deferred and colposcopy capacity was impacted.

OCSP: Quality of Screening

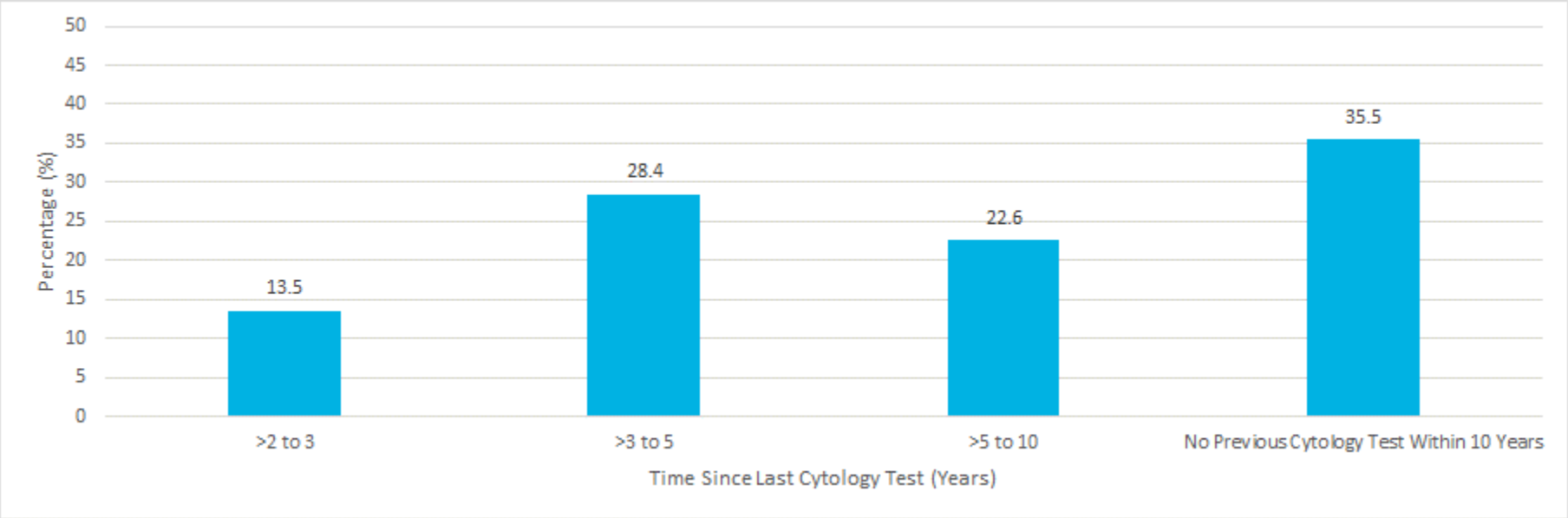
Figure 53: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With an Abnormal Cervical Cytology Test Result Who Were Diagnosed With an Invasive Cervical Cancer or Pre-Cancer After a Follow-Up Colposcopy or Surgical Procedure Involving the Cervix, 2016 to 2020



For data, see Table 44 in Appendix 1.

The PPV is the probability that someone with a positive cancer screening test has pre-cancer or cancer. The goal of cervical screening with a cytology test is to identify pre-cancerous lesions that may develop into cervical cancer if they are not treated. Therefore, the PPV of cytology tests for pre-cancer (in situ) provides a more accurate measure of the effectiveness of the cytology test than the PPV of cytology tests for invasive cervical cancer (55). From 2016 to 2018, the PPV for cervical cytology increased slightly from 5.4% to 5.9%. In 2019, the PPV for cervical pre-cancer decreased to 4.5%, followed by a further decrease in 2020 to 4.3%. From 2016 to 2019, the PPV for invasive cervical cancer was stable at approximately 0.3% and in 2020, the PPV for invasive cervical cancer increased slightly to 0.4%. It is not known why there were fluctuations in PPV for pre-cancer from 2016 to 2020 or why there was a slight increase in PPV for cervical cancer in 2020 after relative stability from 2016 to 2019. Performance will continue to be monitored.

Figure 54: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, Who Were Diagnosed With Invasive Cervical Cancer, by History of Cervical Screening With Cytology, 2017 to 2019



For data, see Table 45 in Appendix 1.

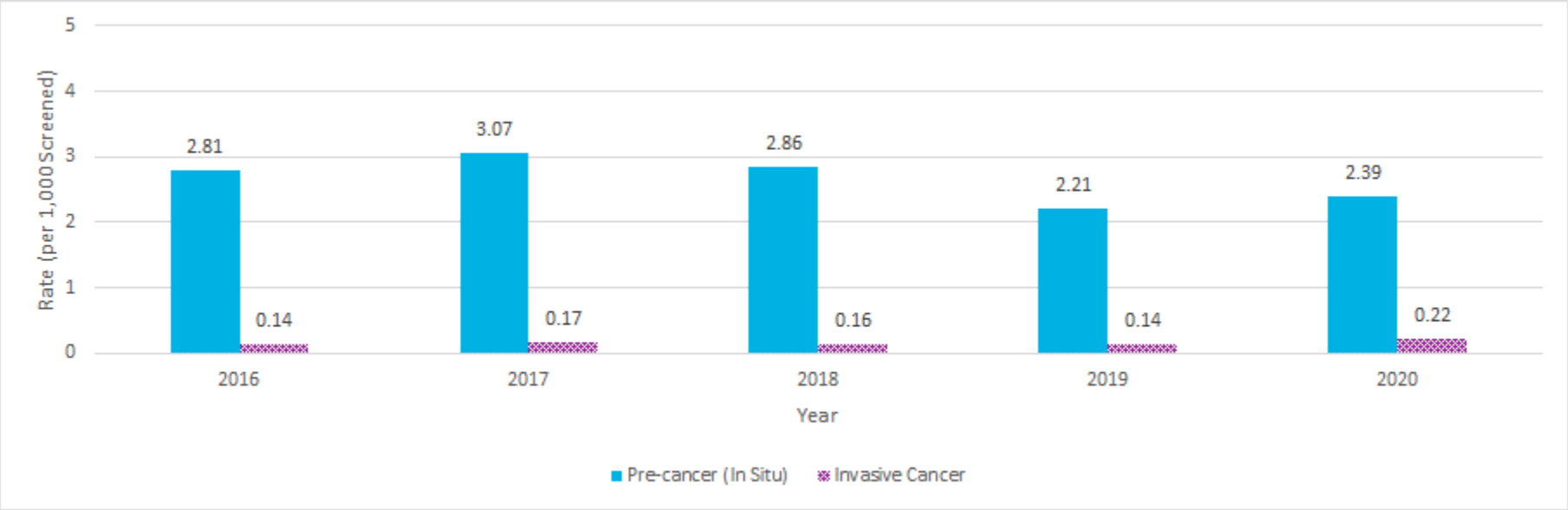
Most cervical cancers occur in people who have never been screened or screened less often than recommended (56,57). From 2017 to 2019, 35.5% of the people diagnosed with invasive cervical cancer had not been screened in the 10 years before their diagnosis.

Of the people diagnosed with invasive cervical cancer, 13.5% had a cytology test within two to three years of their diagnosis. There are several reasons some people might be diagnosed with cancer before they are due for re-screening (e.g., within two to three years of a previous cytology test). First, the cytology test may miss some pre-cancers (false-negative results). Second, while the cytology test may be able to identify invasive cervical cancers, the test is not made for that purpose and can miss some cancer cells. Third, follow-up of abnormal screening results is important for detecting and, if appropriate, treating pre-cancers. Although the percentage of people with abnormal results who have follow-up has increased, there is room for improvement. It is possible that some people diagnosed with cervical cancer who had a cytology test in the last two to three years had a prior abnormal screening result that had not been followed-up.

Over time, a decrease in missed pre-cancers is expected. Ontario is planning to implement the human papillomavirus test as the primary cervical screening test in Ontario in 2025, which is better at detecting pre-cancers and cervical cancers (58).

OCSP: Detection

Figure 55: Number of Screen-Eligible People in Ontario, Ages 21 to 69, With a Screen-Detected Pre-Cancer (In Situ) or Invasive Cervical Cancer, per 1,000 People Screened, 2016 to 2020



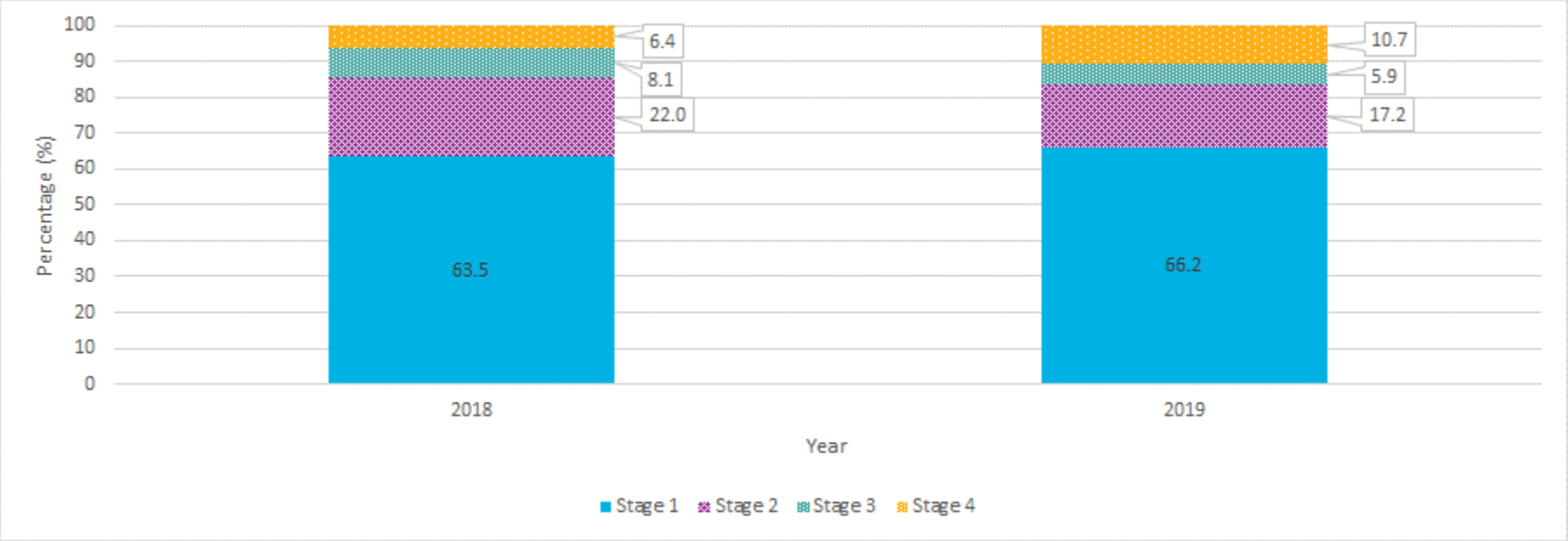
For data, see Table 46 in Appendix 1.

The cytology test is designed to identify cervical pre-cancers that may develop into invasive cervical cancer over time. As a result, it is expected that the pre-cancer detection rate would be higher than the invasive cervical cancer detection rate (59,60). The cervical pre-cancer (in situ) detection rate remained steady from 2016 to 2018 at around 3 cases per 1,000 people screened, before decreasing in 2019 to 2.21 cases per 1,000 people screened. In 2020, the rate increased slightly to 2.39 cases per 1,000 people screened. For invasive cervical cancers, the detection rate increased from 0.14 cases per 1,000 people screened in 2016 to 0.22 cases per 1,000 people screened in 2020.

The increase in cervical pre-cancer and cancer detection rates in 2020 may be due to providers prioritizing cervical screening for higher risk participants (e.g., people who are immunocompromised) early in the pandemic, leading to a greater detection of pre-cancer and cancer. The increase in pre-cancer and cancer detection may also be because overdue people returned to screening after pandemic deferrals, which meant their cervical cell changes had more time to develop.

OCSP: Disease Extent at Diagnosis

Figure 56: Stage Distribution of All Invasive Cervical Cancers Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019



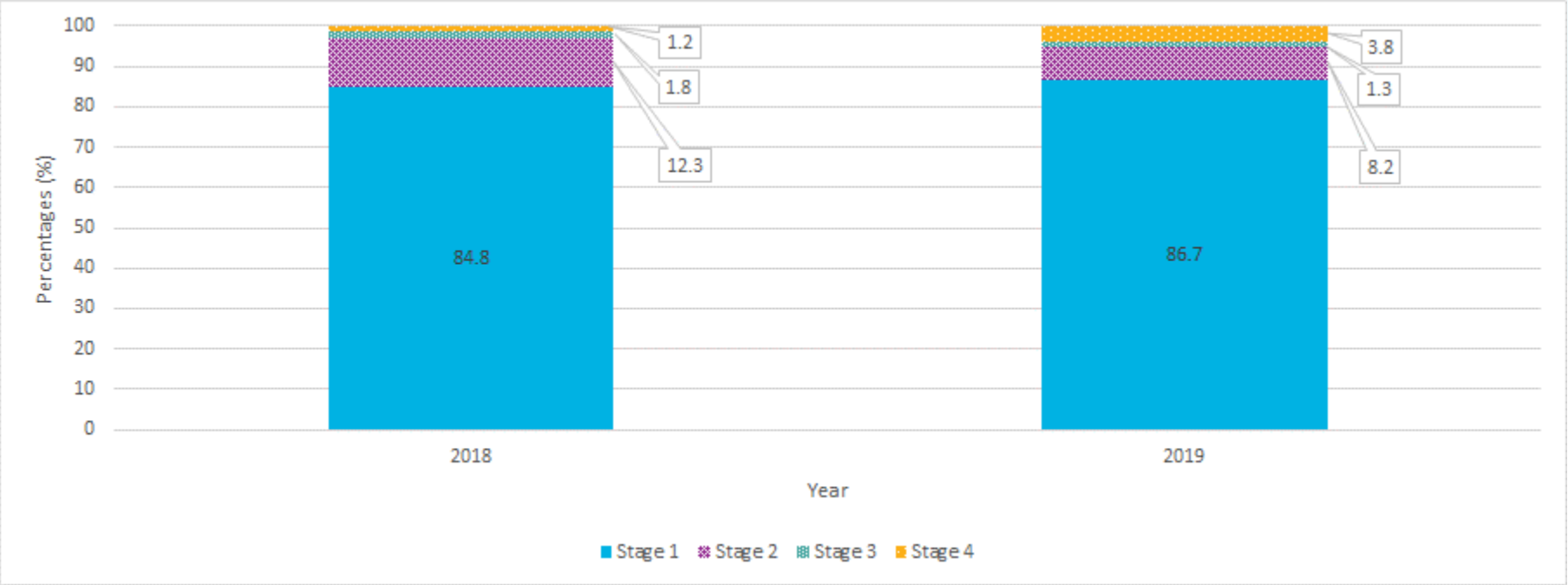
Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

For data, see Table 47 in Appendix 1.

Most invasive cervical cancers were diagnosed at stage 1 in 2018 (63.5%) and 2019 (66.2%). More screen-detected invasive cancers were found at stage 1 in 2018 (84.8%) and 2019 (86.7%) (see Figure 57) than cancers not detected by screening, which highlights the benefits of cancer screening for early detection. From 2018 to 2019, the proportion of invasive cervical cancers (screen-detected and non-screen-detected combined) found at stage 2 decreased from 22.0% in 2018 to 17.2% in 2019. A similar decrease was noted for the proportion of invasive cancers found at stage 3, from 8.1% in 2018 to 5.9% in 2019. A corresponding increase in the proportion of invasive cervical cancers found at Stage 4 was observed, rising from 6.4% in 2018 to 10.7% in 2019.

Note that cervical screening with the cytology test is designed to detect pre-cancer. While it may be able to identify invasive cervical cancers, the test is not made for that purpose and can miss some cancer cells (55).

Figure 57: Stage Distribution of Screen-Detected Invasive Cervical Cancers Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019

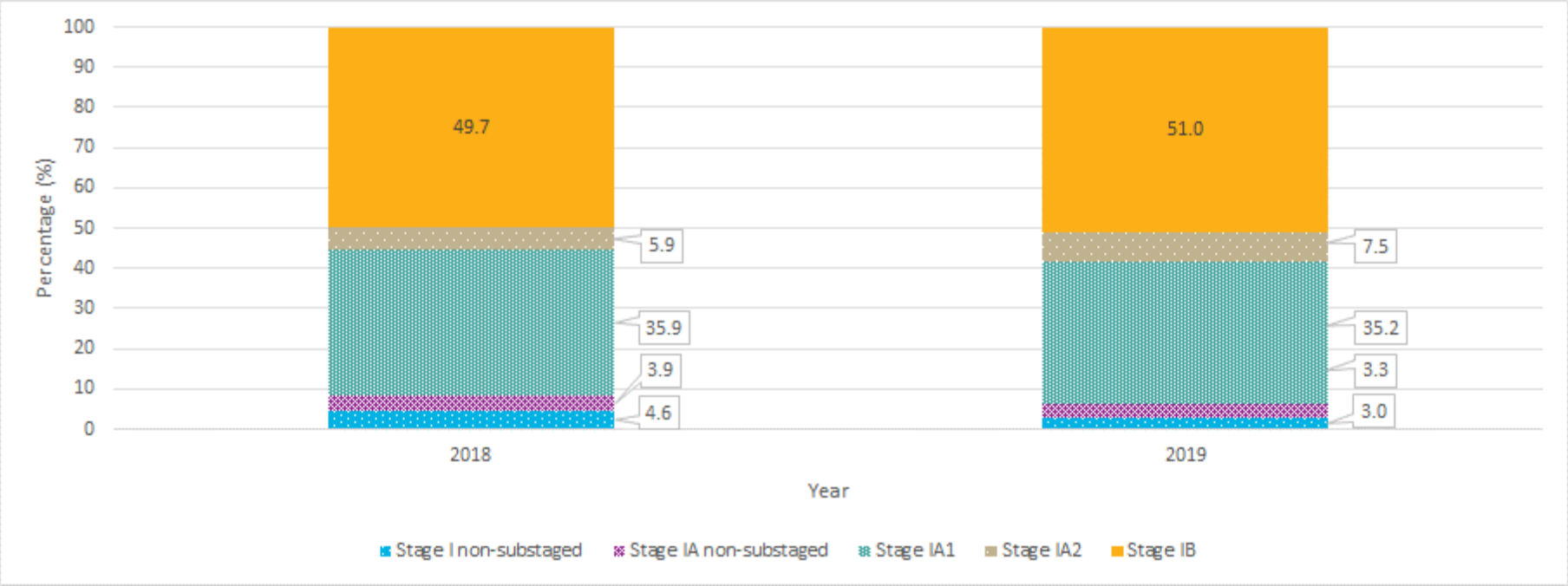


Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

For data, see Table 48 in Appendix 1.

Most screen-detected invasive cervical cancers were stage 1 in 2018 (84.7%) and 2109 (86.7%). The percentage of invasive cervical cancers diagnosed at stage 2 decreased from 12.3% in 2018 to 8.2% in 2019, while the percentage of stage 3 screen-detected invasive cervical cancers remained stable in this period. From 2018 to 2019, the percentage of invasive cervical cancers detected at stage 4 increased from 1.2% to 3.8%. It is unclear what attributed to this observed change in staging distribution. Performance for this indicator will continue to be monitored.

Figure 58: Stage 1 Sub-Stage Distribution for All Invasive Cervical Cancers in People Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019



Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

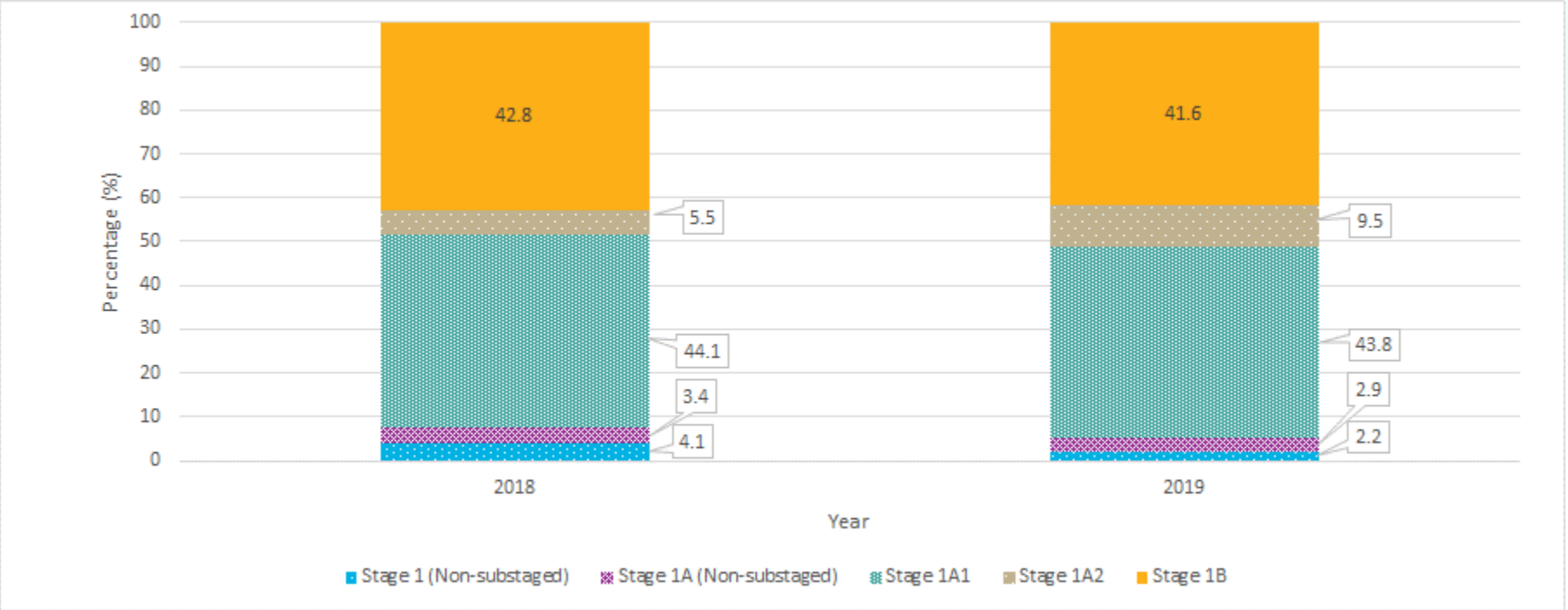
Stage definitions (60–63):

- Stage 1A1 is defined as an invasive tumour less than 3 millimetres deep, which can only be detected under a microscope.
- Stage 1A2 is defined as an invasive tumour 3 to 5 millimetres deep, which can only be detected under a microscope.
- Stage 1B is defined as more than 5 millimetres deep and can be further broken down into 3 sub-stages based on tumour size; however, here it is combined and reported only as stage 1B.

For data, see Table 49 in Appendix 1.

The majority of all stage 1 invasive cervical cancers (screen-detected and non-screen-detected) were diagnosed at stage 1B in 2018 (49.7%) and 2019 (51.0%). Stage 1A1 cancers made up about 35% to 36% of all stage 1 invasive cervical cancers in 2018 and 2019. More screen-detected invasive cervical cancers were diagnosed at stage 1A, 1A1 and 1A2 (Figure 59) than all invasive cervical cancers (Figure 58), highlighting the benefits of cervical screening for early detection of invasive cancer.

Figure 59: Stage 1 Sub-Stage Distribution for Screen-Detected Invasive Cervical Cancers in People Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019



Note: Data prior to 2018 are not shown because of a change in the cancer staging classification system in 2018.

Stage definitions (60–63):

- Stage 1A1 is defined as an invasive tumour less than 3 millimetres deep, which can only be detected under a microscope.
- Stage 1A2 is defined as an invasive tumour 3 to 5 millimetres deep, which can only be detected under a microscope.
- Stage 1B is defined as more than 5 millimetres deep and can be further broken down into 3 sub-stages based on tumour size; however, here it is combined and reported only as stage 1B.

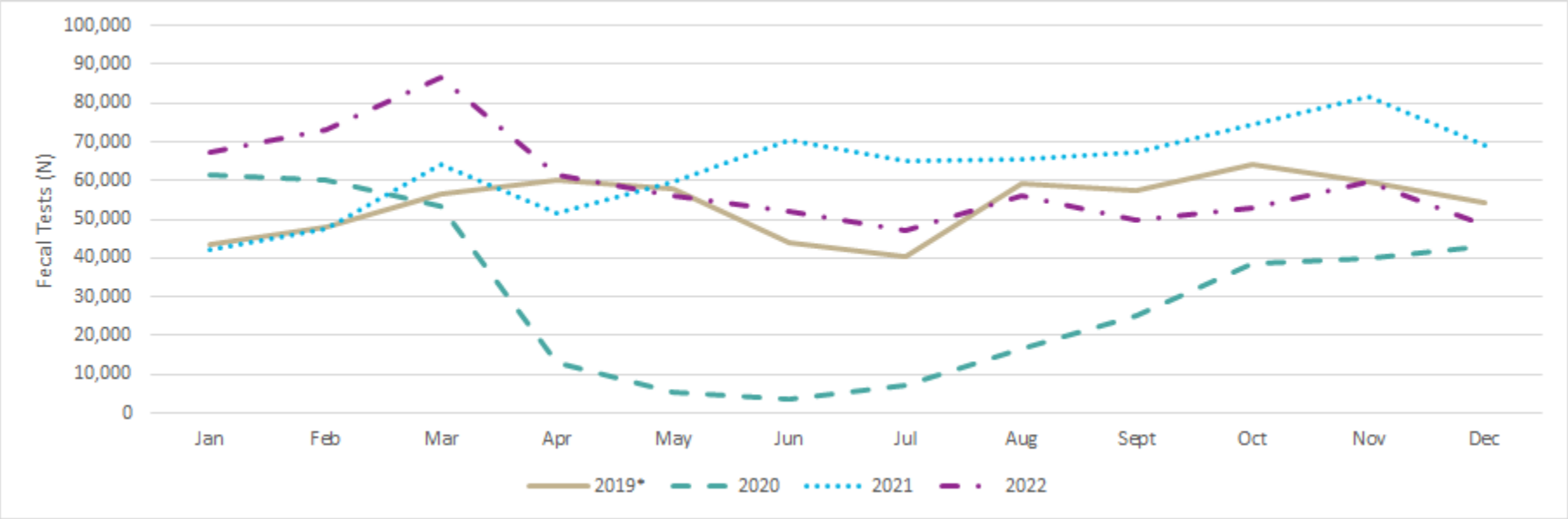
For data, see Table 50 in Appendix 1.

In 2018 and 2019, the majority of screen-detected stage 1 invasive cancers were stage 1A1 (44.1% in 2018 and 43.8% in 2019) and stage 1B (42.8% in 2018 and 41.6% in 2019). Detecting cervical cancers at earlier stages is important for health outcomes including preservation of fertility: the earlier the stage (or sub-stage within a stage), the better the prognosis is for the person diagnosed (64).

ColonCancerCheck Program Performance

ColonCancerCheck: Volumes

Figure 60: Number of Fecal Tests Completed by People in Ontario, Ages 49 to 85, By Month, 2019 to 2022



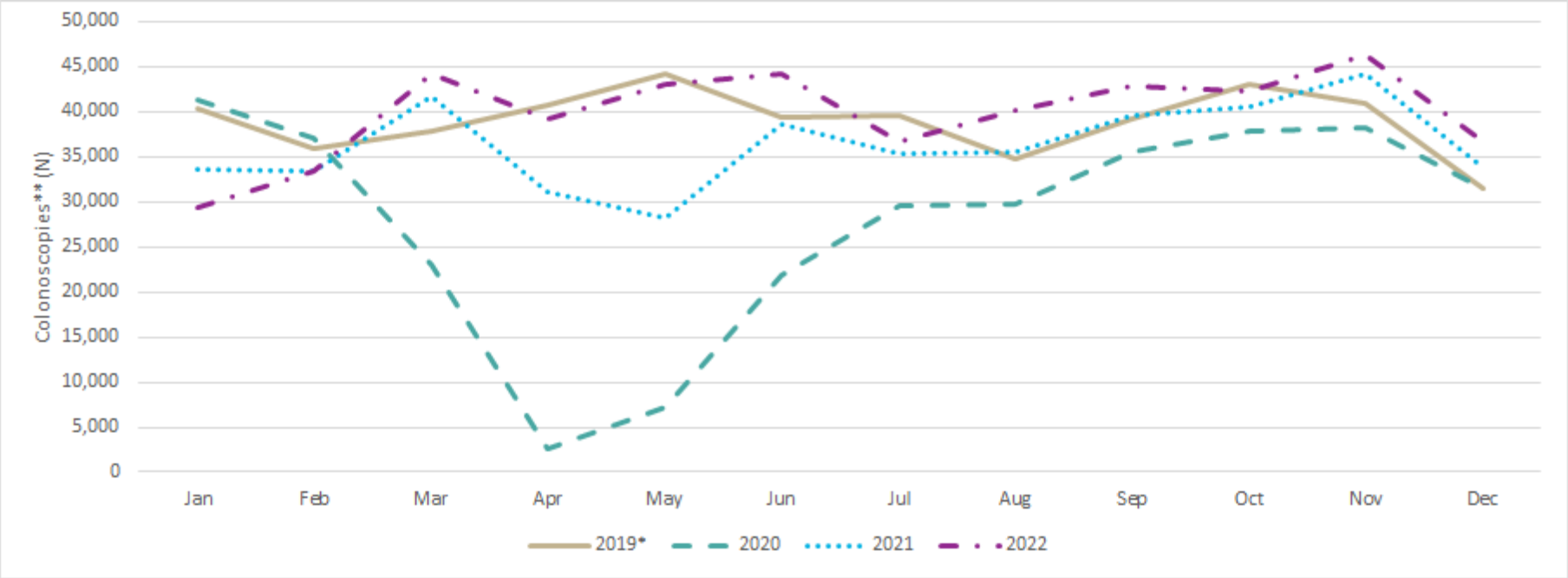
*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 51 in Appendix 1.

The volume of completed fecal tests decreased from March 2020 to June 2020. Volumes then increased month by month until March 2022, when fecal test volumes exceeded monthly volumes observed in previous years. Beginning in April 2022, the monthly volumes decreased again back to comparable pre-pandemic values. Fecal test volumes were 10% higher in 2022 than in 2019* before the COVID-19 pandemic; however, volumes were 6% lower in 2022 than in 2021, the year in which the most recovery occurred.

The COVID-19 pandemic contributed significantly to the trends observed in 2020, 2021 and 2022. Possible pandemic impacts include the pause in screening and correspondence in 2020, reduced access to primary care providers for screening purposes, and the gradual resumption of invitation and recall correspondence letters in 2021 and 2022, with high volumes of letters sent in 2021 to clear the letter backlog. The pandemic likely contributed to results observed in 2020, 2021 and 2022, with fecal test volume fluctuations corresponding to pandemic waves and regular screening trends (e.g., travel patterns in winter and summer, fluctuations in recall volumes).

Figure 61: Number of Outpatient Colonoscopies Performed for People of All Ages in Hospitals or Out-Of-Hospital Premises in Ontario, 2019 to 2022



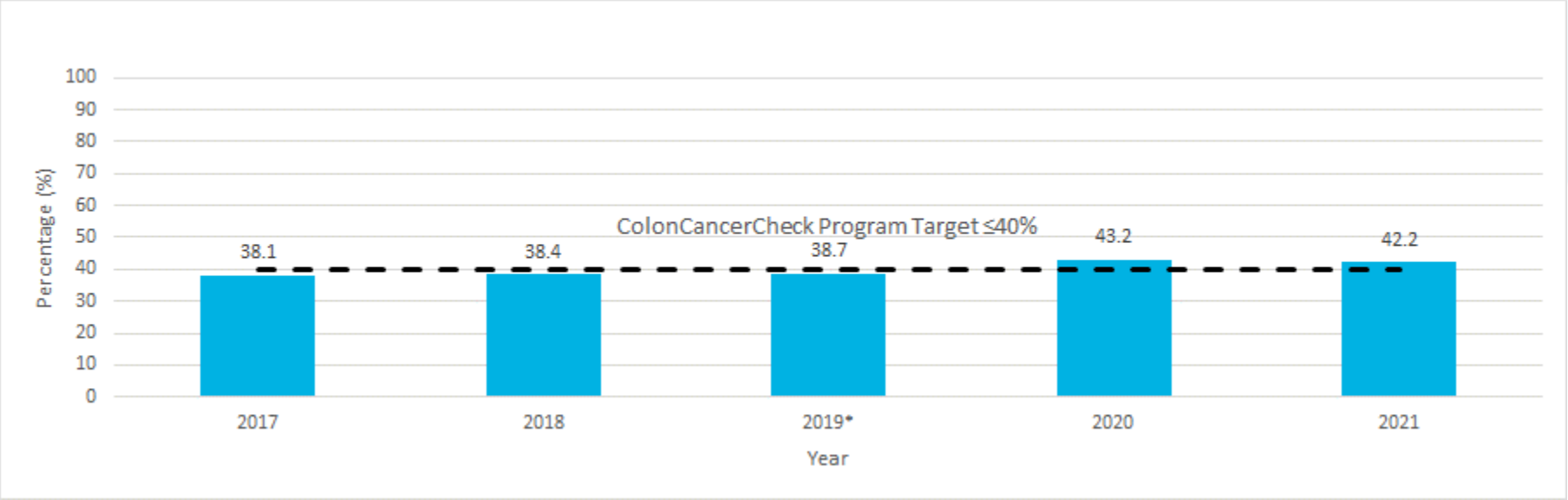
*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.
**Includes colonoscopies for fecal immunochemical test-positive results, surveillance, family history, symptoms and other screening.

For data, see Table 52 in Appendix 1.

The number of outpatient colonoscopies performed in hospitals or out-of-hospital premises decreased from February to April 2020 due to significant constraints on colonoscopy resources during the COVID-19 pandemic. In 2022, outpatient colonoscopy volumes increased by 7.3% compared to 2021, reflecting a return to pre-pandemic 2019 volumes. However, volumes have not yet exceeded pre-pandemic levels which indicates that there is still a backlog of colonoscopies in Ontario as a result of the COVID-19 pandemic.

Colorectal Cancer Screening: Coverage

Figure 62: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Were Overdue for Colorectal Cancer Screening, 2017 to 2021



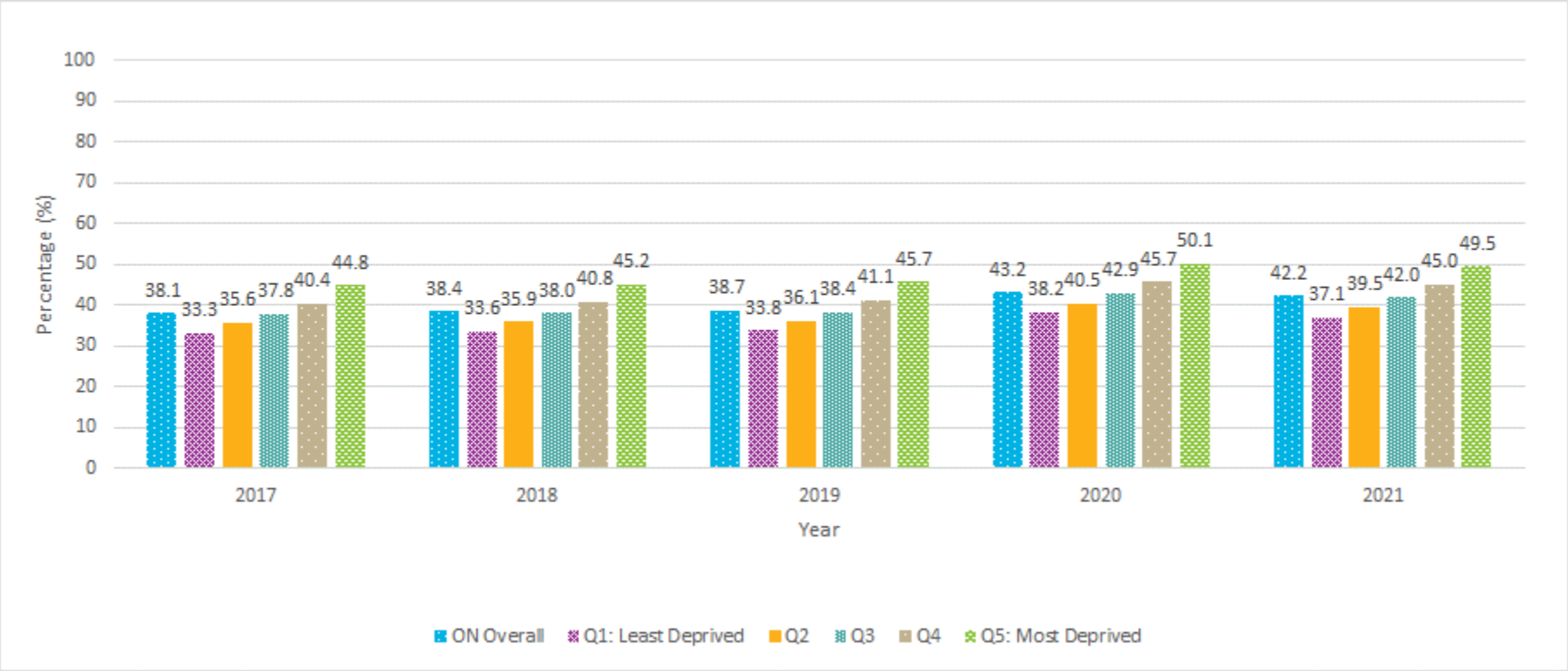
*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 53 in Appendix 1.

This indicator represents the percentage of screen-eligible people in Ontario who had not had colorectal cancer screening (i.e., no fecal test in two years, flexible sigmoidoscopy in 10 years or colonoscopy in 10 years). The percentage of people overdue for screening was stable at approximately 38% from 2017 to 2019, followed by an increase to 43.2% in 2020. This increase may have been due to impacts of the COVID-19 pandemic, including the deferral of cancer screening during the first pandemic wave. Performance improved slightly in 2021 (42.2%), suggesting that colorectal cancer screening participation is beginning to recover from the effects of the pandemic. Ontario's performance on this indicator did not meet the program performance target of no more than 40% in 2020 and 2021.

Overdue for Colorectal Cancer Screening - Equity Analyses: Material Deprivation

Figure 63: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Were Overdue for Colorectal Cancer Screening, by Material Deprivation, 2017 to 2021

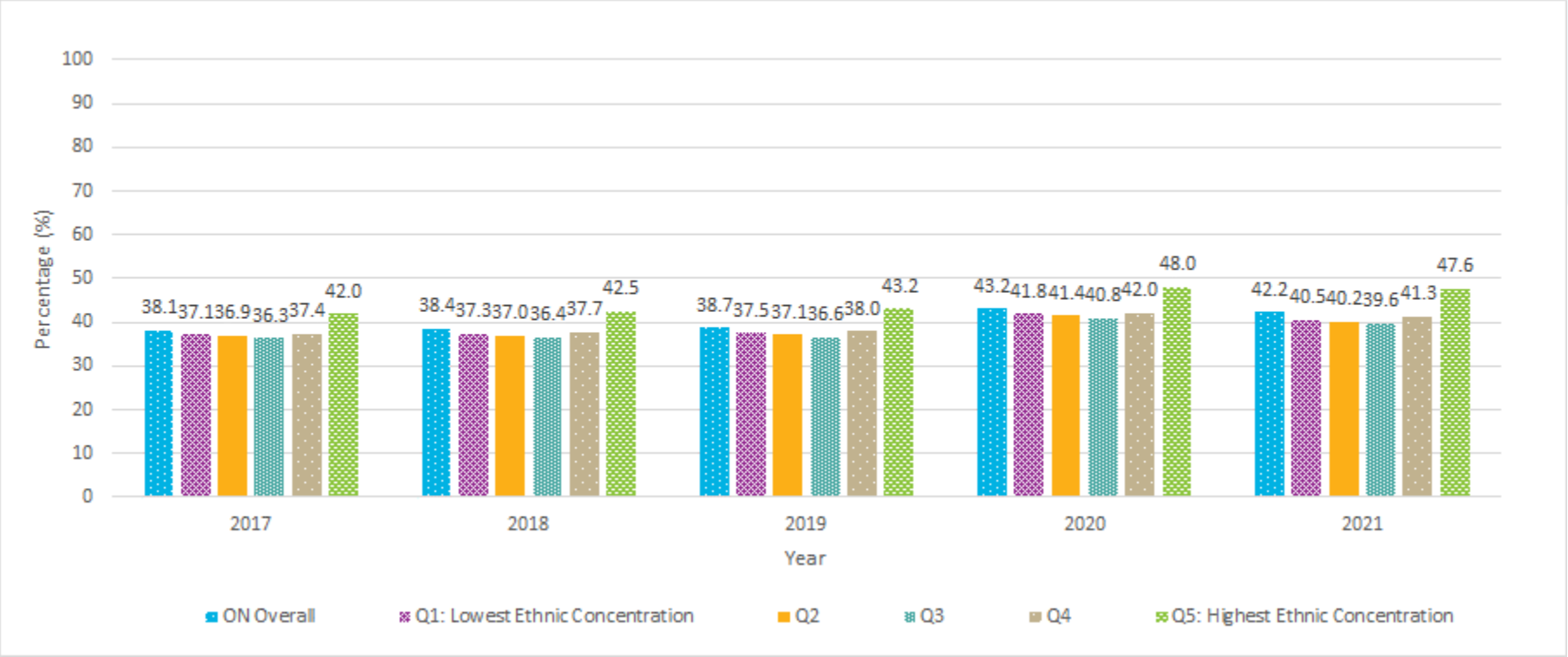


For data, see Table 54 in Appendix 1.

Across all reporting years, people living in more materially deprived neighbourhoods were more likely to be overdue for colorectal cancer screening than people living in less materially deprived neighbourhoods. The percentage of people overdue for screening in the most deprived neighbourhoods (Q5) was higher than the percentage of people overdue overall in Ontario and the program target of 40% or less. The gap between the least deprived (Q1) and the most deprived (Q5) neighbourhoods widened slightly from 11.5% in 2017 to 12.4% in 2021.

Overdue for Colorectal Cancer Screening - Equity Analyses: Ethnic Concentration

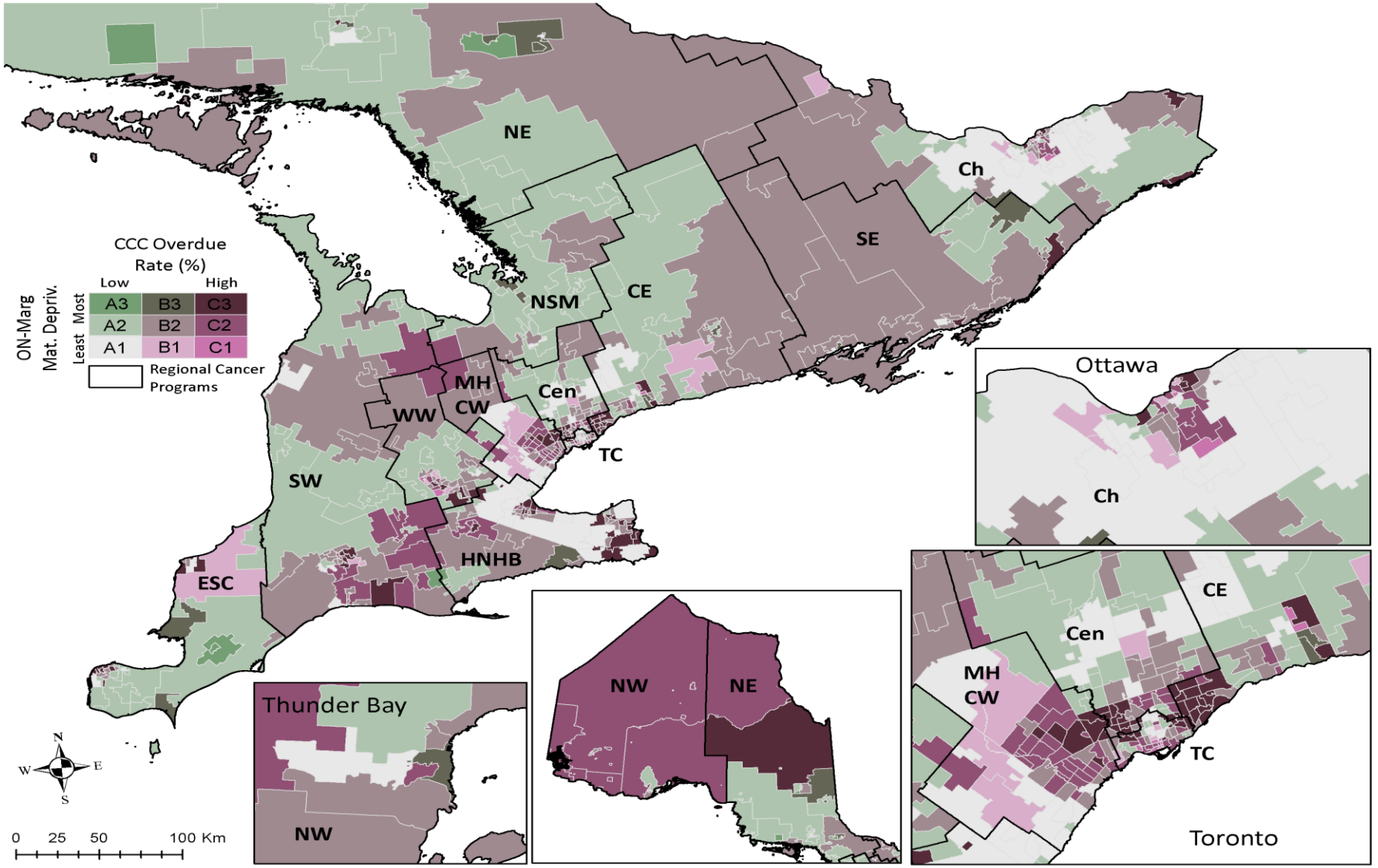
Figure 64: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Were Overdue for Colorectal Cancer Screening, by Ethnic Concentration, 2017 to 2021



For data, see Table 55 in Appendix 1.

Across all reporting years, people living in the most ethnically concentrated neighbourhoods were more likely to be overdue for colorectal screening than people living in less ethnically concentrated neighbourhoods. The percentage of people overdue for screening in the most ethnically concentrated neighbourhoods was higher than the overall overdue rate in Ontario and the program target of 40% or less. The gap between the least ethnically concentrated (Q1) and most ethnically concentrated (Q5) neighbourhoods widened from 4.9% in 2017 to 7.1% in 2021, with most of the increase taking place in 2020. The increased gap in 2020 and 2021 may reflect health disparities that were worsened by the COVID-19 pandemic.

Figure 65: Map Showing Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Were Overdue for Colorectal Cancer Screening, by Material Deprivation



Regional Cancer Programs: ESC = Erie St. Clair, SW = South West, WW = Waterloo Wellington, HNHB = Hamilton Niagara Haldimand Brant, CW = Central West, MH = Mississauga Halton, TC = Toronto Central, Cen = Central, CE = Central East, SE = South East, Ch= Champlain, NSM = North Simcoe Muskoka, NE = North East, NW = North West

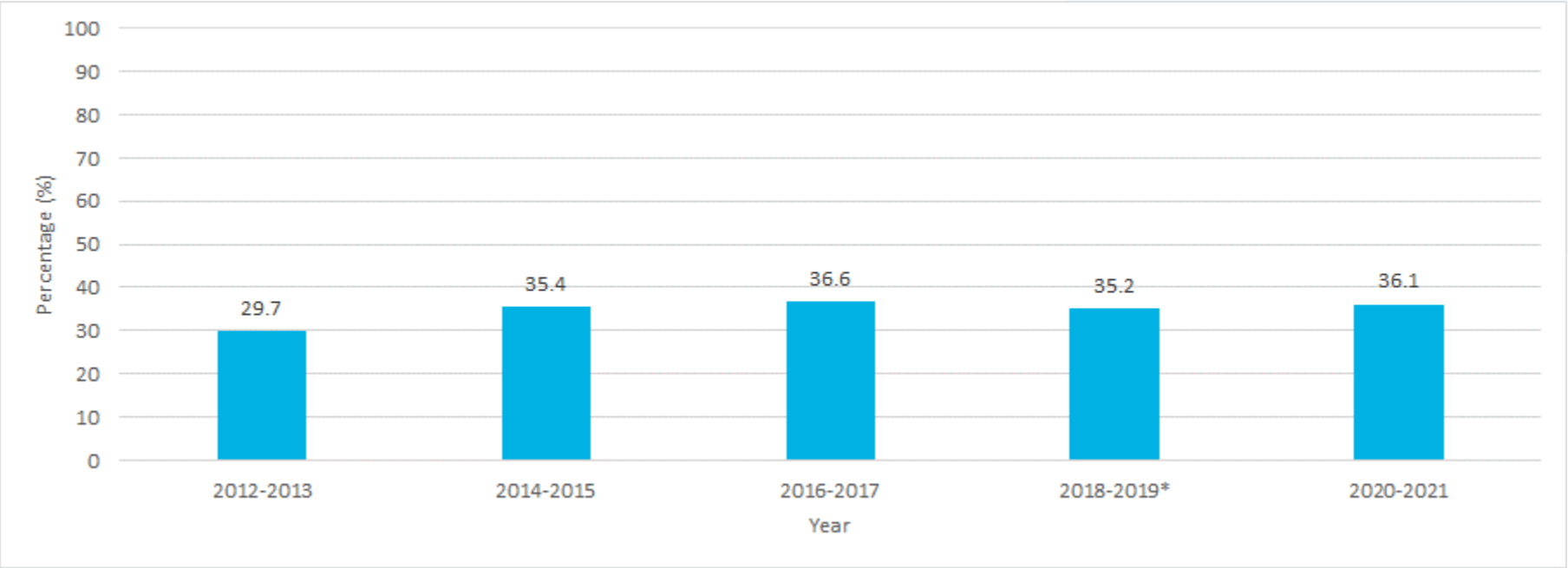
Data notes: Neighbourhoods are mapped at the forward sortation area level. Participation data is for the 2021 reporting period. Bivariate choropleth (shaded) map. Major boundary lines reflect Regional Cancer Program boundaries. If you require data in an alternative format, please contact us by email (OH-CCO_ScreeningPerformanceReport@OntarioHealth.ca).

Colorectal Cancer Screening Participation:

- **A (high participation): <38.4%**
- **B (medium participation): 38.4% to 42.8%**
- **C (low participation): >42.8%**

In neighbourhoods with the highest proportion of people overdue for screening, more than 42.8% of eligible people were overdue for colorectal cancer screening, meaning that they have not had a recent fecal test within two years, a flexible sigmoidoscopy within 10 years or a colonoscopy within 10 years. Much of northern Ontario (the North West and North East Regional Cancer Programs) have high proportions of people who are overdue for colorectal cancer screening and who live in neighbourhoods with high degrees of material deprivation (the darkest purple colour on the map). In the Toronto Central regional cancer program, a high proportion of eligible people overdue for colorectal cancer screening were clustered around the downtown core in the most materially deprived neighbourhoods. In the Central and Central East regional cancer programs, a high proportion of eligible people who were overdue for colorectal cancer screening lived in the most materially deprived neighbourhoods in West North York, North Etobicoke, Scarborough and Oshawa. In the Mississauga/Halton regional cancer program, a high proportion of people who are overdue for colorectal cancer screening live in the most materially deprived neighbourhoods in Brampton and Mississauga.

Figure 66: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Completed at Least 1 Fecal Test in a 30-Month Period, 2012-2013 to 2020-2021



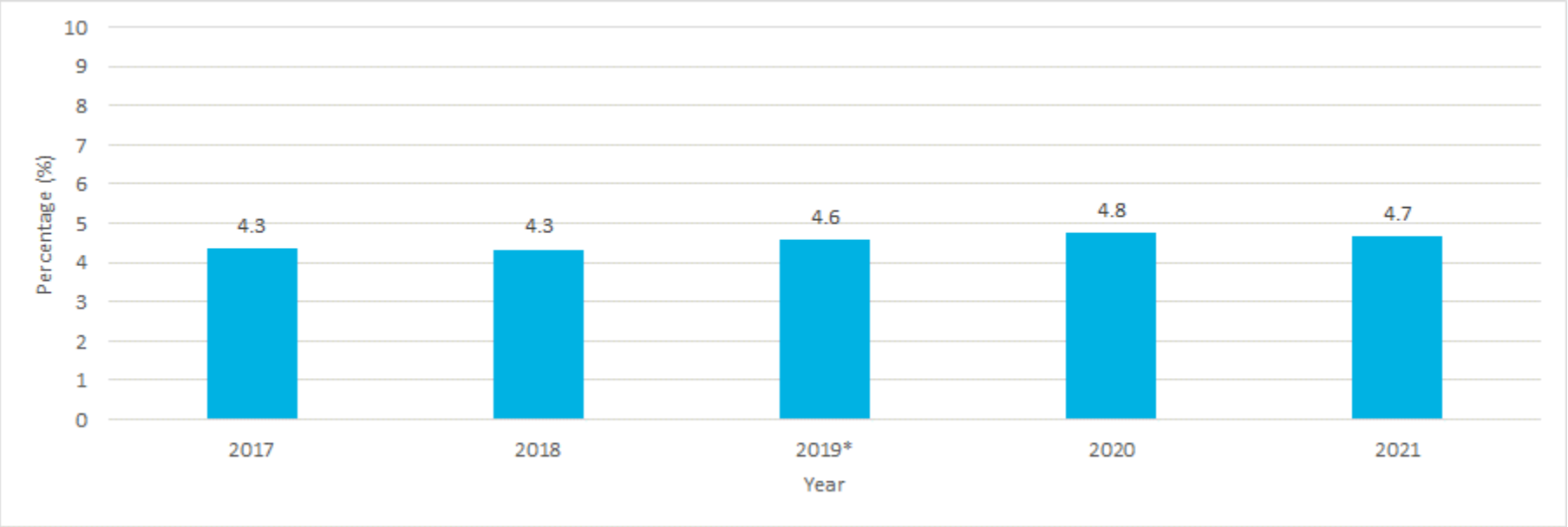
*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 56 in Appendix 1.

The percentage of people who completed at least one fecal test in a 30-month period has remained stable at about 35% to 36% since 2014–2015. Unlike the trend observed for the percentage of people overdue for colorectal cancer screening (which includes colonoscopy and flexible sigmoidoscopy in addition to the fecal test), the COVID-19 pandemic did not significantly impact fecal test participation, likely because the test can be done at home.

ColonCancerCheck: Follow-Up of Abnormal Results

Figure 67: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result, 2017 to 2021

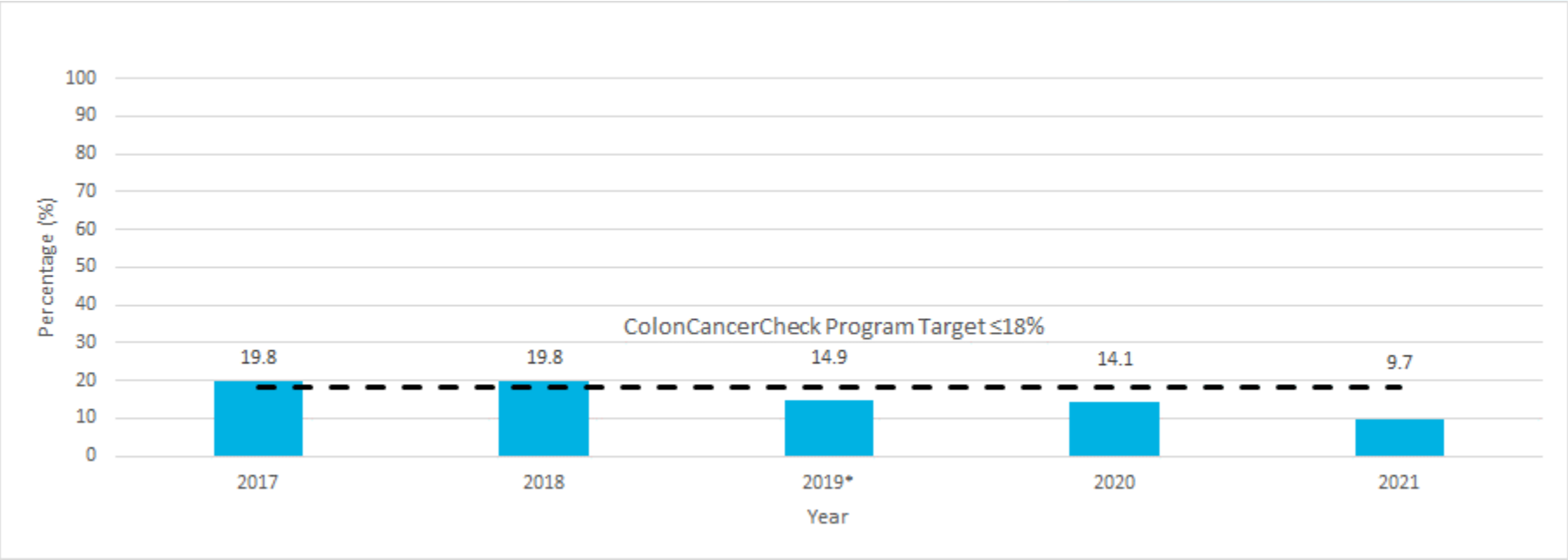


*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 57 in Appendix 1.

The percentage of people screened who had an abnormal fecal test result increased from 4.3% in 2017 to 4.7% in 2021. There was an increase in abnormal fecal test results from 4.3% to 4.6% in 2019, which may be due to the implementation of the fecal immunochemical test (FIT) in June 2019. The FIT detects smaller quantities of blood in the stool than the guaiac-based fecal occult blood test (the test previously recommended by ColonCancerCheck), leading to more abnormal fecal test results (65).

Figure 68: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Did Not Undergo Colonoscopy Within 6 Months of Their Abnormal Fecal Test Result, 2017 to 2021



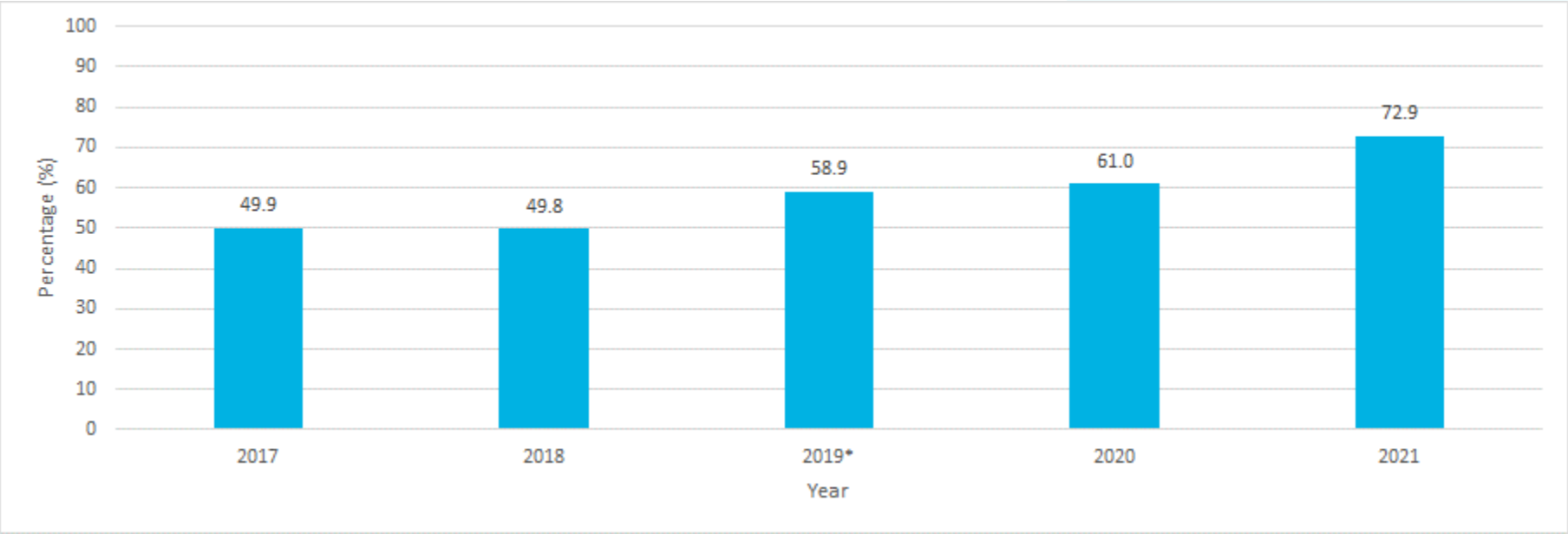
*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 58 in Appendix 1.

The percentage of people who did not have a follow-up colonoscopy within six months of an abnormal fecal test result decreased (improved) from 19.8% in 2017 to 9.7% in 2021. Performance has met the program target of 18% or less since 2019 when the FIT was implemented.

This improvement likely reflects efforts undertaken by Regional Cancer Programs to support appropriate and timely follow-up for people with abnormal fecal test results in preparation for the launch of FIT in the program (e.g., by providing primary care provider and endoscopist education, and implementing regional- or facility-level centralized intake and booking processes). Performance continued to improve following the onset of the COVID-19 pandemic, which may be due to prioritizing colonoscopies for people with abnormal fecal tests according to Ontario Health pandemic guidance.

Figure 69: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Underwent Colonoscopy Within 8 Weeks of the Abnormal Result, 2017 to 2021



*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

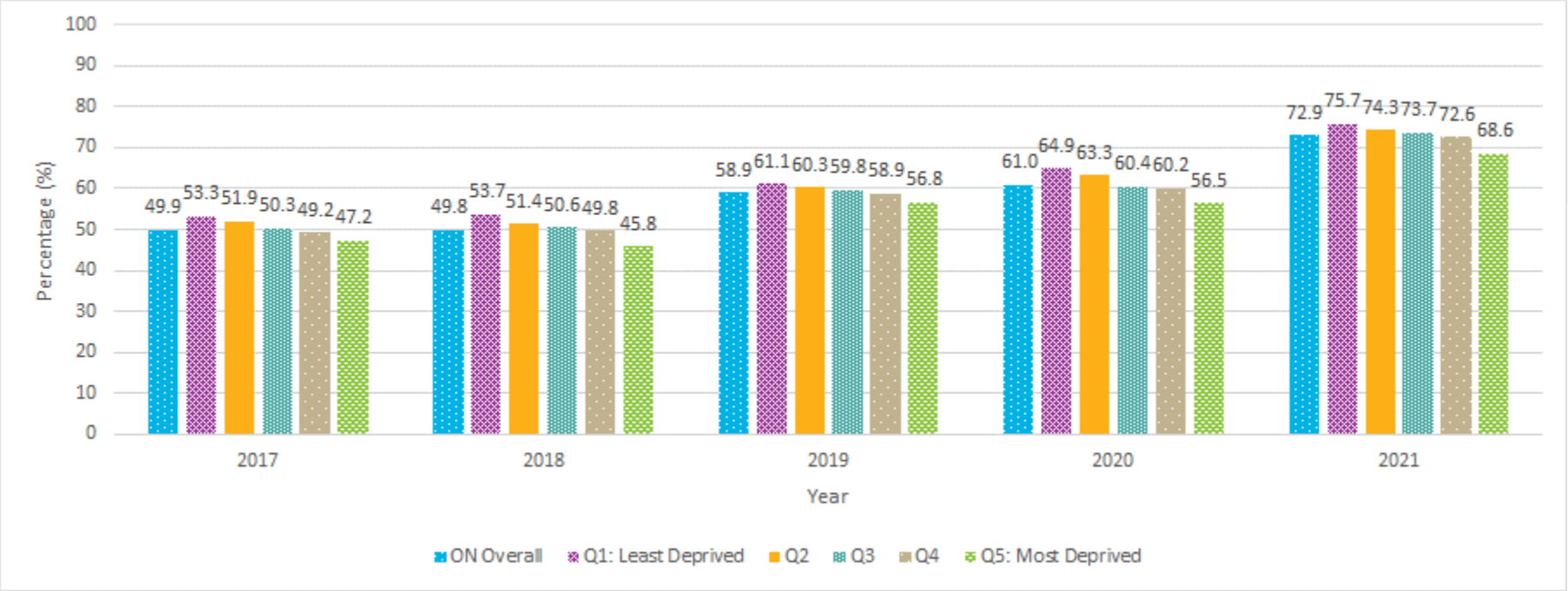
For data, see Table 59 in Appendix 1.

The percentage of screen-eligible people who underwent colonoscopy within eight weeks of an abnormal fecal test result increased (improved) from 49.9% in 2017 to 72.9% in 2021. The improvement in performance for this indicator from 2019 onwards is likely related to prioritizing timely follow-up colonoscopy for people with an abnormal FIT result. This indicator is aligned with Canadian consensus guidelines on acceptable wait times for endoscopy (66).

This improvement in performance despite the impacts of the COVID-19 pandemic may be a result of Regional Cancer Programs, primary care providers and endoscopists in Ontario following through on ColonCancerCheck's recommendation for people with abnormal fecal test results to have a colonoscopy within eight weeks.

ColonCancerCheck Follow-up of Abnormal Results - Equity Analyses: Material Deprivation

Figure 70: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Underwent Colonoscopy Within 8 Weeks of the Abnormal Result, by Material Deprivation, 2017 to 2021

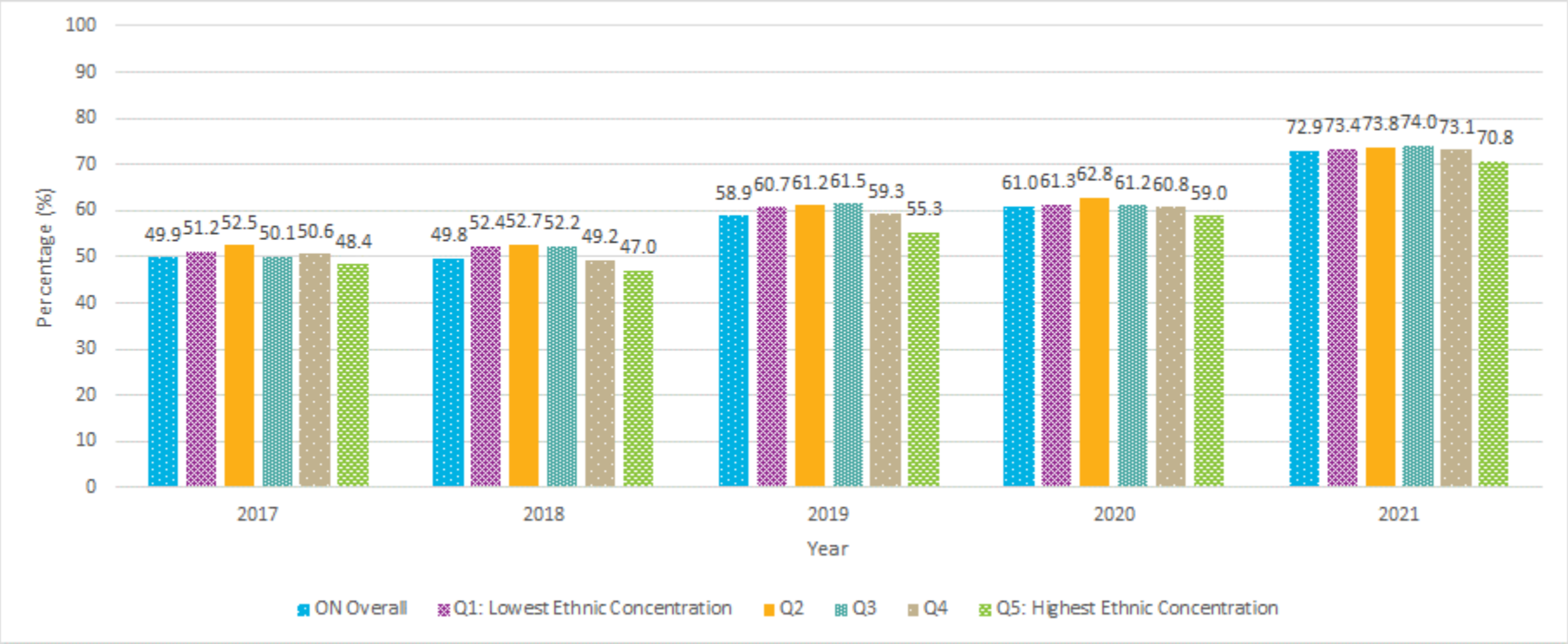


For data, see Table 60 in Appendix 1.

Across all reporting years, there was a relationship between material deprivation and timely follow-up of abnormal fecal test results. People living in the most materially deprived neighbourhoods had lower proportions of follow-up within 8 weeks of an abnormal fecal test result compared to people living in less materially deprived neighbourhoods. This difference was largest in 2020, with 64.9% of people living in the least deprived neighbourhoods (Q1) receiving colonoscopy within eight weeks of an abnormal fecal test result compared to 56.5% of people in the most deprived neighbourhoods (Q5). These data suggest that the effects of COVID-19 and the deferral of screening and diagnostic services related to the pandemic were magnified for people living in more materially deprived neighbourhoods. Performance on this indicator improved from 2019 onwards for all quintiles of material deprivation, coinciding with the implementation of the FIT in 2019.

ColonCancerCheck Follow-up of Abnormal Results - Equity Analyses: Ethnic Concentration

Figure 71: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Underwent Colonoscopy Within 8 Weeks of the Abnormal Result, by Ethnic Concentration, 2017 to 2021

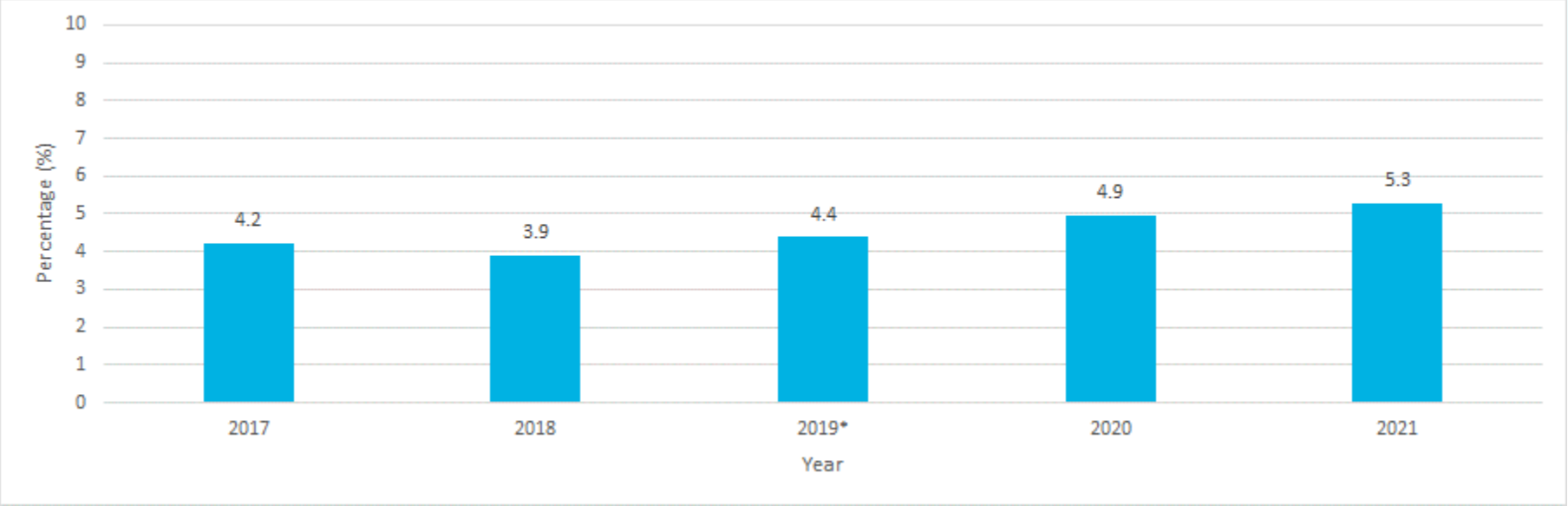


For data, see Table 61 in Appendix 1.

Across all reporting years, people living in the least ethnically concentrated neighbourhoods (Q1), had higher proportions of follow-up within 8 weeks of an abnormal fecal test result compared to people living in more ethnically concentrated neighbourhoods (Q4, Q5). Performance on this indicator improved annually from 2019 onwards for all quintiles of ethnic concentration, coinciding with the implementation of the FIT in 2019.

Colorectal Cancer Screening: Quality of Screening

Figure 72: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Fecal Test Result Who Were Diagnosed With a Program Screen-Detected Invasive Colorectal Cancer After a Large Bowel Endoscopy or Surgical Resection, 2017 to 2021

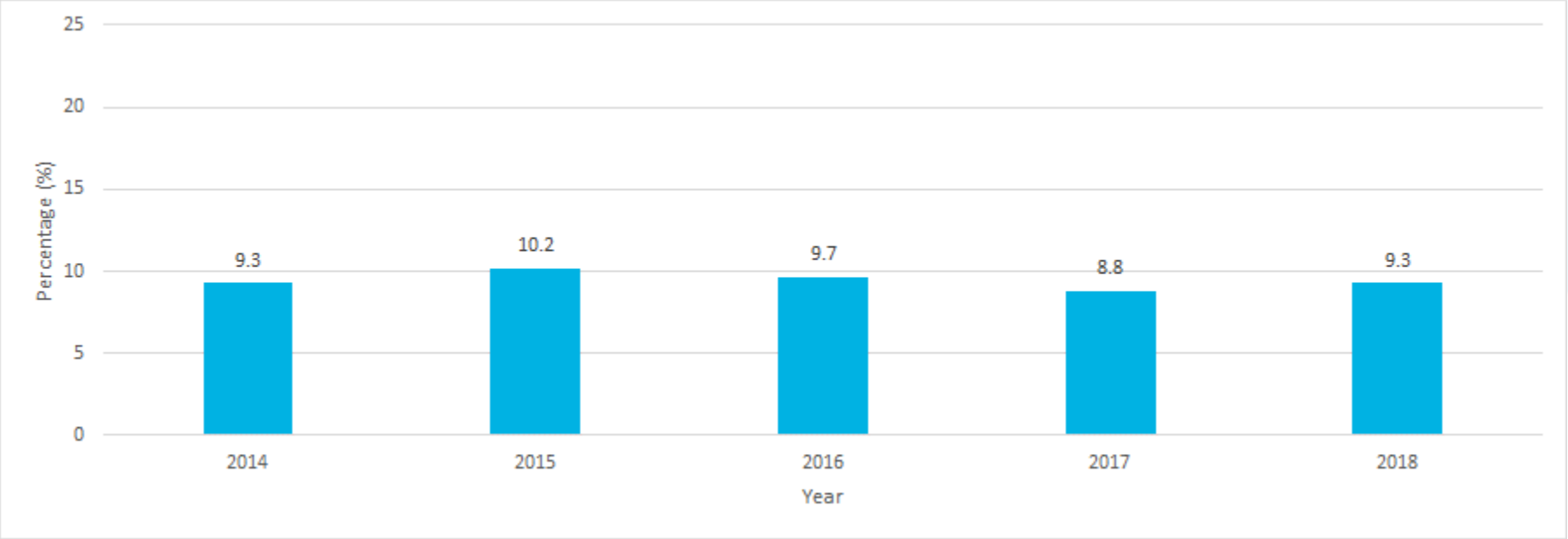


*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 62 in Appendix 1.

The positive predictive value (PPV) is the probability that someone with an abnormal fecal immunochemical test (FIT) result has cancer. The percentage of screen-eligible people with a program screen-detected invasive colorectal cancer following an abnormal fecal test result has increased (improved) year over year since the June 2019 implementation of the FIT, which detects more colorectal cancers than the guaiac fecal occult blood test previously used by ColonCancerCheck (65). This improvement suggests that the FIT is working as intended to identify people at risk of colorectal cancer. The COVID-19 pandemic may have also contributed to the increase seen in 2020 and 2021 because people at higher risk of colorectal cancer were prioritized for screening during the pandemic, according to Ontario Health's COVID-19 pandemic guidance.

Figure 73: Percentage of Colorectal Cancers Detected That Are Post-Colonoscopy Colorectal Cancers, 2014 to 2018

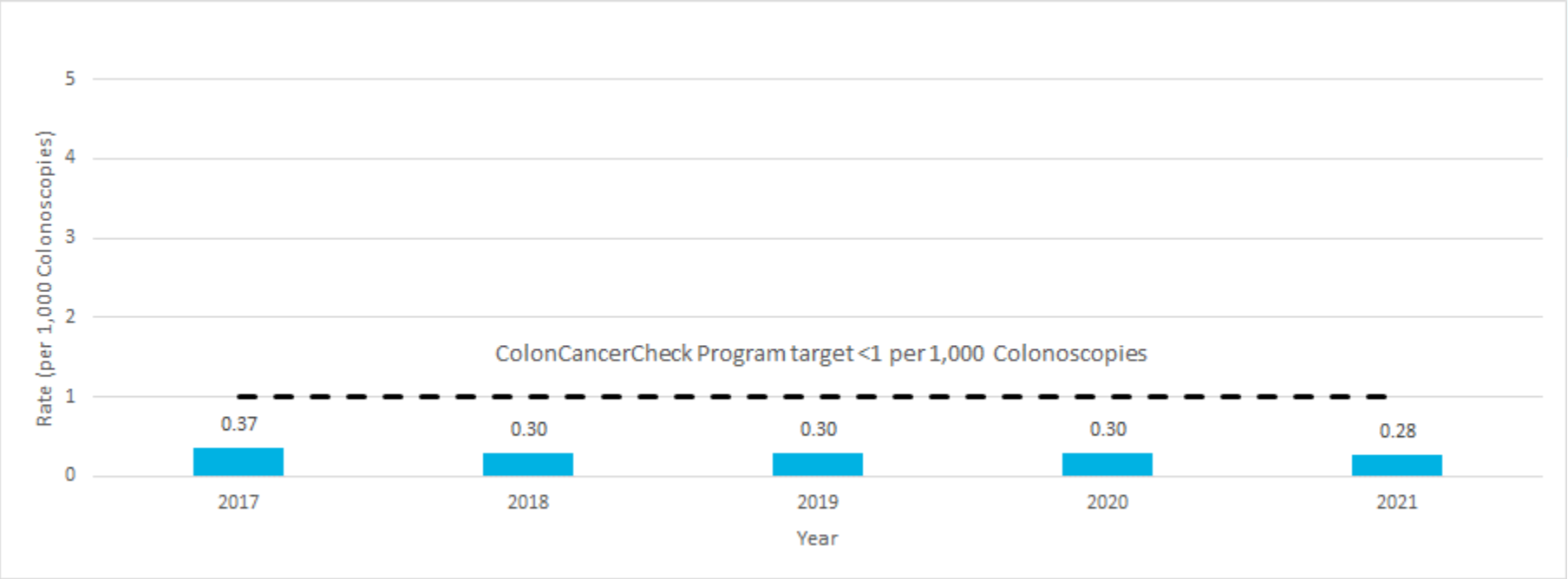


For data, see Table 63 in Appendix 1.

Post-colonoscopy colorectal cancers are cancers diagnosed after a colonoscopy in which cancer was not detected (i.e., a negative colonoscopy). This indicator uses the World Endoscopy Organization methodology that defines post-colonoscopy colorectal cancers as colorectal cancers diagnosed within six to 36 months after a colonoscopy (67). The post-colonoscopy colorectal cancer rate is calculated as the number of post-colonoscopy colorectal cancers divided by the sum of post-colonoscopy colorectal cancers and colorectal cancers detected at the time or within six months of the colonoscopy. The indicator is reported based on the year of the colonoscopy. The post-colonoscopy colorectal cancer rate remained stable at approximately 9% from 2014 to 2018.

Colorectal Cancer Screening: Colonoscopy Quality

Figure 74: Number of Outpatient Colonoscopies* in People Ages 18 and Older Followed by Hospital Admissions for Perforations Within 7 Days of Colonoscopy, per 1,000 Colonoscopies in Ontario, 2017 to 2021



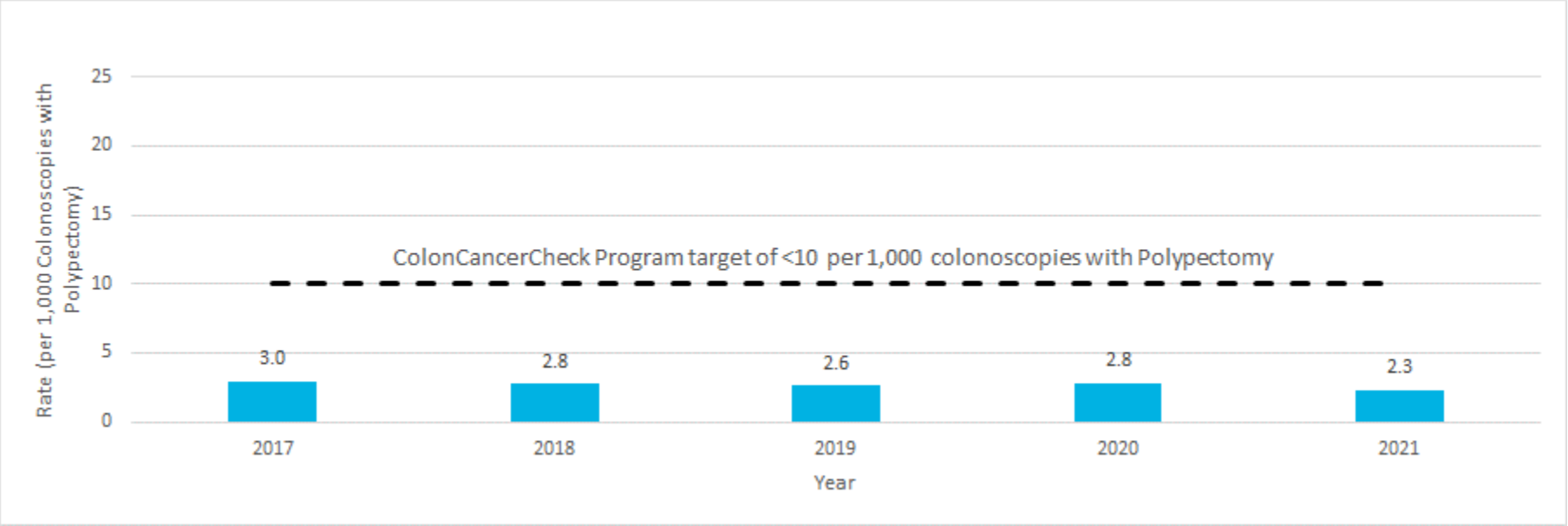
*Includes colonoscopies for abnormal fecal immunochemical test results, surveillance, family history, symptoms, and other screening.

For data, see Table 64 in Appendix 1.

Although colonoscopy is a safe test, there is a very small risk of perforation (making a small hole) of the bowel, which may need to be fixed with surgery. A low perforation rate is a measure of high-quality care.

In 2017, the outpatient perforation rate was 0.37 per 1,000 colonoscopies and decreased in 2018 to 0.30 per 1,000 colonoscopies. The perforation rate remained stable from 2018 to 2021 and was consistently below the program target of <1 per 1,000 colonoscopies (68).

Figure 75: Number of Outpatient Colonoscopies With Polypectomy Among People Ages 50 and Older Followed by Hospital Admissions for Lower Gastrointestinal Bleeding Within 14 Days of Colonoscopy, per 1,000 Colonoscopies with Polypectomy in Ontario, 2017 to 2021

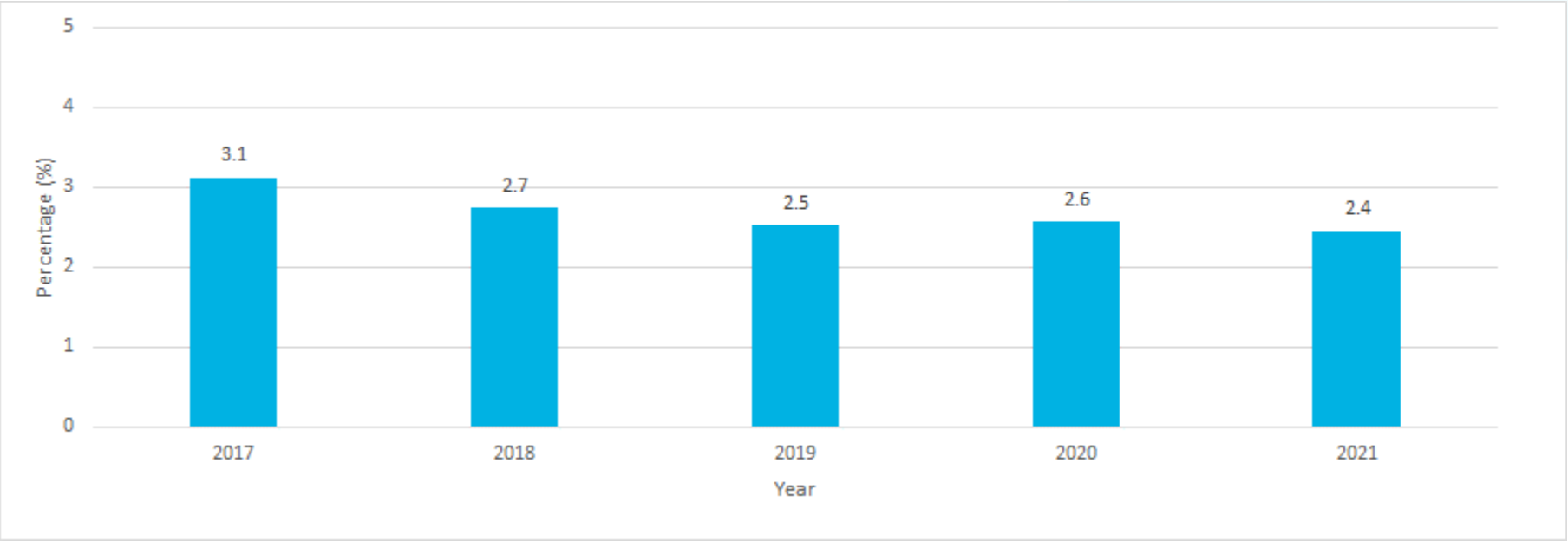


For data, see Table 65 in Appendix 1.

During a colonoscopy, the endoscopist may also perform a polypectomy. This is a procedure done to remove one or more polyps, which are abnormal growths on the lining of the colon. In the days following this procedure, some people may experience bleeding from the lower part of the bowel, called post-polypectomy bleeding.

The rate of post-polypectomy bleeding is another important measure of colonoscopy quality. The rate of post-polypectomy bleeding decreased (improved) from 3.0 per 1,000 colonoscopies with polypectomy in 2017 to 2.3 per 1,000 colonoscopies with polypectomy in 2021. This improvement occurred despite prioritizing colonoscopies for people with abnormal FIT results or urgent indications (e.g., gastrointestinal symptoms that require urgent care) during the COVID-19 pandemic, which could have resulted in more people requiring polypectomy in 2020 and 2021. Performance on this indicator continues to meet the provincial target of <10 per 1,000 colonoscopies where polypectomy is performed (69).

Figure 76: Percentage of Hospital Outpatient Colonoscopies Performed in People Ages 18 and Older With Poor Bowel Preparation, 2017 to 2021

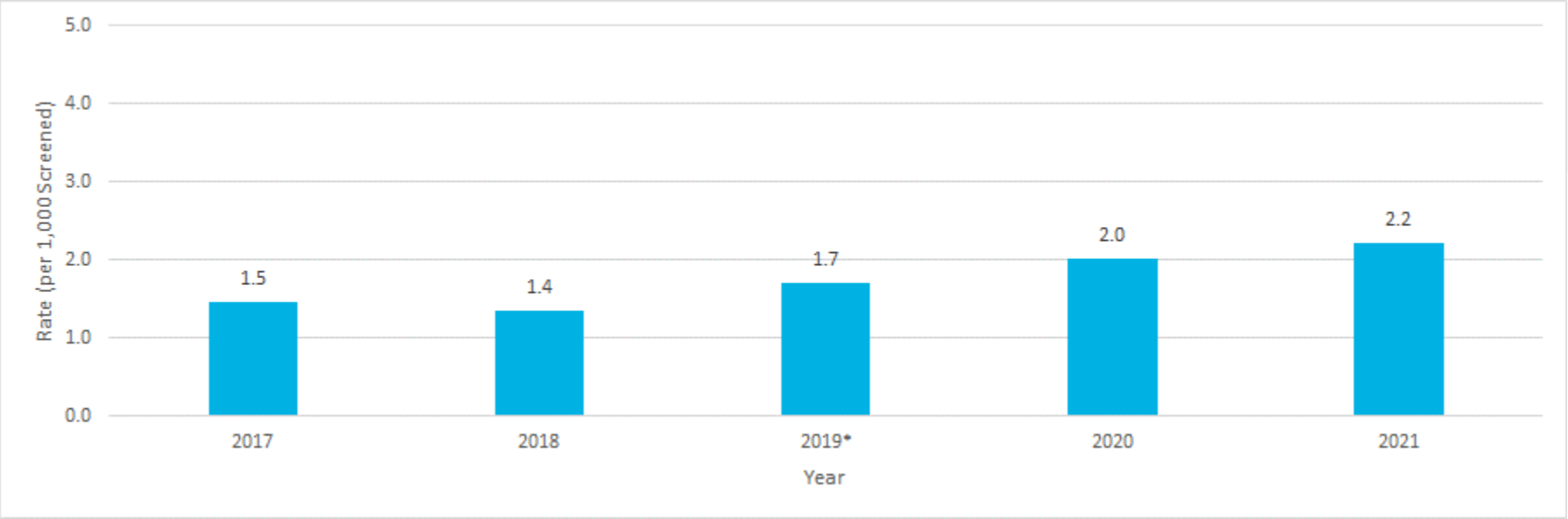


For data, see Table 66 in Appendix 1.

Poor bowel preparation affects the quality of a colonoscopy and can lead to patient discomfort, incomplete procedures and decrease the ability to detect pre-cancerous and cancerous lesions (70). The percentage of outpatient colonoscopies performed with poor bowel preparation in hospitals decreased (improved) from 3.1% in 2017 to 2.4% in 2021.

ColonCancerCheck: Detection

Figure 77: Number of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had a Screen-Detected Invasive Colorectal Cancer, per 1,000 Screened Using a ColonCancerCheck Fecal Test, 2017 to 2021

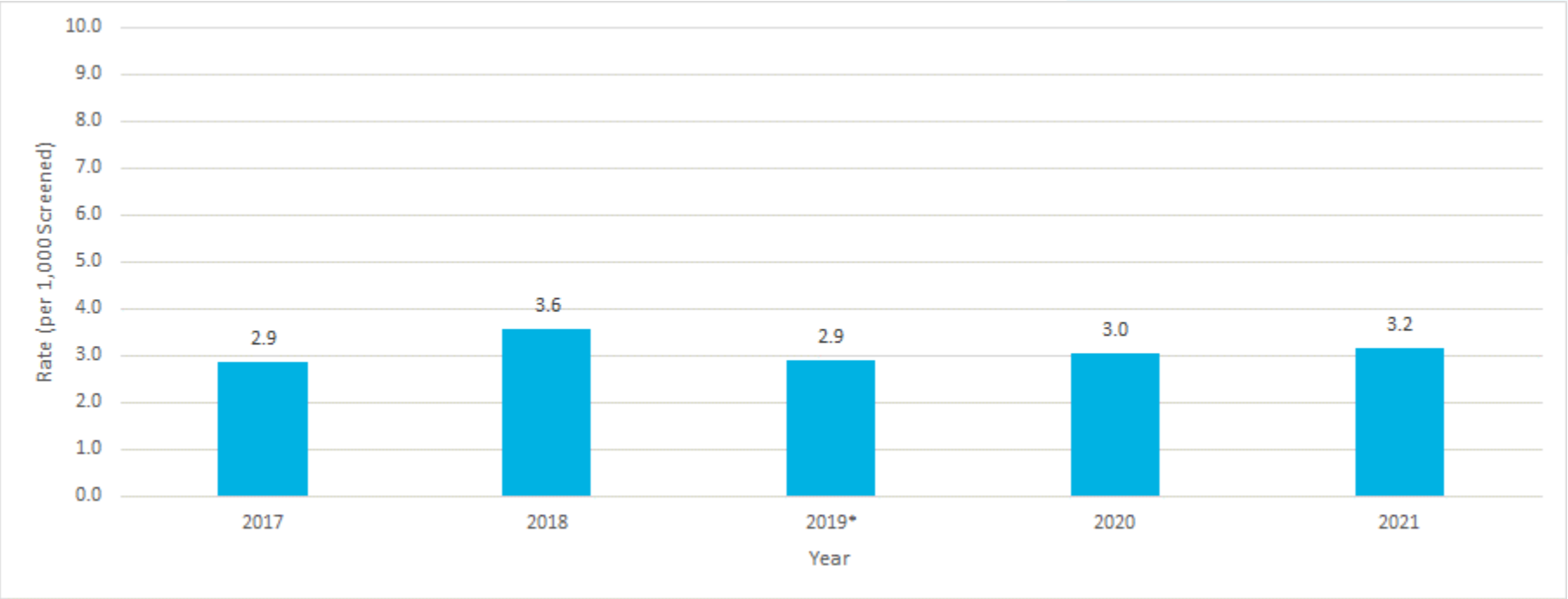


*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 67 in Appendix 1.

The invasive colorectal cancer detection rate increased from 1.5 per 1,000 fecal tests in 2017 to 2.2 per 1,000 fecal tests in 2021. This increase is likely due to the June 2019 implementation of the fecal immunochemical test (FIT), which detects more colorectal cancers than the guaiac-based fecal occult blood test that was previously used by ColonCancerCheck (65). The COVID-19 pandemic may have also contributed to the increase in cancer detection seen in 2020 and 2021. Possible pandemic effects include prioritizing screening for people at higher risk for colorectal cancer according to Ontario Health COVID-19 pandemic guidance.

Figure 78: Number of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had a Screen-Detected Invasive Colorectal Cancer, per 1,000 Screened With Colonoscopy Due to a Family History of Colorectal Cancer, 2017 to 2021



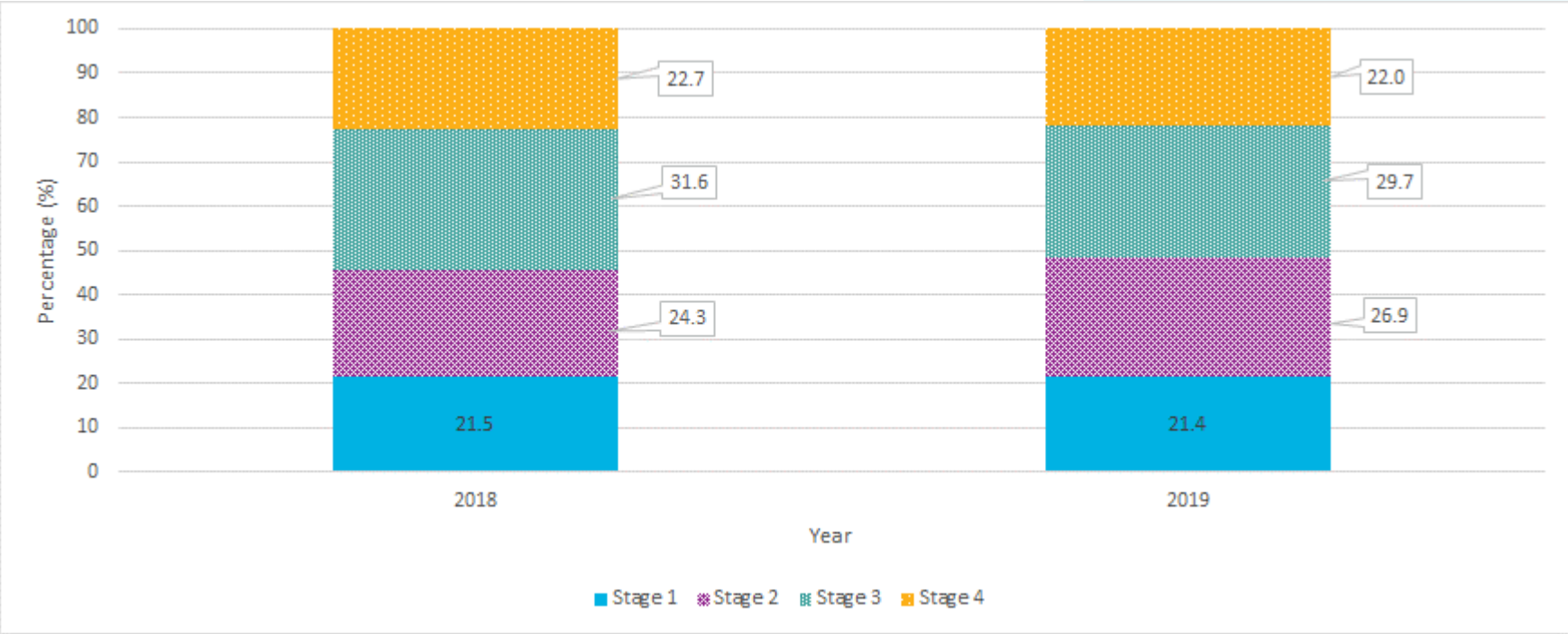
*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

For data, see Table 68 in Appendix 1.

The invasive cancer detection rate among people with a family history of colorectal cancer remained relatively stable from 2017 to 2021, at about 3 per 1,000 people screened with colonoscopy.

ColonCancerCheck: Disease Extent at Diagnosis

Figure 79: Stage Distribution of All Invasive Colorectal Cancers in Ontario in People Ages 50 to 74, 2018 to 2019

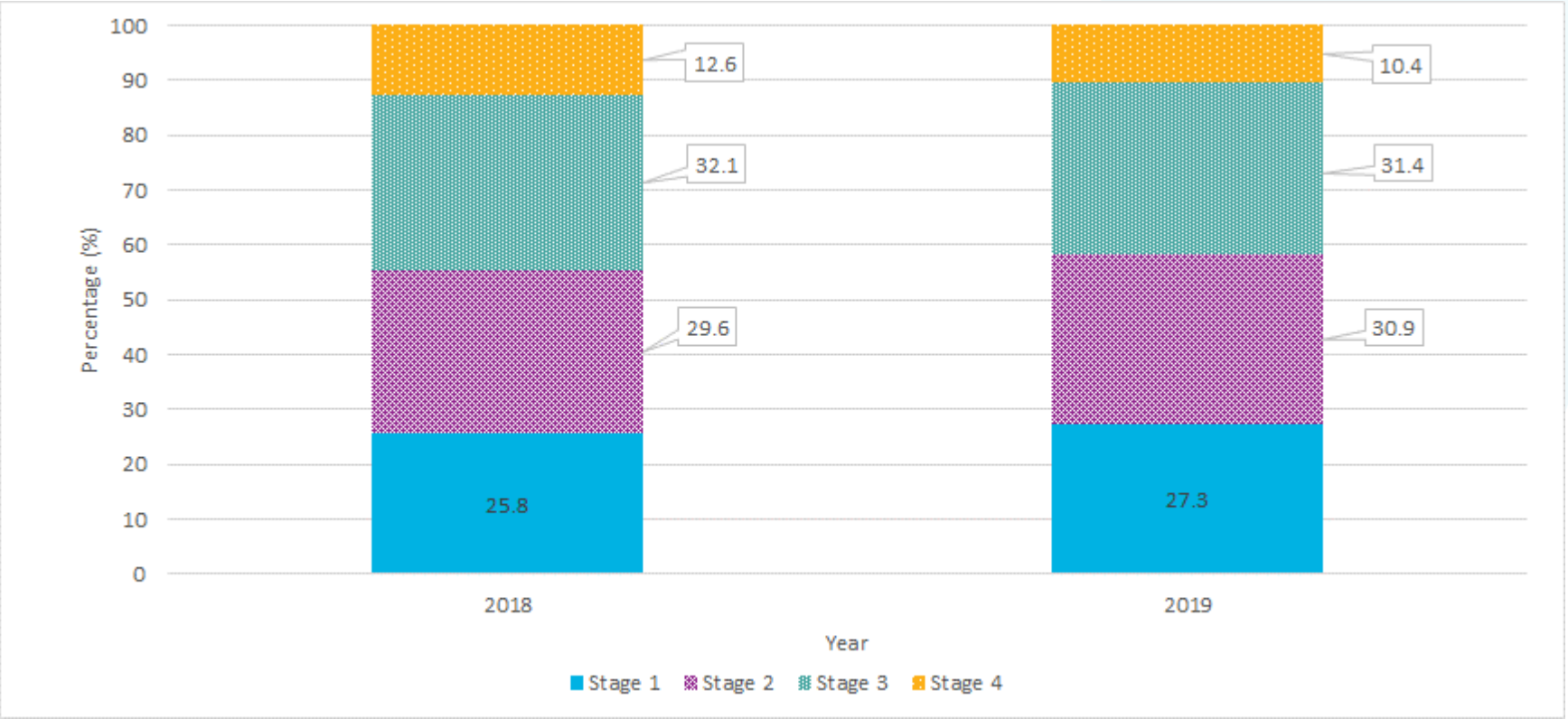


Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

For data, see Table 69 in Appendix 1.

When looking at all invasive colorectal cancers diagnosed in Ontario, most were diagnosed at later stages (stages 3 or 4) than screen-detected invasive cancers. While 55% to 58% of screen-detected invasive colorectal cancers were diagnosed at stage 1 or 2 in 2018 and 2019 (Figure 80), 45.8% of all invasive colorectal cancers in Ontario were diagnosed at stage 1 or 2 in 2018 and 48.3% were diagnosed at stage 1 or 2 in 2019. This finding reflects the benefits of colorectal cancer screening for early detection, when treatment has a better chance of working.

Figure 80: Stage Distribution of Screen-Detected Invasive Colorectal Cancers In Ontario In People Ages 50 to 74, 2018 to 2019

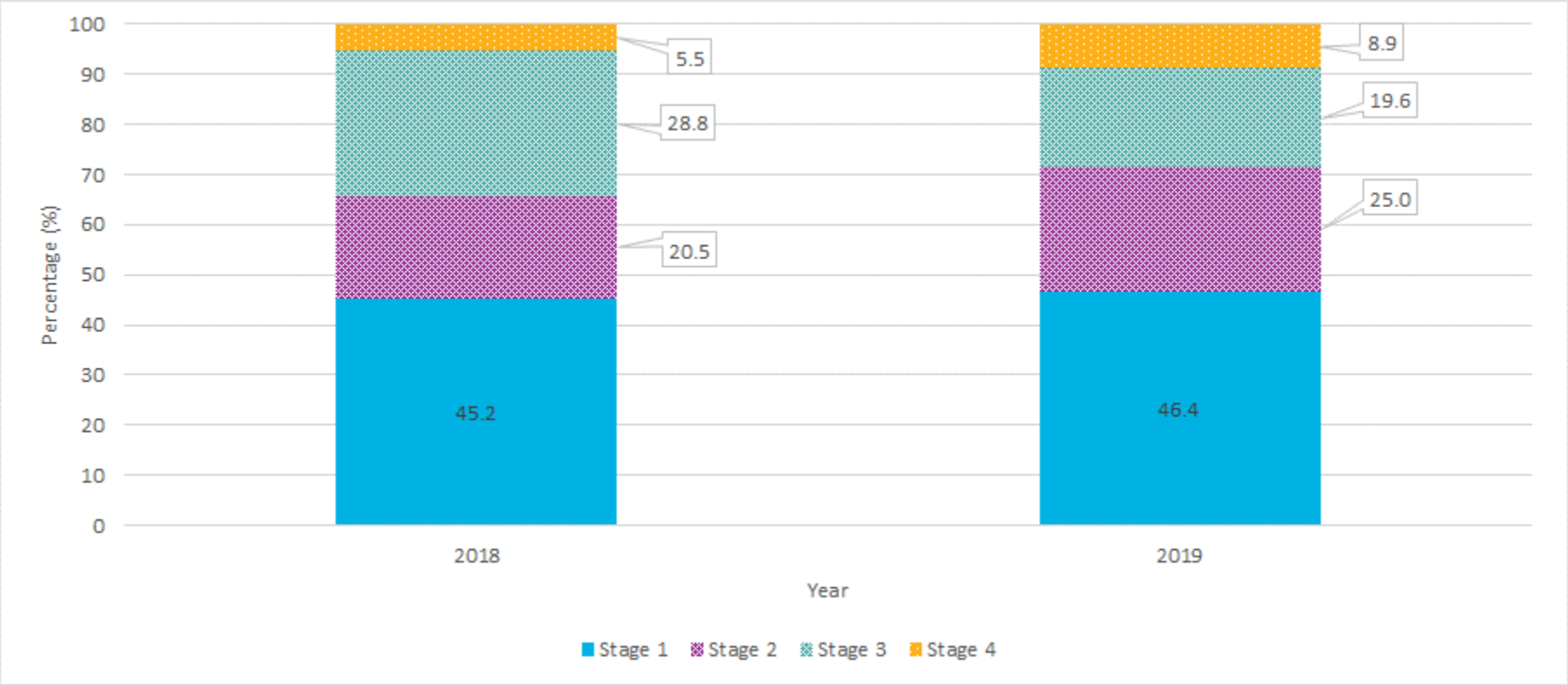


Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

For data, see Table 70 in Appendix 1.

From 2018 to 2019, the percentage of screen-detected invasive colorectal cancers found at an early stage (stage 1) increased from 25.8% to 27.3%. During this time, the proportion of screen-detected invasive colorectal cancers diagnosed at stage 2 increased slightly from 29.6% to 30.8%. From 2018 to 2019, there was a decrease in the percentage of invasive colorectal cancers diagnosed at a later stage (stage 3 or 4).

Figure 81: Invasive Colorectal Cancer Stage Distribution at Diagnosis in People Who Were Screened With a Colonoscopy Due to a Family History of Colorectal Cancer, 2018 to 2019



Note: Data prior to 2018 are not shown because of a change in the cancer staging classification system in 2018.

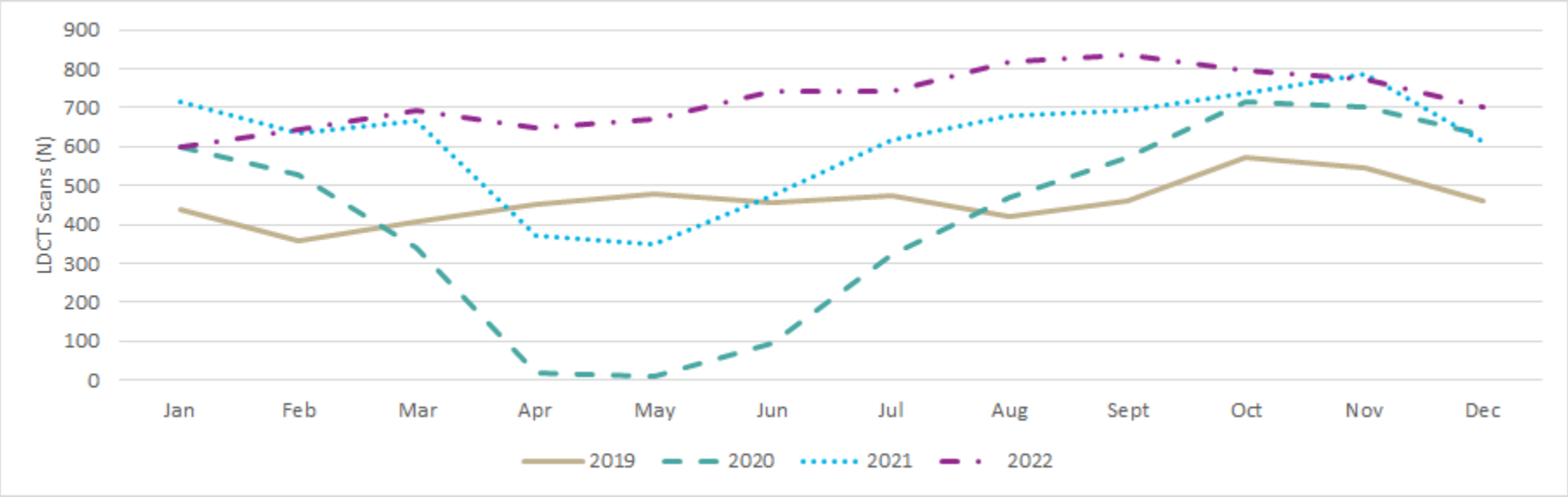
For data, see Table 71 in Appendix 1.

From 2018 to 2019, the percentage of screen-detected stage 1 invasive colorectal cancers in people with a family history of colorectal cancer increased from 45% to 46%, while the percentage of people with stage 2 invasive cancers increased from 21% to 25%. The percentage of stage 3 invasive cancers decreased from 29% to 20% and the percentage of stage 4 invasive cancers increased from 5% to 9%.

Ontario Lung Screening Program (OLSP) Performance

OLSP: Screening Volumes

Figure 82: Number of Low Dose Computed Tomography (LDCT) Scans Performed for People Age 55 and Older in Ontario Confirmed to be at High Risk for Lung Cancer, 2019 to 2022

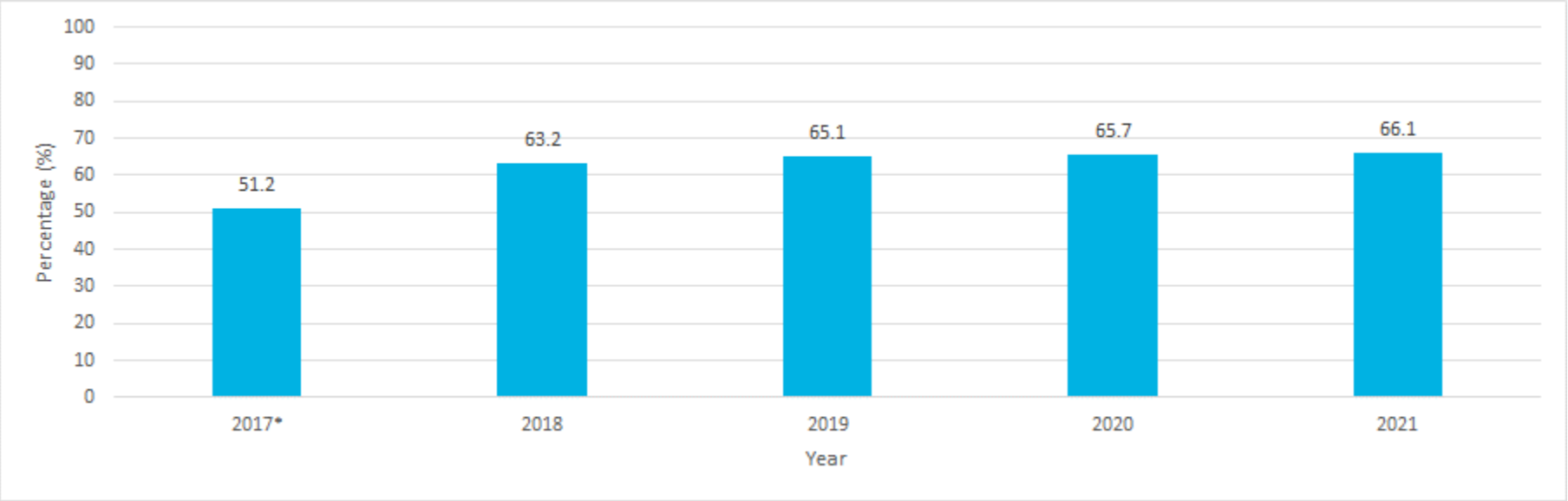


For data, see Table 72 in Appendix 1.

Low-dose computed tomography (LDCT) scan volumes were significantly impacted by the COVID-19 pandemic. Volumes decreased substantially from March to May 2020 as a result of the deferral of all non-emergent or urgent health care services. The LDCT scan volumes in 2021 exceeded 2020 levels, but they were impacted by subsequent COVID-19 waves, which can be seen by the decrease in volumes from March to May 2021. LDCT scan volumes increased by 56.8% from 2019 (pre-pandemic) to 2022, reflecting ongoing increases in recruitment and participation.

OLSP: Smoking Cessation

Figure 83: Percentage of People Who Completed a Baseline Risk Assessment and Reported That They Currently Smoke, 2017 to 2021



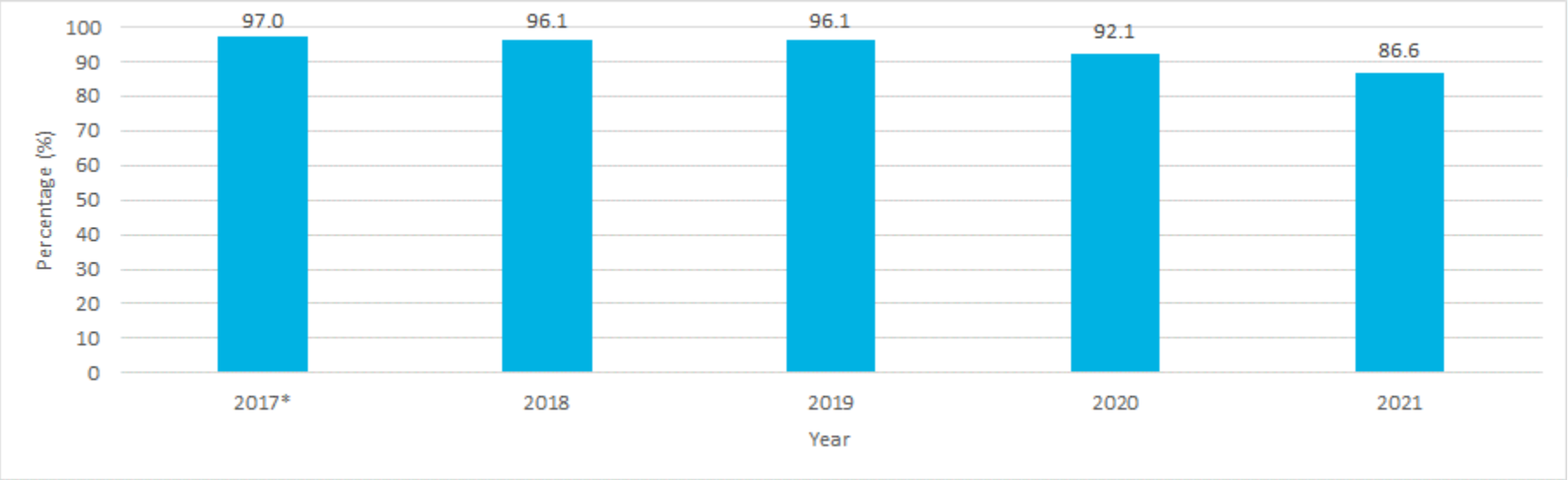
*Data began June 2017.

For data, see Table 73 in Appendix 1.

From 2018 to 2021, the percentage of people who reported that they currently smoke at baseline risk assessment was stable at 63.2% to 66.1%. The lower percentage of risk-assessed people who reported that they currently smoke in 2017 (51.2%) likely reflects the larger number of people who reported that they formerly smoked who were recruited during the first year of the Ontario Lung Cancer Screening Pilot for People at High Risk. These data suggest that a large percentage of people recruited to the OLSP could benefit from the smoking cessation services that are offered by the program.

OLSP: Coverage

Figure 84: Percentage of Screen-Eligible People, Ages 55 to 74, Who Underwent a Low-Dose Computed Tomography Scan After Risk Assessment, 2017 to 2021



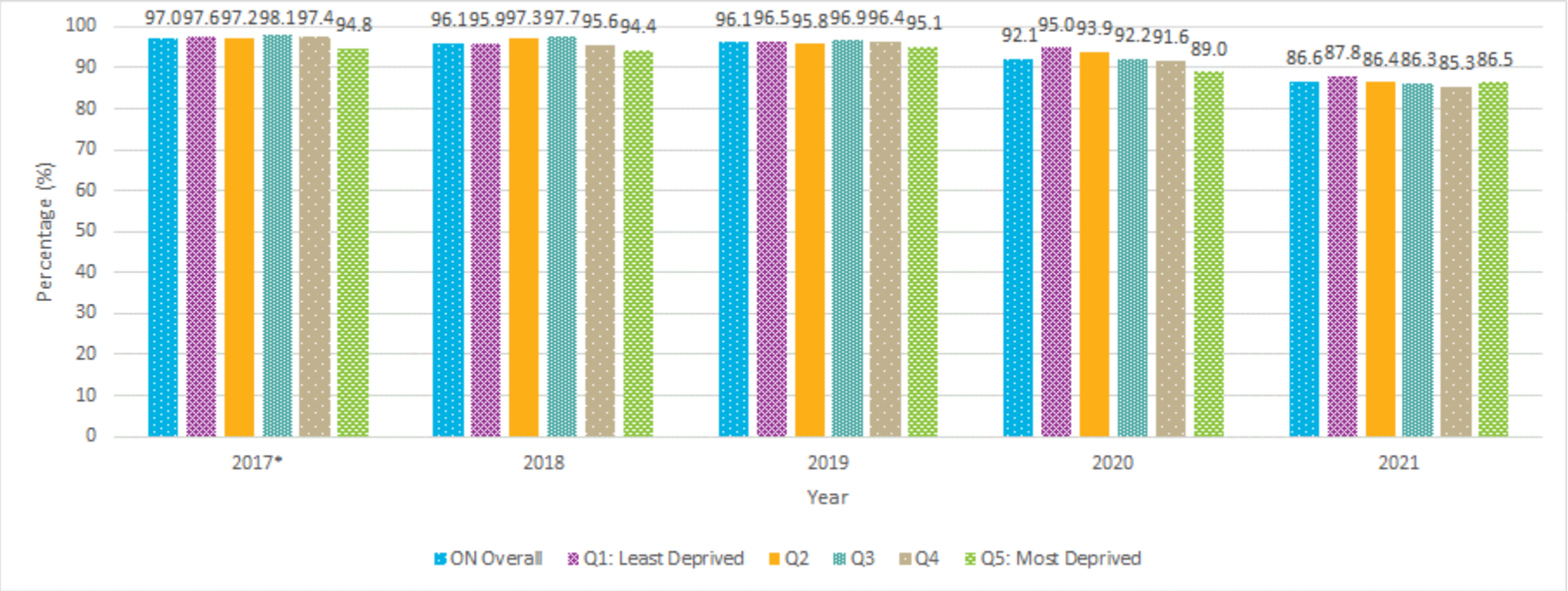
*Data began June 2017.

For data, see Table 74 in Appendix 1.

The percentage of people in Ontario who had an LDCT scan following risk assessment decreased from 97.0% in 2017 to 86.6% in 2021. This indicator was stable at around 96% to 97% from 2017 to 2019, but it decreased to 92.1% in 2020, likely due to the deferral of all cancer screening services during the first pandemic wave in Ontario. The percentage of people who had an LDCT scan after risk assessment decreased further from 2020 (92.1%) to 2021 (86.6%), most likely due to subsequent waves of the COVID-19 pandemic and the widespread health human resource challenges that exist in the Ontario health care system which may have impacted wait times for LDCT scans.

OLSP LDCT Scan After Risk Assessment - Equity Analyses: Material Deprivation

Figure 85: Percentage of Screen-Eligible People, Ages 55 to 74, Who Underwent a Low-Dose Computed Tomography Scan After Risk Assessment, by Material Deprivation, 2017 to 2021



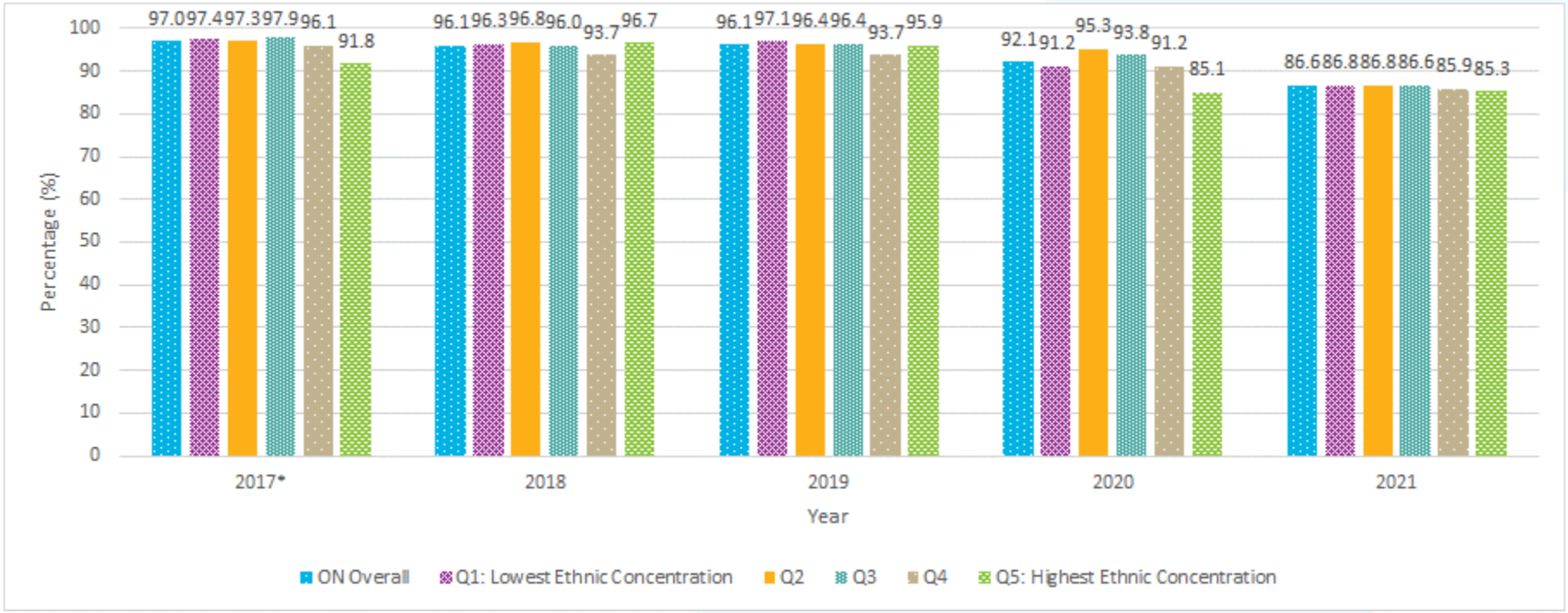
*Data began June 2017.

For data, see Table 75 in Appendix 1.

Across all reporting years, there was a relationship between material deprivation and completion of an LDCT scan after risk assessment. People living in the most materially deprived neighbourhoods (Q5) were less likely to complete an LDCT scan after risk assessment than people living in the least materially deprived neighbourhoods (Q1). The difference between the highest and lowest quintile was greatest in 2020, with 89.0% of people in the most deprived quintile completing an LDCT scan after risk assessment and 95.0% of people in the least deprived quintile completing an LDCT scan after risk assessment. The increased difference between Q1 and Q5 in 2020 may reflect health disparities that were worsened by the COVID-19 pandemic.

OLSP LDCT Scan After Risk Assessment - Equity Analyses: Ethnic Concentration

Figure 86: Percentage of Screen-Eligible People, Ages 55 to 74, Who Underwent a Low-Dose Computed Tomography Scan After Risk Assessment, by Ethnic Concentration, 2017 to 2021



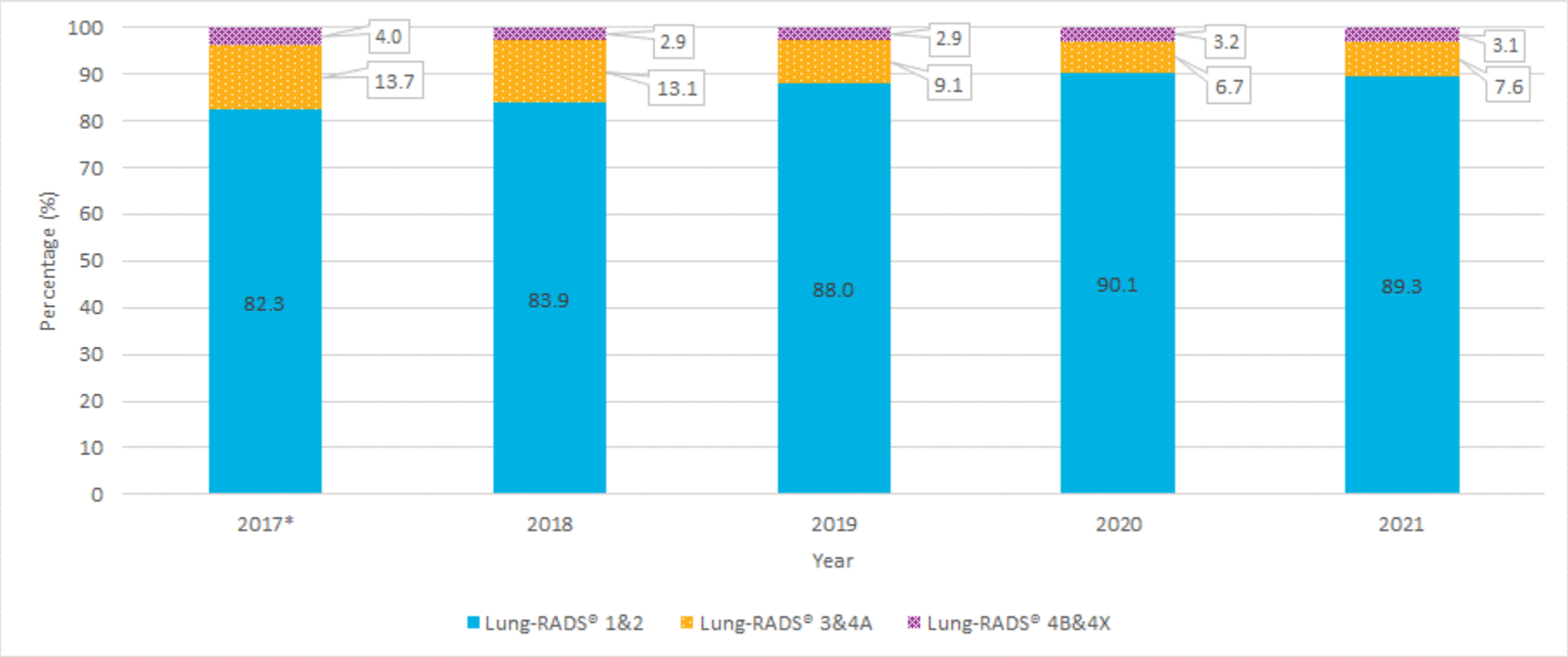
*Data began June 2017.

For data, see Table 76 in Appendix 1.

In 2017 and 2020, there was a relationship between neighbourhood ethnic concentration and LDCT scans after risk assessment, with people living in the most ethnically concentrated neighbourhoods (Q5) being less likely to complete an LDCT scan after risk assessment than people living in the least ethnically concentrated neighbourhoods (Q1). The difference between people in the most ethnically concentrated neighbourhoods and least ethnically concentrated neighbourhoods was largest in 2020, when 85.1% of people living in the highest ethnic concentration neighbourhoods completed an LDCT scan after risk assessment, compared to 91.2% of people living in the least ethnically concentrated neighbourhoods. The increased difference between Q1 and Q5 in 2020 may reflect health disparities that were worsened by the COVID-19 pandemic.

OLSP: Follow-Up of Abnormal Results

Figure 87: Low-Dose Computed Tomography Scan Lung-RADS® Score Distribution, 2017 to 2021

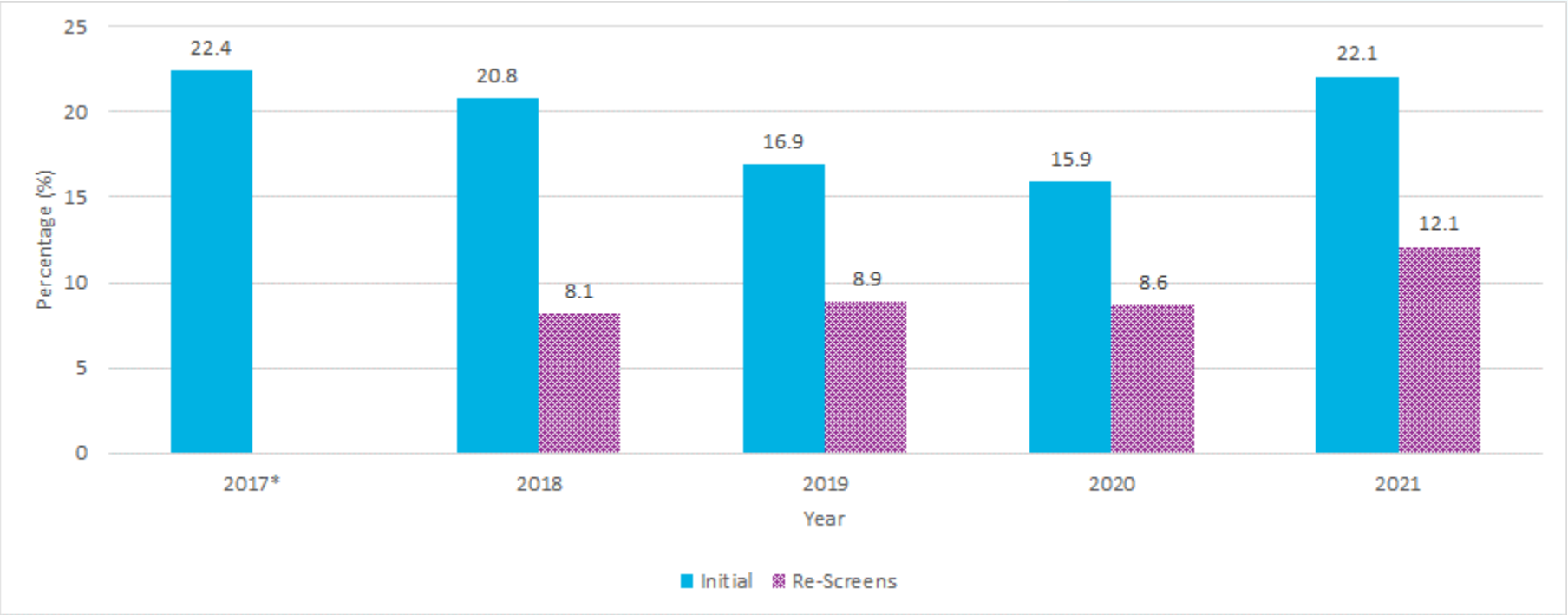


*Data began June 2017.

For data, see Table 77 in Appendix 1.

From 2017 to 2021, the percentage of LDCT scans with a Lung-RADS® score of 1 (negative) or 2 (benign) increased from 82.3% to 89.3%. Decreases were seen in the percentage of scans with a Lung-RADS® score of 3 (probably benign) or 4A (suspicious) (from 13.7% to 7.6%), as well as in the percentage of scans with a Lung-RADS® score of 4B or 4X (very suspicious) (from 4.0% in to 3.1%). These decreases over time in the percentage of scans that had abnormal findings (Lung-RADS® 3, 4A, 4B, 4X) were expected because the percentage of people having their first LDCT screen was decreasing.

Figure 88: Percentage of Low-Dose Computed Tomography Scans With Actionable Incidental Findings Detected, 2017 to 2021

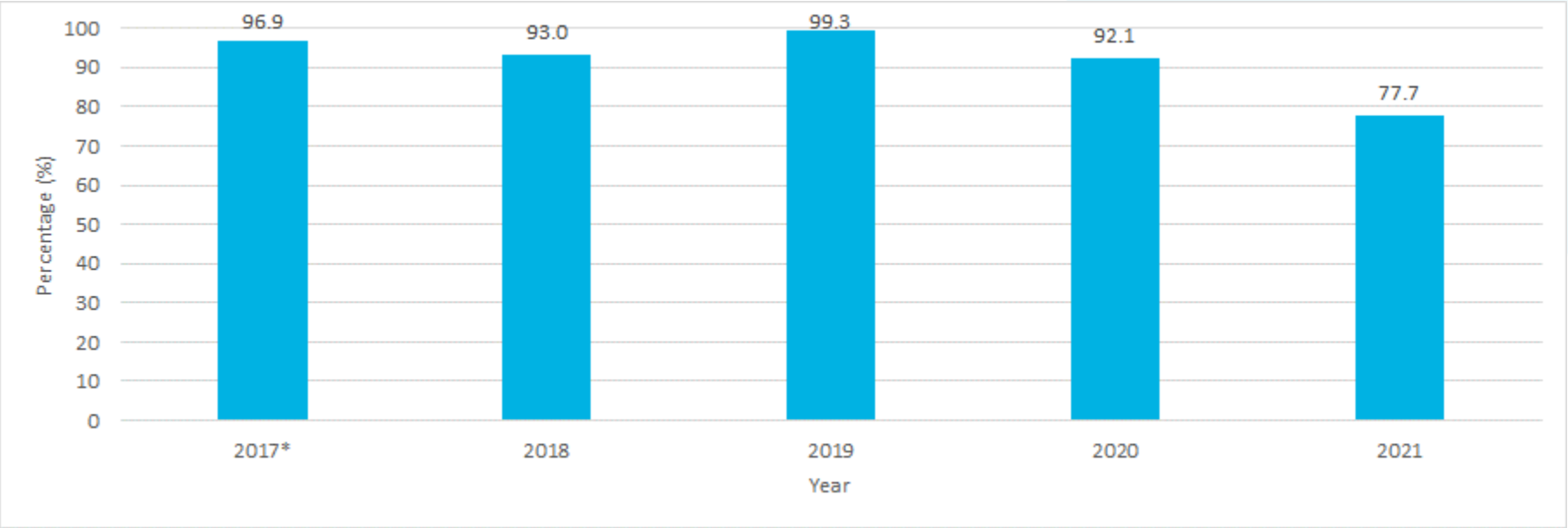


*The Lung Cancer Screening Pilot for People at High Risk began in June 2017, so no annual re-screens were performed in 2017.

For data, see Table 78 in Appendix 1.

Actionable incidental findings are findings not related to lung cancer detected on the LDCT scan and determined by the radiologist to be potentially clinically significant (e.g., an infection). From 2017 to 2021, the overall percentage of LDCT scans with actionable incidental findings decreased from 22.1% to 14.5%. This decrease may be related to radiologist experience and comfort with distinguishing clinically significant findings from those that are not clinically significant. The percentage was higher in baseline or initial scans (15.9% to 22.4%) than in follow-up scans from 2018 to 2021 (8.1% to 12.1%) because incidental findings are more likely to be identified in baseline scans. Incidental findings on re-screens remained at 8.1% to 8.9% from 2018 to 2020, before increasing in to 12.1% in 2021. The increase in incidental findings on baseline scans in 2021 coincides with the release of clinical guidelines by Ontario Health for classifying and managing actionable incidental findings in the OLSP (71).

Figure 89: Percentage of Screen-Eligible People, Ages 55 to 74, With a Suspicious or Very Suspicious Screening Result (Lung-RADS® 4A, 4B or 4X) Who Underwent Diagnostic Assessment Within 3 Months, 2017 to 2021**



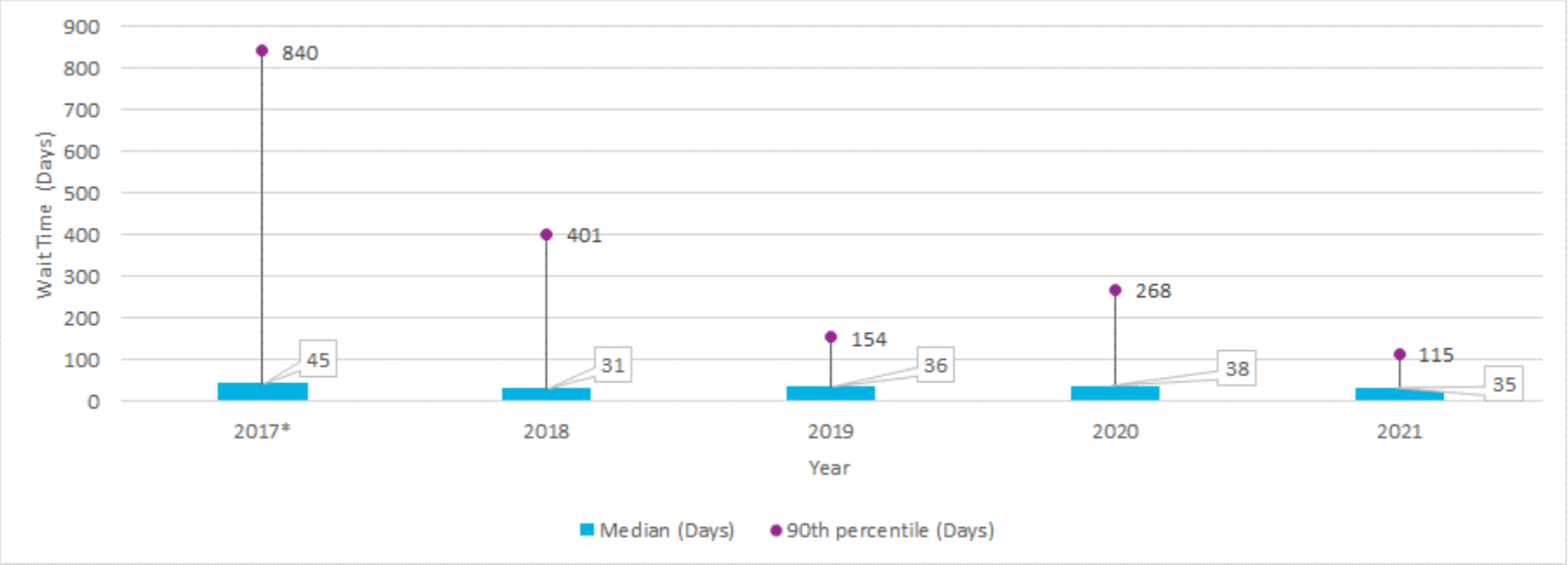
*Data began June 2017.

**Beginning on October 1, 2018, people with Lung-RADS® score of 4A were scheduled to have a 3-month surveillance low-dose computed tomography scan instead of being referred for a diagnostic assessment consult. Only people with a Lung-RADS® score of 4B or 4X were referred for diagnostic assessment on or after October 1, 2018 in alignment with the Lung-RADS® system.

For data, see Table 79 in Appendix 1.

The percentage of screen-eligible people with an LDCT scan with a Lung-RADS® score of 4A (suspicious), 4B or 4X (very suspicious) who underwent diagnostic assessment within three months of the abnormal result date decreased (worsened) from 96.9% in 2017 to 77.7% in 2021. The worsening of performance in 2020 and 2021 may be due to the COVID-19 pandemic, the widespread health human resource challenges that exist in the Ontario health care system and higher demand (i.e., increased number of people requiring assessments as the program grows), all of which may have lengthened wait times for diagnostic services. Ontario Health will continue to monitor the performance of this indicator in order to inform program quality improvements.

Figure 90: Wait Time in Days From the Date of the LDCT Scan With a Suspicious (Lung-RADS® 4A) or Very Suspicious (Lung-RADS® 4B or 4X) Result to Definitive Diagnosis of Lung Cancer, 2017 to 2021**



*Data began June 2017.

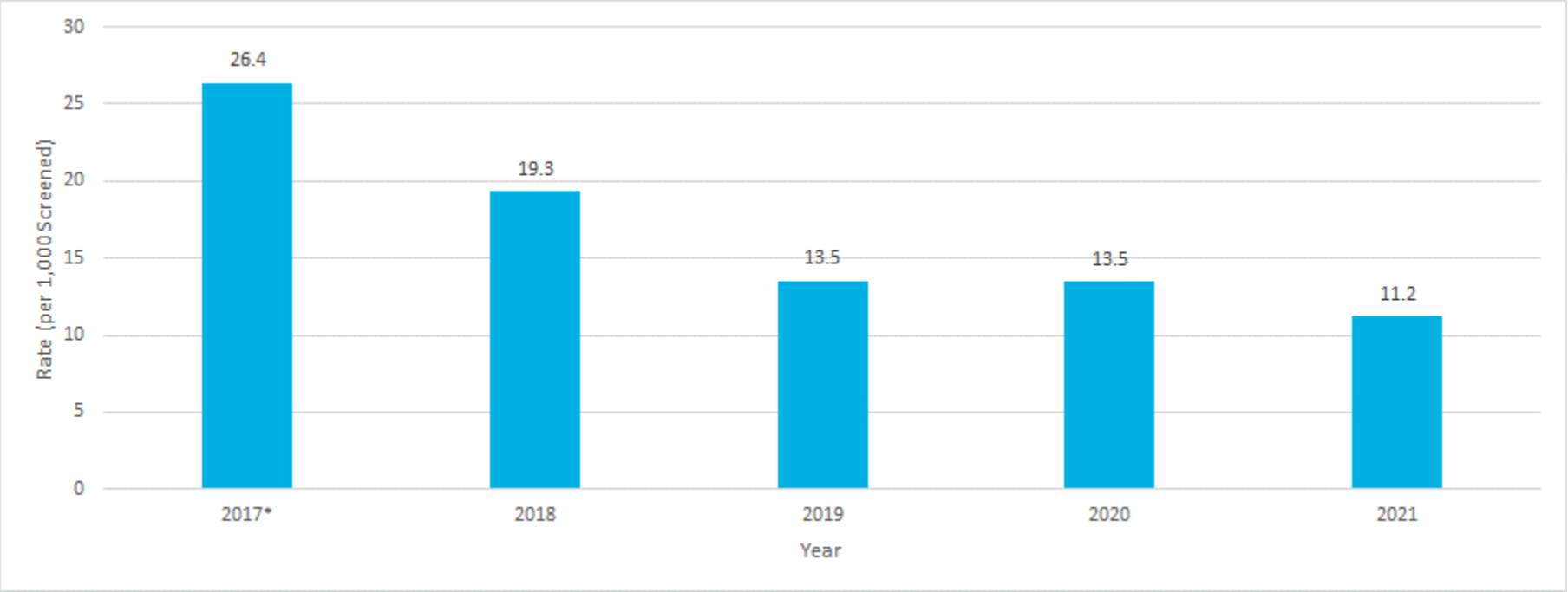
**Beginning on October 1, 2018, people with Lung-RADS® score of 4A were scheduled to have a 3-month surveillance LDCT scan instead of being referred for a diagnostic assessment consult. Only people with a Lung-RADS® score of 4B or 4X were referred for diagnostic assessment on or after October 1, 2018 in alignment with the Lung-RADS® system.

For data, see Table 80 in Appendix 1.

For people who were diagnosed with lung cancer after having an LDCT scan with a suspicious or very suspicious result, the median wait time from abnormal scan to diagnosis of lung cancer decreased (improved) from 45 days in 2017 to 35 days in 2021. This is a positive trend that suggests that most people with screen-detected lung cancer receive a timely diagnosis following an abnormal screening result. The longer 90th percentile wait time in 2020 was likely due to the impacts of the COVID-19 pandemic on wait times for diagnostic assessment services in Ontario.

OLSP: Detection

Figure 91: Number of Screen-Eligible People, Ages 55 to 74, With a Screen-Detected Invasive Lung Cancer per 1,000 People Screened, 2017 to 2021



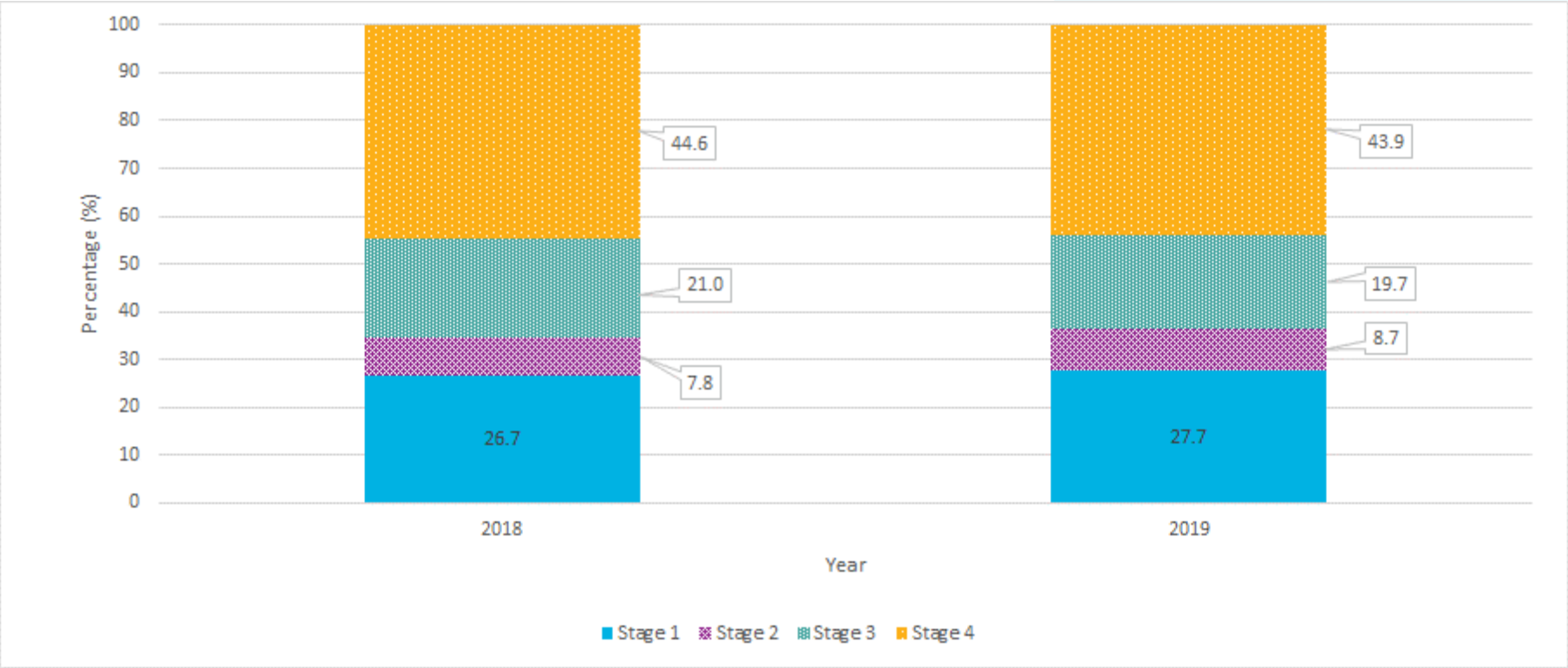
*Data began June 2017.

For data, see Table 81 in Appendix 1.

The invasive lung cancer detection rate decreased from 26.4 per 1,000 people screened in 2017 to 11.2 per 1,000 people screened in 2021. This decrease in the invasive cancer detection rate over time was expected because the percentage of people who were screened with their first LDCT scan continued to decrease. The stability in the invasive cancer detection rate seen from 2019 to 2020 is likely due to prioritizing screening services by lung cancer risk in 2020 according to Ontario Health COVID-19 pandemic guidance.

OLSP: Disease Extent at Diagnosis

Figure 92: Stage Distribution of All Invasive Lung Cancers Diagnosed in People Ages 55 to 74 in Ontario, 2018 to 2019

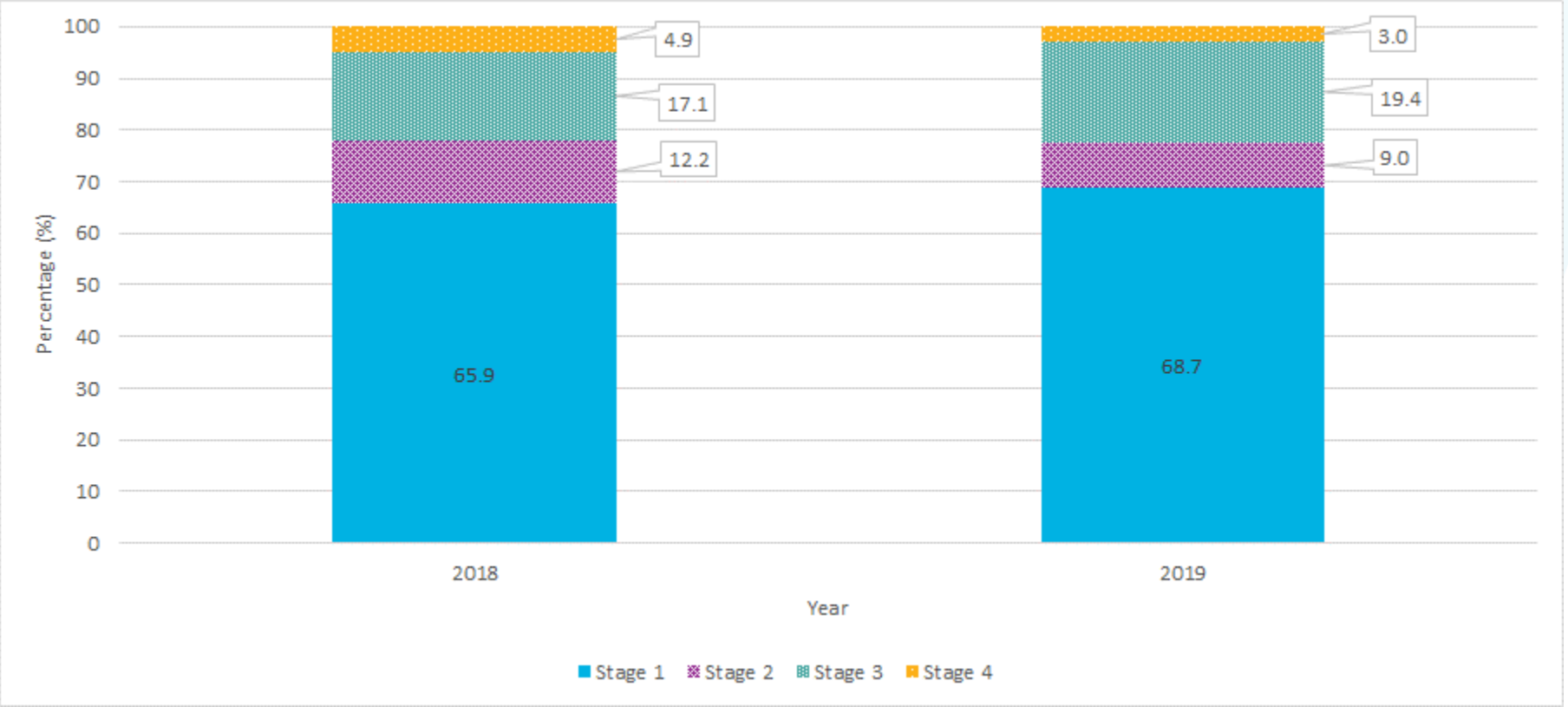


Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

For data, see Table 82 in Appendix 1.

In 2018 and 2019, most lung cancers diagnosed in Ontario in people ages 55 to 74 were advanced stage. Approximately 20% were stage 3 and approximately 44% to 45% were stage 4. Only 35% to 36% of invasive cancers were detected at stage 1 or 2 (early stages), when treatment has a better chance of working.

Figure 93: Stage Distribution of Screen-Detected Invasive Lung Cancers Diagnosed in People Ages 55 to 74 in Ontario, 2018 to 2019



Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

For data, see Table 83 in Appendix 1.

Unlike the distribution observed for all invasive lung cancers, approximately 78% of screen-detected invasive lung cancers were diagnosed at stage 1 or 2 (early stages) in 2018 and in 2019. Only 22% of screen-detected invasive lung cancers were detected at stage 3 or 4 (advanced stages). This demonstrates the effectiveness of lung cancer screening in detecting lung cancers early, when treatment has a better chance of working.

Future Directions

Future Directions

The findings of this report, along with other ongoing monitoring and evaluation efforts, will be used to refine Ontario's organized cancer screening programs so that they best meet the needs of the people of Ontario. This report highlighted many achievements in cancer screening across the province, as well as opportunities for continued improvement. For example, participation and retention rates are lower than optimal, and inequities in participation and timely follow-up were observed across the programs. The Spotlight on Cancer Screening in First Nations, Inuit, Métis and Urban Indigenous Peoples section (page 41) also highlighted disparities in cancer care and outcomes that need to be addressed through additional commitment from Ontario Health together with Indigenous partners. In addition to a commitment to addressing disparities in cancer care and outcomes in First Nations, Inuit, Métis and Urban Indigenous Peoples, Ontario Health is guided by an *Equity, Inclusion, Diversity, and Anti-Racism Framework*, the *High Priority Community Strategy* and the *Black Health Plan* in addressing the needs of underserved groups in Ontario.

This section describes a few of the initiatives that Ontario Health is undertaking to address these disparities and improve the quality of organized cancer screening in Ontario.

Expansion of the Ontario Breast Screening Program (OBSP)

In fall 2024, the OBSP will expand eligibility to include people ages 40 to 49. People will be encouraged to have a conversation with a health care provider on the risks and benefits of screening as well as their values and preferences, to determine if screening is right for them. Those who decide to screen will be able to self-refer for a mammogram and receive the benefits of organized screening.

Screening for Trans and Nonbinary People

In 2017, a suite of evidence reviews was completed to help develop a policy for breast cancer and cervical screening in trans and nonbinary people in Ontario. This evidence was evaluated by two expert working groups and a steering committee, which helped inform specific recommendations. These recommendations were published in 2019 in the *Overarching Policy for the Screening of Trans People in the Ontario Breast Screening Program and the Ontario Cervical Screening Program*. The policy has led to important program improvements, including more inclusive eligibility criteria for the Ontario Breast Screening Program. The evidence reviews are now being updated to reflect

more current evidence, which will eventually result in an update to the policy.

Future work in cancer screening will focus on further improving access to screening for trans and nonbinary people. For example, Ontario Health is working to implement gender neutral and inclusive language in all screening correspondence, evidence products, clinical guidelines, and other public and provider content. Ontario Health is also working on reviewing emerging evidence on cancer in trans and nonbinary people undergoing medical and surgical transition.

Human Papillomavirus (HPV) Testing Implementation

Like other leading cervical screening programs around the world, the Ontario Cervical Screening Program (OCSP) is planning to transition from cytology (Pap smear) to HPV testing for primary cervical screening. Almost all cervical cancers are caused by an infection with a cancer-causing type of HPV (72). The HPV test looks for the presence or absence of cancer-causing HPV and can provide information on the specific type of HPV. HPV testing is increasingly considered to be the standard of care for organized cervical screening programs because the HPV test is better at detecting cervical pre-cancers and cancers, including glandular cancers (73). In addition, unlike cytology testing, which relies on subjective interpretation of results, the HPV test is an objective test, so results are highly consistent and reproducible (74).

The OCSP will not only implement HPV testing in cervical screening, where it will be combined with reflex cytology testing (a subsequent test that is performed in people with a positive HPV test result to help determine appropriate next steps), but it will also be implemented in colposcopy. In colposcopy, HPV testing will help health care providers decide whether to discharge their patients from colposcopy and determine subsequent risk-based screening intervals.

The transition to HPV testing is a multi-year, multi-phase implementation that will involve updates to the OCSP, including new laboratory and test requirements, as well as revised screening and colposcopy recommendations (e.g., appropriate test, ages of initiation and cessation, and screening interval). There will also be changes to legislation and regulations (e.g., changes to the Schedule of Benefits for Physician Services and the Schedule of Benefits for Laboratory Services). This transition will require updates to the OSCP's information management and information technology systems to support data collection, quality reporting for facilities and providers, and participant correspondence. A comprehensive change management and education strategy will be developed to help health care providers with the transition. The OCSP anticipates launching HPV testing in 2025.

OCSP Correspondence Redesign

This initiative is linked to the planned implementation of the HPV test for primary cervical screening. Like many other province-wide screening programs in Ontario, the OCSP uses mailed letters to invite, recall and remind eligible people who are due for screening, and to communicate screening test results.

As part of the correspondence redesign, letters were developed to reflect the new screening recommendations. These letters were extensively tested and revised to meet the needs of screen-

eligible people. Letter revisions were based on feedback provided by a group of people who were diverse in terms of Indigenous identity, level of education, age, country of birth, cervical screening history, gender identity, sexual orientation and region of residence in Ontario.

Digital Correspondence

In 2019, the province of Ontario announced the *Digital First for Health* strategy (75), which sets out a path for achieving a modern and fully connected health care system. In alignment with the strategy, Ontario Health is undertaking a phased, multi-year project to design and introduce a digital cancer screening correspondence strategy. This strategy will modernize Ontario's cancer screening correspondence program and provide people who are eligible for cancer screening with more options for how they receive communications about cancer screening.

Colorectal Cancer Screening for People at Increased Risk

People with a family history of colorectal cancer that includes one or more first-degree relatives (i.e., parent, sibling or child) who have been diagnosed with the disease may be at increased risk for colorectal cancer. Since the launch of the ColonCancerCheck program in 2008, screening with colonoscopy has been recommended for people at increased risk of colorectal cancer starting at age 50, or 10 years earlier than the age of diagnosis of their youngest affected relative, whichever comes first. If their relative was diagnosed before age 60, screening with colonoscopy is recommended every five years. If their relative was diagnosed at or after age 60, screening with colonoscopy is recommended every 10 years.

The evidence base on the risk of developing colorectal cancer and appropriate screening strategies to reduce colorectal cancer related-mortality has evolved since program inception. As a result, the program convened an expert panel to review the available evidence and provide input on updating the program's screening recommendations for people in Ontario with a family history of the disease. The expert panel had representatives from gastrointestinal endoscopy, primary care, epidemiology, organized colorectal cancer screening programs in other jurisdictions, the Ontario provincial cancer system, endoscopy associations in Ontario and the general public.

In 2022, following a period of partner consultation, the ColonCancerCheck program is working towards revised recommendations and implementing the new recommendations in the future. This will include updating materials for the public, as well as developing and updating materials to support education and change management for primary care providers and endoscopists.

Sioux Lookout and Area Fecal Immunochemical Test (FIT) Kit Initiative

Following the implementation of FIT as the recommended average-risk screening test for colorectal cancer in Ontario, some communities in Ontario were experiencing barriers to access. Some of these communities are located in Sioux Lookout and

Area (a geographically remote area with a large percentage of First Nations people).

In response, Ontario Health, the Sioux Lookout First Nations Health Authority, Indigenous Services Canada, LifeLabs and the Ontario Ministry of Health launched an initiative in 2023 that delivered a tailored FIT kit distribution model to 28 Sioux Lookout and Area communities and the Municipality of Sioux Lookout. The initiative also improved access to FIT in Sioux Lookout and Area communities by implementing a solution to reduce the number of requisition rejections due to OHIP card issues. This solution was expanded beyond Sioux Lookout and Area to the rest of Ontario and has resulted in more people being screened with FIT.

The goals of this initiative are to improve access to colorectal cancer screening with FIT in Sioux Lookout and Area communities and the Municipality of Sioux Lookout, support improvements in colorectal cancer screening participation in these communities, and inform the implementation of similar strategies in other populations. A mixed methods, participatory program evaluation is being conducted to evaluate the initiative.

Personalized Breast Cancer Risk Assessment Research Project

Currently, breast screening recommendations are based primarily on age. Individualized risk assessment through a combination of genomic profiling and other breast cancer risk factors would provide more tailored screening recommendations and improve the balance of benefits and harms in breast cancer screening. A research project on breast cancer screening based on individualized risk is underway, co-led by investigators at Ontario Health and the Université Laval. The project is also partnered with researchers from other jurisdictions in Canada and internationally.

People ages 40 to 69 who have had a mammogram were recruited to the PERSPECTIVE I&I (Personalized Risk Assessment for Prevention and Early Detection of Breast Cancer: Integration and Implementation) project funded by Genome Canada and by the Canadian Institutes of Health Research (76). All eligible participants completed an entry questionnaire that asked about family history information and other lifestyle and hormonal risk factors, provided a saliva sample for genetic testing, and had breast density measured from their recent mammogram. Of the 3,753 people participating, a 10-year breast cancer risk was estimated using the CanRisk multi-factorial prediction tool (canrisk.org). Participants were estimated to be at average (79.8%), higher than average (15.7%) or high risk (4.4%), and received a screening action plan based on their risk level. Clinical care pathways were developed to support participating Ontario Breast Screening Program (OBSP) sites with study referrals.

All participants are being asked to fill out two follow-up questionnaires; one immediately after receiving their risk level and the second 12-months later to collect information on their screening behaviours and any further testing or breast cancer diagnoses. A valuable cohort is being assembled that could be followed into the future to examine long-term outcomes, including mortality. Further testing on bio-banked genetic material collected will also be possible. Evidence generated could potentially lead to a personalized approach to risk assessment and screening in the current OBSP infrastructure.

Expansion of the Ontario Lung Screening Program (OLSP)

Ontario Health is working to expand the OLSP to equitably increase access to lung cancer screening across the province. Next steps include developing expansion plans and program enhancements, as well as onboarding additional sites into the program over the next few years.

Equity-Focused Research

In addition to the research projects highlighted in the Spotlight on Cancer Screening in First Nations, Inuit, Métis and Urban Indigenous Peoples section (page 41), there are several other ongoing research projects that will generate evidence aimed at improving cancer screening for Indigenous peoples in Ontario, which are summarized below.

Canadian Institutes for Health Research Project Grant: Improving Indigenous Cultural Safety in Ontario's Cancer Screening Programs (2019 to 2024)

This research aims to improve cultural safety in the Ontario cancer screening system and create a better experience for First Nations, Inuit, Métis and urban Indigenous peoples who undergo breast, cervical and colorectal cancer screening. The research is being conducted in partnership with First Nations, Inuit, Métis and urban Indigenous communities, and is focused on three aims: 1) Improving cultural safety in the cancer system; 2) developing culturally safe communication strategies; and 3) developing shared decision-making processes for cancer screening.

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Appendix 1: Data Tables

Burden of Disease

Table 1: Age-standardized Incidence Rate of Female Breast, Colorectal, Cervical and Lung Cancer in Ontario, 2000 to 2020

Year of Diagnosis	Female Breast Cancer	Colorectal Cancer	Cervical Cancer	Lung Cancer
2000	133.4	69.7	9.4	73.4
2001	133.6	69.1	9.0	72.9
2002	137.3	66.8	8.9	69.9
2003	128.5	64.9	9.0	68.1
2004	129.8	65.9	8.6	68.7
2005	129.6	65.3	8.2	70.9
2006	128.5	64.6	8.3	68.9
2007	130.1	64.3	8.8	67.5
2008	125.4	64.9	8.3	66.1
2009	127.7	61.8	9.0	65.8
2010	130.9	61.1	9.2	69.6
2011	130.3	60.7	8.8	68.6
2012	127.5	57.9	8.2	70.4
2013	127.1	56.5	7.5	67.0
2014	130.8	55.3	7.2	66.0
2015	128.3	55.2	8.1	64.4
2016	129.6	52.6	8.2	62.9
2017	128.3	51.6	8.2	64.2
2018	131.0	49.7	8.4	62.0
2019	130.2	51.2	7.7	60.4
2020	130.4	50.6	7.6	59.3

Table 2: Age-standardized Mortality Rate for Female Breast, Colorectal, Cervical, and Lung Cancer in Ontario, 2000 to 2020

Year of Diagnosis	Female Breast Cancer	Colorectal Cancer	Cervical Cancer	Lung Cancer
2000	35.7	31.1	2.8	57.7
2001	34.1	29.6	3.0	58.9
2002	33.4	30.4	2.3	57.6
2003	32.8	28.8	2.5	55.7
2004	32.3	28.5	2.7	55.0
2005	32.0	28.8	2.5	55.0
2006	29.2	26.4	2.7	55.9
2007	29.9	26.4	2.5	53.0
2008	28.2	26.0	2.2	52.7
2009	27.3	25.1	2.0	52.1
2010	26.9	23.6	2.4	52.7
2011	26.7	24.1	2.2	50.2
2012	25.7	22.7	2.6	50.0
2013	24.5	21.5	2.0	48.3
2014	25.1	21.9	2.2	47.6
2015	24.5	21.0	2.2	46.4
2016	25.2	20.6	2.3	44.8
2017	24.9	19.7	2.0	43.8
2018	23.6	19.3	1.9	43.1
2019	23.8	19.2	2.0	41.4
2020	23.5	18.8	1.9	40.2

Ontario Breast Screening Program

Table 3: Number of Ontario Breast Screening Program (OBSP) and High Risk OBSP Screening Mammograms, by Month, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019	53,896	47,159	61,481	61,655	64,616	58,166	61,220	57,463	58,720	67,796	64,359	49,834
2020	61,332	55,171	31,651	149	609	5,004	28,906	37,393	45,562	47,414	48,193	39,121
2021	39,058	43,106	63,003	49,289	48,133	63,790	59,013	66,526	70,292	70,689	77,085	61,418
2022	52,743	57,144	71,008	59,111	58,658	59,551	51,763	58,509	59,383	60,023	62,955	48,386

Table 4: Number of Abnormal Screening Mammograms with Breast Assessment Performed in Ontario, by Month, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019	4,832	4,310	5,162	5,198	5,228	4,788	5,111	5,041	5,186	5,955	5,639	4,439
2020	5,394	5,078	2,650	15	59	511	2,667	3,461	4,147	4,393	4,536	3,864
2021	4,163	4,560	6,113	4,807	4,811	5,706	4,993	5,663	5,850	5,909	6,425	5,235
2022	4,649	5,191	6,351	5,511	5,453	5,754	4,928	5,457	5,530	5,807	6,054	-

Table 5: Number of High Risk OBSP Magnetic Resonance Imaging (MRIs) Performed in Ontario, by Month, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019	940	855	1,046	1,012	990	897	1,045	979	978	1,166	1,039	895
2020	1,010	1,055	597	6	73	375	1,189	1,204	1,342	1,305	1,338	1,230
2021	1,314	1,142	1,332	822	727	903	1,065	1,157	1,297	1,273	1,358	1,160
2022	1,062	1,194	1,400	1,035	1,061	1,105	1,112	1,177	1,158	1,316	1,450	1,203

Table 6: Percentage of Ontario Screen-Eligible Women*, Ages 50 to 74, Who Completed at Least 1 Mammogram Within a 30-Month Period, 2012–2013 to 2020–2021

Year	Numerator	Denominator	Percentage (%)	Target (%)
2012-2013	1068574	1883705	56.8	70.0
2014-2015	1188208	2010434	59.1	70.0
2016-2017	1277441	2117238	60.2	70.0
2018-2019	1302470	2203494	58.9	70.0
2020-2021	1249532	2276219	54.7	70.0

* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as “male” or “female” only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

Table 7: Percentage of Screen-Eligible Women* in Ontario, Ages 50 to 74, Who Completed at Least 1 Mammogram Within a 30-Month Period, by Material Deprivation, 2012–2013 to 2020–2021

Year	Region	Numerator	Denominator	Percentage (%)
2012-2013	Ontario Overall	1068574	1883705	56.8
2012-2013	Q1: Least Deprived	248609	407327	61.0
2012-2013	Q2	236151	396242	59.6
2012-2013	Q3	202101	354725	57.0
2012-2013	Q4	199726	364294	54.9
2012-2013	Q5: Most Deprived	176527	349619	50.6
2014-2015	Ontario Overall	1188208	2010434	59.1
2014-2015	Q1: Least Deprived	278970	440243	63.3
2014-2015	Q2	264748	426338	62.1
2014-2015	Q3	224280	378626	59.2
2014-2015	Q4	219551	384575	57.0
2014-2015	Q5: Most Deprived	194614	368276	52.8
2016-2017	Ontario Overall	1277441	2117238	60.2
2016-2017	Q1: Least Deprived	301684	469377	64.2
2016-2017	Q2	285354	452316	63.0
2016-2017	Q3	241982	398075	60.7
2016-2017	Q4	233782	400366	58.2
2016-2017	Q5: Most Deprived	207734	384028	54.0
2018-2019	Ontario Overall	1302470	2203494	58.9
2018-2019	Q1: Least Deprived	310345	494184	62.6
2018-2019	Q2	292466	473421	61.6
2018-2019	Q3	247468	413357	59.6
2018-2019	Q4	235964	412339	56.9
2018-2019	Q5: Most Deprived	209075	396633	52.4
2020-2021	Ontario Overall	1249532	2276219	54.7
2020-2021	Q1: Least Deprived	305593	518068	58.9
2020-2021	Q2	285286	492841	57.7
2020-2021	Q3	236825	425798	55.4
2020-2021	Q4	222375	420934	52.5
2020-2021	Q5: Most Deprived	192777	404702	47.3

* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as “male” or “female” only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

Table 8: Percentage of Screen-Eligible Women* in Ontario, Ages 50 to 74, Who Completed at Least 1 Mammogram Within a 30-Month Period, by Ethnic Concentration, 2012–2013 to 2020–2021

Year	Region	Numerator	Denominator	Percentage (%)
2012-2013	Ontario Overall	1068574	1883705	56.8
2012-2013	Q1: Lowest Ethnic Concentration	234471	399483	58.5
2012-2013	Q2	211822	361299	58.6
2012-2013	Q3	198252	340661	58.2
2012-2013	Q4	197892	350794	56.5
2012-2013	Q5: Highest Ethnic Concentration	220677	419970	52.7
2014-2015	Ontario Overall	1188208	2010434	59.1
2014-2015	Q1: Lowest Ethnic Concentration	251794	417124	60.1
2014-2015	Q2	229480	379879	60.3
2014-2015	Q3	218440	361304	60.4
2014-2015	Q4	223918	378542	59.2
2014-2015	Q5: Highest Ethnic Concentration	258531	461209	56.1
2016-2017	Ontario Overall	1277441	2117238	60.2
2016-2017	Q1: Lowest Ethnic Concentration	263156	426321	61.3
2016-2017	Q2	242992	392547	61.6
2016-2017	Q3	233503	378285	61.6
2016-2017	Q4	243781	404492	60.3
2016-2017	Q5: Highest Ethnic Concentration	287104	502517	57.2
2018-2019	Ontario Overall	1302470	2203494	58.9
2018-2019	Q1: Lowest Ethnic Concentration	260759	427937	60.2
2018-2019	Q2	244240	399053	60.7
2018-2019	Q3	236580	390725	60.3
2018-2019	Q4	251922	428097	58.8
2018-2019	Q5: Highest Ethnic Concentration	301817	544122	55.5

Year	Region	Numerator	Denominator	Percentage (%)
2020-2021	Ontario Overall	1249532	2276219	54.7
2020-2021	Q1: Lowest Ethnic Concentration	245411	426809	56.8
2020-2021	Q2	232792	403413	57.2
2020-2021	Q3	229331	401184	56.9
2020-2021	Q4	246221	449927	54.7
2020-2021	Q5: Highest Ethnic Concentration	289101	581010	49.8

* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as “male” or “female” only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

Table 9: Percentage of Ontario Screen-Eligible People, Ages 50 to 74, Who Had a Subsequent Mammogram Within 30 Months of a Previous Program Mammogram, 2015 to 2019

Year	Numerator	Denominator	Percentage (%)	Target (%)
2015	437533	562342	77.8	85.0
2016	451685	584432	77.3	85.0
2017	465875	610687	76.3	85.0
2018	304554	630786	48.3	85.0
2019	386533	653448	59.2	85.0

Table 10: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Ontario Breast Screening Program Mammogram Result, 2017 to 2021

Initial Screens

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	19827	130750	15.2	10.0
2018	19642	123372	15.9	10.0
2019	19435	117162	16.6	10.0
2020	11453	64944	17.6	10.0
2021	18030	98619	18.3	10.0

Re-Screens

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	37420	514460	7.3	5.0
2018	40000	543022	7.4	5.0
2019	40971	573232	7.1	5.0
2020	24990	321797	7.8	5.0
2021	45664	594885	7.7	5.0

Table 11: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Who Were Diagnosed (Benign or Cancer) Within 6 Months of the Abnormal Screen Date, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017	56139	57274	98.0
2018	58242	59666	97.6
2019	58760	60426	97.2
2020	35328	36458	96.9
2021	61295	63717	96.2

Table 12: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Did Not Need Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 5 Weeks of the Abnormal Screen Date, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	44639	48109	92.8	90.0
2018	45495	49818	91.3	90.0
2019	45107	50075	90.1	90.0
2020	27683	30213	91.6	90.0
2021	46440	52574	88.3	90.0

Table 13: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Needed Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 7 Weeks of the Abnormal Screen Date, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	6637	8525	77.9	90.0
2018	7081	9181	77.1	90.0
2019	7244	9600	75.5	90.0
2020	4499	5757	78.1	90.0
2021	7687	10304	74.6	90.0

Table 14: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Needed a Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 7 Weeks of the Abnormal Screen Date, by Material Deprivation, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	6637	8525	77.9
2017	Q1: Least Deprived	1545	1997	77.4
2017	Q2	1439	1839	78.2
2017	Q3	1244	1599	77.8
2017	Q4	1207	1545	78.1
2017	Q5: Most Deprived	1171	1500	78.1
2018	Ontario Overall	7081	9181	77.1
2018	Q1: Least Deprived	1544	2047	75.4
2018	Q2	1599	2018	79.2
2018	Q3	1330	1739	76.5
2018	Q4	1395	1770	78.8
2018	Q5: Most Deprived	1177	1554	75.7
2019	Ontario Overall	7244	9600	75.5
2019	Q1: Least Deprived	1642	2231	73.6
2019	Q2	1672	2163	77.3
2019	Q3	1415	1866	75.8
2019	Q4	1331	1743	76.4
2019	Q5: Most Deprived	1148	1543	74.4
2020	Ontario Overall	4499	5757	78.1
2020	Q1: Least Deprived	1075	1379	78.0
2020	Q2	1036	1322	78.4

Year	Region	Numerator	Denominator	Percentage (%)
2020	Q3	856	1079	79.3
2020	Q4	779	1004	77.6
2020	Q5: Most Deprived	733	934	78.5
2021	Ontario Overall	7687	10304	74.6
2021	Q1: Least Deprived	1841	2491	73.9
2021	Q2	1777	2307	77.0
2021	Q3	1460	1963	74.4
2021	Q4	1403	1863	75.3
2021	Q5: Most Deprived	1161	1624	71.5

Table 15: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Needed a Tissue Biopsy and Were Diagnosed (Benign or Cancer) Within 7 Weeks of the Abnormal Screen Date, by Ethnic Concentration, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	6637	8525	77.9
2017	Q1: Lowest Ethnic Concentration	1351	1726	78.3
2017	Q2	1292	1635	79.0
2017	Q3	1270	1623	78.3
2017	Q4	1301	1708	76.2
2017	Q5: Highest Ethnic Concentration	1392	1788	77.9
2018	Ontario Overall	7081	9181	77.1
2018	Q1: Lowest Ethnic Concentration	1481	1840	80.5
2018	Q2	1287	1634	78.8
2018	Q3	1360	1747	77.8
2018	Q4	1375	1846	74.5
2018	Q5: Highest Ethnic Concentration	1542	2061	74.8
2019	Ontario Overall	7244	9600	75.5
2019	Q1: Lowest Ethnic Concentration	1521	1919	79.3
2019	Q2	1397	1829	76.4

Year	Region	Numerator	Denominator	Percentage (%)
2019	Q3	1376	1809	76.1
2019	Q4	1398	1887	74.1
2019	Q5: Highest Ethnic Concentration	1516	2102	72.1
2020	Ontario Overall	4499	5757	78.1
2020	Q1: Lowest Ethnic Concentration	887	1115	79.6
2020	Q2	871	1113	78.3
2020	Q3	838	1050	79.8
2020	Q4	941	1197	78.6
2020	Q5: Highest Ethnic Concentration	942	1243	75.8
2021	Ontario Overall	7687	10304	74.6
2021	Q1: Lowest Ethnic Concentration	1513	1972	76.7
2021	Q2	1493	1933	77.2
2021	Q3	1447	1970	73.5
2021	Q4	1490	2043	72.9
2021	Q5: Highest Ethnic Concentration	1699	2330	72.9

Table 16: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Ontario Breast Screening Program Mammogram Result Who Were Diagnosed With Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer) After Diagnostic Workup, 2016 to 2020

Initial Screens

Year	Numerator	Denominator	Percentage (%)	Target (%)
2016	809	18597	4.4	5.0
2017	864	19504	4.4	5.0
2018	838	19324	4.3	5.0
2019	845	19096	4.4	5.0
2020	485	11229	4.3	5.0

Re-Screens

Year	Numerator	Denominator	Percentage (%)	Target (%)
2016	2640	34390	7.7	6.0
2017	2811	37130	7.6	6.0
2018	3025	39675	7.6	6.0
2019	3322	40579	8.2	6.0
2020	1981	24741	8.0	6.0

Table 17: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Correctly Diagnosed With Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer) After an Abnormal Ontario Breast Screening Program Mammogram And Diagnostic Workup, 2016 to 2020

Year	Numerator	Denominator	Percentage (%)
2016	3363	3897	86.3
2017	3630	4248	85.5
2018	3825	4428	86.4
2019	4104	4761	86.2
2020	2434	2839	85.7

Table 18: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Without A Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer) Diagnosis Who Were Correctly Identified As Having A Normal Ontario Breast Screening Program Mammogram, 2016 to 2020

Year	Numerator	Denominator	Percentage (%)
2016	562854	612293	91.9
2017	587581	640385	91.8
2018	606392	661358	91.7
2019	629587	684944	91.9
2020	350067	383451	91.3

Table 19: Number of Screen-Eligible People in Ontario, Ages 50 to 74, With a Screen-Detected Ductal Carcinoma In Situ per 1,000 People Screened, 2016 to 2020

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2016	542	616160	0.88
2017	574	644597	0.89
2018	571	665751	0.86
2019	594	689663	0.86
2020	363	386268	0.94

Table 20: Number of Screen-Eligible People in Ontario, Ages 50 to 74, With a Screen-Detected Invasive Breast Cancer per 1,000 People Screened, 2016 to 2020

Initial Screens

Year	Numerator	Denominator	Rate (per 1,000 Screened)	Target (per 1,000 Screened)
2016	653	125026	5.2	5.0
2017	727	130427	5.6	5.0
2018	696	123054	5.7	5.0
2019	723	116823	6.2	5.0
2020	411	64720	6.4	5.0

Re-Screens

Year	Numerator	Denominator	Rate (per 1,000 Screened)	Target (per 1,000 Screened)
2016	2175	491134	4.4	3.0
2017	2339	514170	4.5	3.0
2018	2569	542697	4.7	3.0
2019	2802	572840	4.9	3.0
2020	1667	321548	5.2	3.0

Table 21: Stage Distribution of All Invasive Breast Cancers Diagnosed in Ontario, Ages 50 to 74, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	4708	6252	75.3
2018	Stage 2	869	6252	13.9
2018	Stage 3	389	6252	6.2
2018	Stage 4	286	6252	4.6
2019	Stage 1	4811	6422	74.9
2019	Stage 2	938	6422	14.6
2019	Stage 3	402	6422	6.3
2019	Stage 4	271	6422	4.2

Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

Table 22: Stage Distribution of Screen-Detected Invasive Breast Cancers Diagnosed in Ontario, Ages 50 to 74, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	2667	3080	86.6
2018	Stage 2	300	3080	9.7
2018	Stage 3	80	3080	2.6
2018	Stage 4	33	3080	1.1
2019	Stage 1	2878	3306	87.1
2019	Stage 2	320	3306	9.7
2019	Stage 3	80	3306	2.4
2019	Stage 4	28	3306	0.8

Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

High Risk OBSP

Table 23: Percentage of People in Ontario, Ages 30 to 69, Screened With Magnetic Resonance Imaging or Ultrasound Within 90 Days of Confirmation of Eligibility for the High Risk Ontario Breast Screening Program, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	991	1947	50.9	90.0
2018	1164	1994	58.4	90.0
2019	1297	2010	64.5	90.0
2020	733	1587	46.2	90.0
2021	1192	1862	64.0	90.0

Table 24: Percentage of People in Ontario, Ages 30 to 68, Who Had a Subsequent High Risk Ontario Breast Screening Program (OBSP) Screen (i.e., Breast Magnetic Resonance Imaging or Ultrasound) Within 15 Months of a Previous High Risk OBSP Screen, 2016 to 2020

Year	Numerator	Denominator	Percentage (%)
2016	5726	7640	74.9
2017	7133	9263	77.0
2018	8176	10555	77.5
2019	6367	11943	53.3
2020	8616	11211	76.9

Table 25: Percentage of People in Ontario, Ages 30 to 68, Who Had a Subsequent High Risk Ontario Breast Screening Program (OBSP) Screen (i.e., Breast Magnetic Resonance Imaging or Ultrasound) Within 15 Months of a Previous High Risk OBSP Screen, by Material Deprivation, 2016 to 2020

Year	Region	Numerator	Denominator	Percentage (%)
2016	Ontario Overall	5726	7640	74.9
2016	Q1: Least Deprived	1951	2612	74.7
2016	Q2	1409	1861	75.7
2016	Q3	1002	1333	75.2
2016	Q4	772	1043	74.0
2016	Q5: Most Deprived	576	768	75.0
2017	Ontario Overall	7133	9263	77.0
2017	Q1: Least Deprived	2439	3206	76.1
2017	Q2	1783	2282	78.1
2017	Q3	1242	1596	77.8
2017	Q4	960	1241	77.4

Year	Region	Numerator	Denominator	Percentage (%)
2017	Q5: Most Deprived	688	910	75.6
2018	Ontario Overall	8176	10555	77.5
2018	Q1: Least Deprived	2808	3612	77.7
2018	Q2	2069	2607	79.4
2018	Q3	1388	1796	77.3
2018	Q4	1076	1451	74.2
2018	Q5: Most Deprived	813	1058	76.8
2019	Ontario Overall	6367	11943	53.3
2019	Q1: Least Deprived	2281	4095	55.7
2019	Q2	1625	3004	54.1
2019	Q3	1031	2032	50.7
2019	Q4	820	1592	51.5
2019	Q5: Most Deprived	596	1189	50.1
2020	Ontario Overall	8616	11211	76.9
2020	Q1: Least Deprived	2985	3873	77.1
2020	Q2	2205	2834	77.8
2020	Q3	1463	1909	76.6
2020	Q4	1136	1480	76.8
2020	Q5: Most Deprived	805	1084	74.3

Table 26: Percentage of People in Ontario, Ages 30 to 68, Who Had a Subsequent High Risk Ontario Breast Screening Program (OBSP) Screen (i.e., Breast Magnetic Resonance Imaging or Ultrasound) Within 15 Months of a Previous High Risk OBSP Screen, by Ethnic Concentration, 2016 to 2020

Year	Region	Numerator	Denominator	Percentage (%)
2016	Ontario Overall	5726	7640	74.9
2016	Q1: Lowest Ethnic Concentration	747	1036	72.1
2016	Q2	983	1337	73.5
2016	Q3	1229	1665	73.8
2016	Q4	1542	2035	75.8
2016	Q5: Highest Ethnic Concentration	1209	1544	78.3
2017	Ontario Overall	7133	9263	77.0

Year	Region	Numerator	Denominator	Percentage (%)
2017	Q1: Lowest Ethnic Concentration	873	1167	74.8
2017	Q2	1188	1601	74.2
2017	Q3	1570	2031	77.3
2017	Q4	1936	2493	77.7
2017	Q5: Highest Ethnic Concentration	1545	1943	79.5
2018	Ontario Overall	8176	10555	77.5
2018	Q1: Lowest Ethnic Concentration	1014	1341	75.6
2018	Q2	1390	1792	77.6
2018	Q3	1773	2292	77.4
2018	Q4	2192	2828	77.5
2018	Q5: Highest Ethnic Concentration	1785	2271	78.6
2019	Ontario Overall	6367	11943	53.3
2019	Q1: Lowest Ethnic Concentration	780	1541	50.6
2019	Q2	1071	2075	51.6
2019	Q3	1368	2575	53.1
2019	Q4	1773	3245	54.6
2019	Q5: Highest Ethnic Concentration	1361	2476	55.0
2020	Ontario Overall	8616	11211	76.9
2020	Q1: Lowest Ethnic Concentration	1131	1469	77.0
2020	Q2	1503	1959	76.7
2020	Q3	1887	2433	77.6
2020	Q4	2287	2987	76.6
2020	Q5: Highest Ethnic Concentration	1786	2332	76.6

Table 27: Percentage of People in Ontario, Ages 30 to 69, Screened in the High Risk Ontario Breast Screening Program With an Abnormal Screening Result, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017	1891	9593	19.7
2018	2027	10876	18.6
2019	2329	12339	18.9
2020	2220	11475	19.3
2021	2701	14084	19.2

Table 28: Percentage of People in Ontario, Ages 30 to 69, With an Abnormal High Risk OBSP Screening Result Who Were Diagnosed With Breast Cancer (Ductal Carcinoma In Situ or Invasive Breast Cancer), 2016 to 2020

Year	Numerator	Denominator	Percentage (%)
2016	104	1579	6.6
2017	131	1876	7.0
2018	107	2006	5.3
2019	116	2304	5.0
2020	137	2200	6.2

Note: This indicator is presented as a combined value for initial screens and re-screens.

Table 29: Number of People in Ontario, Ages 30 to 69, With Ductal Carcinoma In Situ per 1,000 People Screened in the High Risk Ontario Breast Screening Program, 2016 to 2020

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2016	29	7948	3.6
2017	31	9578	3.2
2018	23	10856	2.1
2019	30	12315	2.4
2020	31	11456	2.7

Table 30: Number of People in Ontario, Ages 30 to 69, With Invasive Breast Cancer per 1,000 People Screened in the High Risk Ontario Breast Screening Program, 2016 to 2020

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2016	70	7948	8.8
2017	95	9578	9.9
2018	DS	DS	7.6
2019	DS	DS	6.7
2020	97	11456	8.5

DS: Data suppressed to prevent disclosure of small cell counts for stage distribution.

Table 31: Stage Distribution of Screen-Detected Invasive Breast Cancers Among People Ages 30 to 69 in The High Risk Ontario Breast Screening Program, by Stage at Diagnosis, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	LV	LV	95.1
2018	Stage 2	LV	LV	1.2
2018	Stage 3	LV	LV	2.5
2018	Stage 4	LV	LV	1.2
2019	Stage 1	LV	LV	89.6
2019	Stage 2	LV	LV	6.5
2019	Stage 3	LV	LV	2.6
2019	Stage 4	LV	LV	1.3

Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.
LV: Low volume, data suppressed

Ontario Cervical Screening Program

Table 32: Number of Cervical Cytology Tests Performed in Ontario, Ages 21 to 69, by Month, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019	75,635	68,915	86,964	85,598	84,308	78,001	81,808	71,363	73,082	82,818	77,596	64,195
2020	72,328	70,242	45,943	6,622	12,045	25,317	41,886	48,601	60,181	65,046	63,623	51,213
2021	44,876	52,013	77,403	59,195	58,557	70,344	68,103	69,529	81,207	100,133	98,027	85,322
2022	74,291	84,652	109,388	100,143	97,771	113,204	79,440	88,797	83,465	87,535	92,254	72,478

Note: These data are for cervical cytology tests performed in community labs only. Some of the cervical cytology tests may not be Ontario Cervical Screening Program screening tests and are done during colposcopy. Data for 2022 may be incomplete due to testing and reporting delays.

Table 33: Number of Colposcopy Procedures Performed in Ontario, Ages 21 to 69, by Month, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019	9,019	7,489	8,509	9,271	9,420	8,506	8,256	7,374	8,492	9,945	8,933	7,803
2020	9,411	8,250	5,625	2,330	3,525	5,981	6,788	7,061	8,561	8,469	8,421	6,952
2021	7,973	7,301	8,546	7,000	6,652	7,847	6,627	6,723	7,834	7,445	8,148	6,214
2022	6,332	7,093	8,312	7,166	7,967	7,724	6,127	6,835	7,545	7,972	8,360	6,560

Table 34: Number of Cervical Cancers and Pre-Cancers (Combined) in Ontario, Ages 21 to 69, by Month, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019	540	465	469	494	387	364	367	382	406	467	413	356
2020	423	385	276	167	173	229	270	273	347	335	422	334
2021	366	296	394	312	341	406	301	339	334	333	383	292
2022	331	406	411	364	352	348	258	310	308	298	323	-

Table 35: Percentage of Screen-Eligible Women* in Ontario, Ages 21 to 69, Who Had at Least 1 Cervical Cytology Test Within a 42-Month Period by Age Group, 2007–2009 to 2019–2021

Year	Age group	Numerator	Denominator	Percentage (%)	Target (%)
2007-2009	Ages 21-24	222260	336274	66.1	80.0
2007-2009	Ages 25-69	2512448	3735151	67.3	80.0
2007-2009	Ages 21-69	2734708	4071425	66.6	80.0
2010-2012	Ages 21-24	220481	355025	62.1	80.0
2010-2012	Ages 25-69	2553248	3828364	66.7	80.0
2010-2012	Ages 21-69	2773729	4183389	66.0	80.0
2013-2015	Ages 21-24	191454	371235	51.6	80.0
2013-2015	Ages 25-69	2442857	3959396	61.7	80.0
2013-2015	Ages 21-69	2634311	4330631	60.8	80.0
2016-2018	Ages 21-24	190167	381598	49.8	80.0
2016-2018	Ages 25-69	2533593	4140283	61.2	80.0
2016-2018	Ages 21-69	2723760	4521881	60.4	80.0
2019-2021	Ages 21-24	153283	387775	39.5	80.0
2019-2021	Ages 25-69	2407420	4329911	55.6	80.0
2019-2021	Ages 21-69	2560703	4717686	54.5	80.0

* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data that defines sex as “male” or “female” only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

Table 36: Percentage of Screen-Eligible Women* in Ontario, Ages 21 to 69, Who Had at Least 1 Cervical Cytology Test Within a 42-Month Period, by Material Deprivation, 2007–2009 to 2019–2021

Year	Region	Numerator	Denominator	Percentage (%)
2007-2009	Ontario Overall	2734708	4071425	66.6
2007-2009	Q1: Least Deprived	618143	844705	72.5
2007-2009	Q2	599815	844642	70.4
2007-2009	Q3	512003	758570	67.0
2007-2009	Q4	502767	787472	63.5
2007-2009	Q5: Most Deprived	487486	811919	59.4
2010-2012	Ontario Overall	2773729	4183389	66.0
2010-2012	Q1: Least Deprived	625318	873914	71.2
2010-2012	Q2	600687	862147	69.3
2010-2012	Q3	516780	776164	66.3

Year	Region	Numerator	Denominator	Percentage (%)
2010-2012	Q4	511160	805202	63.3
2010-2012	Q5: Most Deprived	504306	840892	59.4
2013-2015	Ontario Overall	2634311	4330631	60.8
2013-2015	Q1: Least Deprived	615559	941298	65.3
2013-2015	Q2	573509	900313	63.6
2013-2015	Q3	488011	800055	61.0
2013-2015	Q4	476070	815452	58.5
2013-2015	Q5: Most Deprived	466111	846857	55.0
2016-2018	Ontario Overall	2723760	4521881	60.4
2016-2018	Q1: Least Deprived	668222	1032642	64.8
2016-2018	Q2	600865	949165	63.4
2016-2018	Q3	500377	828976	60.5
2016-2018	Q4	478331	829125	57.9
2016-2018	Q5: Most Deprived	460611	853749	54.1
2019-2021	Ontario Overall	2560703	4717686	54.5
2019-2021	Q1: Least Deprived	654962	1110043	59.1
2019-2021	Q2	570674	994498	57.5
2019-2021	Q3	467701	861371	54.5
2019-2021	Q4	438956	853236	51.7
2019-2021	Q5: Most Deprived	413832	869089	47.8

* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data and defines sex as “male” or “female” only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

Table 37: Percentage of Screen-Eligible Women in Ontario, Ages 21 to 69, Who Had at Least 1 Cervical Cytology Test Within a 42-Month Period, by Ethnic Concentration, 2007–2009 to 2019–2021

Year	Region	Numerator	Denominator	Percentage (%)
2007-2009	Ontario Overall	2734708	4071425	66.6
2007-2009	Q1: Lowest Ethnic Concentration	419351	629463	67.6
2007-2009	Q2	466062	674072	69.3
2007-2009	Q3	511683	731338	69.6
2007-2009	Q4	593779	861415	68.0
2007-2009	Q5: Highest Ethnic Concentration	729339	1151020	62.1

Year	Region	Numerator	Denominator	Percentage (%)
2010-2012	Ontario Overall	2773729	4183389	66.0
2010-2012	Q1: Lowest Ethnic Concentration	409598	613407	67.6
2010-2012	Q2	456953	665918	68.8
2010-2012	Q3	507404	734861	68.8
2010-2012	Q4	602813	890762	67.1
2010-2012	Q5: Highest Ethnic Concentration	781483	1253371	61.4
2013-2015	Ontario Overall	2634311	4330631	60.8
2013-2015	Q1: Lowest Ethnic Concentration	382757	616482	62.7
2013-2015	Q2	423703	669306	63.6
2013-2015	Q3	473142	747586	63.3
2013-2015	Q4	573616	928692	61.6
2013-2015	Q5: Highest Ethnic Concentration	766042	1341909	56.8
2016-2018	Ontario Overall	2723760	4521881	60.4
2016-2018	Q1: Lowest Ethnic Concentration	396432	627898	63.6
2016-2018	Q2	434581	682669	63.9
2016-2018	Q3	487374	773107	63.2
2016-2018	Q4	598804	980456	61.1
2016-2018	Q5: Highest Ethnic Concentration	791215	1429527	55.4
2019-2021	Ontario Overall	2560703	4717686	54.5
2019-2021	Q1: Lowest Ethnic Concentration	374014	639606	58.8
2019-2021	Q2	409133	698350	58.8
2019-2021	Q3	460375	799437	57.7
2019-2021	Q4	570050	1034829	55.2
2019-2021	Q5: Highest Ethnic Concentration	732553	1516015	48.6

* The screen-eligible population for this indicator is calculated using Ontario Health Insurance Plan data and defines sex as “male” or “female” only. This binary-only definition is a limitation of the data; defining sex in this way is not inclusive of all gender diversity (e.g., trans, nonbinary and Two-Spirit people) and may result in the exclusion of some people who are eligible for breast screening, as well as the inclusion of some people who are not eligible for screening.

Table 38: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, Who Had a Subsequent Cervical Cytology Test Within 42 Months of a Normal Cytology Test Result, 2014 to 2018

Year	Numerator	Denominator	Percentage (%)
2014	445510	739164	60.3
2015	556142	893922	62.2
2016	443754	761230	58.3
2017	271537	723336	37.5
2018	380679	821768	46.3

Table 39: Distribution of Abnormal Cervical Cytology Results, 2017 to 2021

Year	Cytology Result	Numerator	Denominator	Percentage (%)
2017	Abnormal (Low-grade)	40088	46752	85.7
2017	Abnormal (High-grade)	6664	46752	14.3
2018	Abnormal (Low-grade)	41159	48071	85.6
2018	Abnormal (High-grade)	6912	48071	14.4
2019	Abnormal (Low-grade)	39549	46087	85.8
2019	Abnormal (High-grade)	6538	46087	14.2
2020	Abnormal (Low-grade)	27804	32345	86.0
2020	Abnormal (High-grade)	4541	32345	14.0
2021	Abnormal (Low-grade)	33941	40054	84.7
2021	Abnormal (High-grade)	6113	40054	15.3

Table 40: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With a High-Grade Cervical Cytology Result Who Did Not Undergo Colposcopy or Definitive Treatment Within 6 Months of the High-Grade Abnormal Result, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	844	6276	13.4	10.0
2018	871	6630	13.1	10.0
2019	916	6236	14.7	10.0
2020	578	4164	13.9	10.0
2021	714	5322	13.4	10.0

Table 41: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With a High-Grade Abnormal Cervical Cytology Test Result Who Did Not Undergo Colposcopy or Definitive Treatment Within 6 Months of the High-Grade Abnormal Result, By Material Deprivation, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	844	6276	13.4
2017	Q1: Least Deprived	139	1313	10.6
2017	Q2	147	1259	11.7
2017	Q3	142	1061	13.4
2017	Q4	178	1199	14.8
2017	Q5: Most Deprived	219	1386	15.8
2018	Ontario Overall	871	6630	13.1
2018	Q1: Least Deprived	156	1436	10.9
2018	Q2	169	1345	12.6
2018	Q3	145	1187	12.2
2018	Q4	167	1227	13.6
2018	Q5: Most Deprived	216	1375	15.7
2019	Ontario Overall	916	6236	14.7
2019	Q1: Least Deprived	138	1384	10.0
2019	Q2	226	1280	17.7
2019	Q3	160	1095	14.6
2019	Q4	181	1162	15.6
2019	Q5: Most Deprived	198	1261	15.7
2020	Ontario Overall	578	4164	13.9
2020	Q1: Least Deprived	112	902	12.4
2020	Q2	87	844	10.3
2020	Q3	98	730	13.4
2020	Q4	119	822	14.5
2020	Q5: Most Deprived	153	840	18.2
2021	Ontario Overall	714	5322	13.4
2021	Q1: Least Deprived	138	1218	11.3
2021	Q2	148	1109	13.3
2021	Q3	122	903	13.5
2021	Q4	131	976	13.4
2021	Q5: Most Deprived	163	1072	15.2

Table 42: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With a High-Grade Cervical Cytology Test Result Who Did Not Undergo Colposcopy or Definitive Treatment Within 6 Months of the High-Grade Abnormal Result, by Ethnic Concentration, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	844	6276	13.4
2017	Q1: Lowest Ethnic Concentration	141	1003	14.1
2017	Q2	145	1108	13.1
2017	Q3	153	1197	12.8
2017	Q4	152	1362	11.2
2017	Q5: Highest Ethnic Concentration	234	1548	15.1
2018	Ontario Overall	871	6630	13.1
2018	Q1: Lowest Ethnic Concentration	135	1068	12.6
2018	Q2	146	1166	12.5
2018	Q3	156	1252	12.5
2018	Q4	174	1499	11.6
2018	Q5: Highest Ethnic Concentration	242	1585	15.3
2019	Ontario Overall	916	6236	14.7
2019	Q1: Lowest Ethnic Concentration	152	972	15.6
2019	Q2	157	1111	14.1
2019	Q3	171	1240	13.8
2019	Q4	171	1385	12.3
2019	Q5: Highest Ethnic Concentration	252	1474	17.1
2020	Ontario Overall	578	4164	13.9
2020	Q1: Lowest Ethnic Concentration	106	724	14.6
2020	Q2	108	766	14.1
2020	Q3	100	776	12.9
2020	Q4	116	925	12.5
2020	Q5: Highest Ethnic Concentration	139	947	14.7

Year	Region	Numerator	Denominator	Percentage (%)
2021	Ontario Overall	714	5322	13.4
2021	Q1: Lowest Ethnic Concentration	124	904	13.7
2021	Q2	116	925	12.5
2021	Q3	129	1032	12.5
2021	Q4	166	1177	14.1
2021	Q5: Highest Ethnic Concentration	167	1240	13.5

Table 43: Wait Time (in Days) for Screen-Eligible People in Ontario, Ages 21 to 69, From High-Grade Cervical Cytology Test Result to Colposcopy, 2017 to 2021

Calendar year	Number of People	Median (Days)	90th Percentile (Days)
2017	5613	56	167
2018	6017	62	176
2019	5626	61	184
2020	4176	57	201
2021	4669	56	166

Table 44: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, With an Abnormal Cervical Cytology Test Result Who Were Diagnosed With an Invasive Cervical Cancer or Pre-Cancer After a Follow-Up Colposcopy or Surgical Procedure Involving the Cervix, 2016 to 2020

Pre-cancer (In-situ)

Year	Numerator	Denominator	Percentage (%)
2016	2302	42514	5.4
2017	2401	42117	5.7
2018	2543	43326	5.9
2019	1881	41397	4.5
2020	1218	28109	4.3

Invasive Cancer

Year	Numerator	Denominator	Percentage (%)
2016	117	42514	0.3
2017	130	42117	0.3
2018	DS	DS	0.3
2019	DS	DS	0.3
2020	113	28109	0.4

DS: Data suppressed to prevent disclosure of small cell counts for stage distribution.

Table 45: Percentage of Screen-Eligible People in Ontario, Ages 21 to 69, Who Were Diagnosed With Invasive Cervical Cancer, by History of Cervical Screening With Cytology, 2017 to 2019

Time Since Last Cytology Test (Years)	Numerator	Denominator	Percentage (%)
>2 to 3	404	2985	13.5
>3 to 5	848	2985	28.4
>5 to 10	674	2985	22.6
No Previous Cytology Test Within 10 Years	1059	2985	35.5

Table 46: Number of Screen-Eligible People in Ontario, Ages 21 to 69, With a Screen-Detected Pre-Cancer (In Situ) or Invasive Cervical Cancer, per 1,000 People Screened, 2016 to 2020

Pre-cancer (In-situ)

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2016	2302	820565	2.81
2017	2401	783301	3.07
2018	2543	889261	2.86
2019	1881	849778	2.21
2020	1218	508862	2.39

Invasive Cancer

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2016	117	820565	0.14
2017	130	783301	0.17
2018	138	889261	0.16
2019	119	849778	0.14
2020	113	508862	0.22

Table 47: Stage Distribution of All Invasive Cervical Cancers Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	306	531	63.5
2018	Stage 2	106	531	22.0
2018	Stage 3	39	531	8.1
2018	Stage 4	31	531	6.4
2019	Stage 1	335	506	66.2
2019	Stage 2	87	506	17.2
2019	Stage 3	30	506	5.9
2019	Stage 4	54	506	10.7

Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

Table 48: Stage Distribution of Screen-Detected Invasive Cervical Cancers Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	LV	LV	84.8
2018	Stage 2	LV	LV	12.3
2018	Stage 3	LV	LV	1.8
2018	Stage 4	LV	LV	1.2
2019	Stage 1	LV	LV	86.7
2019	Stage 2	LV	LV	8.2
2019	Stage 3	LV	LV	1.3
2019	Stage 4	LV	LV	3.8

LV: Low volume, data suppressed

Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

Table 49: Stage 1 Sub-Stage Distribution for All Invasive Cervical Cancers in People Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1 (Non-substaged)	14	306	4.4
2018	Stage 1A (Non-substaged)	12	306	3.8
2018	Stage 1A1	110	306	35.3
2018	Stage 1A2	18	306	5.7
2018	Stage 1B	152	306	50.8
2019	Stage 1 (Non-substaged)	10	335	3.1
2019	Stage 1A (Non-substaged)	11	335	3.1
2019	Stage 1A1	118	335	34.3
2019	Stage 1A2	25	335	7.2
2019	Stage 1B	171	335	52.4

Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

Table 50: Stage 1 Sub-Stage Distribution for Screen-Detected Invasive Cervical Cancers in People Diagnosed in Ontario, Ages 21 to 69, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1 (Non-substaged)	LV	LV	4.1
2018	Stage 1A (Non-substaged)	LV	LV	3.4
2018	Stage 1A1	LV	LV	44.1
2018	Stage 1A2	LV	LV	5.5
2018	Stage 1B	LV	LV	42.8
2019	Stage 1 (Non-substaged)	LV	LV	2.2
2019	Stage 1A (Non-substaged)	LV	LV	2.9
2019	Stage 1A1	LV	LV	43.8
2019	Stage 1A2	LV	LV	9.5
2019	Stage 1B	LV	LV	41.6

LV: Low volume, data suppressed

Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

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Table 51: Number of Fecal Tests Completed by People in Ontario, Ages 49 to 85, By Month, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019*	43,384	48,167	56,326	60,194	57,732	43,890	40,508	59,338	57,235	64,368	59,491	54,370
2020	61,631	60,314	53,341	12,872	5,391	3,756	7,034	16,550	25,198	38,780	39,979	43,258
2021	42,200	47,739	64,201	51,838	59,502	70,536	65,252	65,345	67,332	74,695	81,772	69,101
2022	67,427	73,033	86,536	61,450	55,894	52,015	47,078	56,311	50,029	53,179	59,644	48,491

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 52: Number of Outpatient Colonoscopies Performed for People of All Ages in Hospitals or Out-Of-Hospital Premises in Ontario, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019*	40,274	35,830	37,882	40,648	44,231	39,450	39,616	34,701	39,236	43,003	40,940	31,397
2020	41,327	37,133	22,999	2,643	7,288	21,801	29,523	29,790	35,511	37,756	38,277	31,386
2021	33,687	33,402	41,679	31,161	28,114	38,691	35,337	35,494	39,653	40,431	44,208	33,806
2022	29,270	33,451	44,199	39,218	43,062	44,266	36,588	40,182	42,904	42,238	46,226	36,656

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 53: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Were Overdue for Colorectal Cancer Screening, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	1621622	4298136	38.1	40.0
2018	1660179	4384188	38.4	40.0
2019*	1699621	4469926	38.7	40.0
2020	1910785	4520086	43.2	40.0
2021	1898005	4604162	42.2	40.0

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 54: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Were Overdue for Colorectal Cancer Screening, by Material Deprivation, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	1621622	4298136	38.1
2017	Q1: Least Deprived	313672	952946	33.3
2017	Q2	318278	901255	35.6
2017	Q3	317554	851291	37.8
2017	Q4	322551	808238	40.4
2017	Q5: Most Deprived	336661	756650	44.8
2018	Ontario Overall	1660179	4384188	38.4
2018	Q1: Least Deprived	323580	977384	33.6
2018	Q2	326858	922081	35.9
2018	Q3	324200	867061	38.0
2018	Q4	328857	820188	40.8
2018	Q5: Most Deprived	343627	769351	45.2
2019	Ontario Overall	1699621	4469926	38.7
2019	Q1: Least Deprived	333007	1001793	33.8
2019	Q2	334966	943052	36.1
2019	Q3	331277	882146	38.4
2019	Q4	334639	832028	41.1
2019	Q5: Most Deprived	352357	782362	45.7
2020	Ontario Overall	1910785	4520086	43.2
2020	Q1: Least Deprived	382926	1020564	38.2
2020	Q2	380993	958223	40.5
2020	Q3	373170	890598	42.9
2020	Q4	372709	836563	45.7
2020	Q5: Most Deprived	386604	785505	50.1
2021	Ontario Overall	1898005	4604162	42.2
2021	Q1: Least Deprived	379978	1046889	37.1
2021	Q2	378383	979582	39.5
2021	Q3	369221	904806	42.0
2021	Q4	369930	847368	45.0
2021	Q5: Most Deprived	386129	796560	49.5

Table 55: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Were Overdue for Colorectal Cancer Screening, by Ethnic Concentration, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	1621622	4298136	38.1
2017	Q1: Lowest Ethnic Concentration	304212	848867	37.1
2017	Q2	289634	802620	36.9
2017	Q3	280617	782407	36.3
2017	Q4	307071	822358	37.4
2017	Q5: Highest Ethnic Concentration	427182	1014128	42.0
2018	Ontario Overall	1660179	4384188	38.4
2018	Q1: Lowest Ethnic Concentration	304355	850488	37.3
2018	Q2	291592	809691	37.0
2018	Q3	285085	795372	36.4
2018	Q4	317941	846343	37.7
2018	Q5: Highest Ethnic Concentration	448149	1054171	42.5
2019	Ontario Overall	1699621	4469926	38.7
2019	Q1: Lowest Ethnic Concentration	302949	849736	37.5
2019	Q2	292209	814591	37.1
2019	Q3	289194	807845	36.6
2019	Q4	328174	870665	38.0
2019	Q5: Highest Ethnic Concentration	473720	1098544	43.2
2020	Ontario Overall	1910785	4520086	43.2
2020	Q1: Lowest Ethnic Concentration	335842	844215	41.8
2020	Q2	326194	815300	41.4
2020	Q3	324865	815029	40.8
2020	Q4	369809	888185	42.0
2020	Q5: Highest Ethnic Concentration	539692	1128724	48.0

Year	Region	Numerator	Denominator	Percentage (%)
2021	Ontario Overall	1898005	4604162	42.2
2021	Q1: Lowest Ethnic Concentration	321798	843480	40.5
2021	Q2	316315	821061	40.2
2021	Q3	318823	827838	39.6
2021	Q4	372598	912991	41.3
2021	Q5: Highest Ethnic Concentration	554107	1169835	47.6

Table 56: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Completed at Least 1 Fecal Test in a 30-Month Period, 2012-2013 to 2020-2021

Year	Numerator	Denominator	Percentage (%)
2012-2013	632544	1940330	29.7
2014-2015	757635	2117685	35.4
2016-2017	803241	2172521	36.6
2018-2019*	803219	2244776	35.2
2020-2021	849723	2320421	36.1

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 57: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017	22840	525507	4.3
2018	22004	507787	4.3
2019*	25057	548576	4.6
2020	16110	337740	4.8
2021	32120	689555	4.7

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 58: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Did Not Undergo Colonoscopy Within 6 Months of Their Abnormal Fecal Test Result, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)	Target (%)
2017	4469	22542	19.8	18.0
2018	4287	21687	19.8	18.0
2019*	3708	24873	14.9	18.0
2020	2263	16017	14.1	18.0
2021	3115	31964	9.7	18.0

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 59: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Underwent Colonoscopy Within 8 Weeks of the Abnormal Result, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017	11264	22563	49.9
2018	10806	21704	49.8
2019*	14673	24896	58.9
2020	9769	16024	61.0
2021	23327	31985	72.9

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 60: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Underwent Colonoscopy Within 8 Weeks of the Abnormal Result, by Material Deprivation, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	11264	22563	49.9
2017	Q1: Least Deprived	2034	3818	53.3
2017	Q2	2190	4218	51.9
2017	Q3	2105	4183	50.3
2017	Q4	2180	4428	49.2
2017	Q5: Most Deprived	2198	4652	47.2
2018	Ontario Overall	10806	21704	49.8
2018	Q1: Least Deprived	2087	3885	53.7
2018	Q2	2106	4098	51.4
2018	Q3	2014	3980	50.6
2018	Q4	2109	4238	49.8
2018	Q5: Most Deprived	1986	4333	45.8

Year	Region	Numerator	Denominator	Percentage (%)
2019	Ontario Overall	14673	24896	58.9
2019	Q1: Least Deprived	2744	4491	61.1
2019	Q2	2950	4890	60.3
2019	Q3	2748	4599	59.8
2019	Q4	2953	5011	58.9
2019	Q5: Most Deprived	2925	5153	56.8
2020	Ontario Overall	9769	16024	61.0
2020	Q1: Least Deprived	2034	3133	64.9
2020	Q2	2010	3177	63.3
2020	Q3	1852	3065	60.4
2020	Q4	1926	3201	60.2
2020	Q5: Most Deprived	1884	3333	56.5
2021	Ontario Overall	23327	31985	72.9
2021	Q1: Least Deprived	4849	6402	75.7
2021	Q2	4876	6559	74.3
2021	Q3	4372	5936	73.7
2021	Q4	4628	6377	72.6
2021	Q5: Most Deprived	4412	6428	68.6

Table 61: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had an Abnormal Fecal Test Result and Underwent Colonoscopy Within 8 Weeks of the Abnormal Result, by Ethnic Concentration, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017	Ontario Overall	11264	22563	49.9
2017	Q1: Lowest Ethnic Concentration	2007	3920	51.2
2017	Q2	1840	3503	52.5
2017	Q3	1640	3274	50.1
2017	Q4	2026	4002	50.6
2017	Q5: Highest Ethnic Concentration	3194	6600	48.4
2018	Ontario Overall	10806	21704	49.8
2018	Q1: Lowest Ethnic Concentration	2031	3876	52.4
2018	Q2	1762	3346	52.7

Year	Region	Numerator	Denominator	Percentage (%)
2018	Q3	1661	3180	52.2
2018	Q4	1874	3806	49.2
2018	Q5: Highest Ethnic Concentration	2974	6326	47.0
2019	Ontario Overall	14673	24896	58.9
2019	Q1: Lowest Ethnic Concentration	3162	5206	60.7
2019	Q2	2729	4461	61.2
2019	Q3	2483	4038	61.5
2019	Q4	2557	4312	59.3
2019	Q5: Highest Ethnic Concentration	3389	6127	55.3
2020	Ontario Overall	9769	16024	61.0
2020	Q1: Lowest Ethnic Concentration	2246	3661	61.3
2020	Q2	2039	3247	62.8
2020	Q3	1689	2761	61.2
2020	Q4	1710	2811	60.8
2020	Q5: Highest Ethnic Concentration	2022	3429	59.0
2021	Ontario Overall	23327	31985	72.9
2021	Q1: Lowest Ethnic Concentration	5456	7432	73.4
2021	Q2	4644	6296	73.8
2021	Q3	4213	5691	74.0
2021	Q4	4056	5546	73.1
2021	Q5: Highest Ethnic Concentration	4768	6737	70.8

Table 62: Percentage of Screen-Eligible People in Ontario, Ages 50 to 74, With an Abnormal Fecal Test Result Who Were Diagnosed With a Program Screen-Detected Invasive Colorectal Cancer After a Large Bowel Endoscopy or Surgical Resection, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017	764	18146	4.2
2018	683	17468	3.9
2019*	930	21232	4.4
2020	681	13769	4.9
2021	1527	28904	5.3

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 63: Percentage of Colorectal Cancers Detected That Are Post-Colonoscopy Colorectal Cancers, 2014 to 2018

Year	Numerator	Denominator	Percentage (%)
2017	563	6075	9.3
2018	613	6034	10.2
2019	589	6088	9.7
2020	515	5860	8.8
2021	542	5831	9.3

Table 64: Number of Outpatient Colonoscopies* in People Ages 18 and Older Followed by Hospital Admissions for Perforations Within 7 Days of Colonoscopy, per 1,000 Colonoscopies in Ontario, 2017 to 2021

Year	Numerator	Denominator	Rate (per 1,000 Colonoscopies)	Target (per 1,000 Colonoscopies)
2017	169	462131	0.37	1.0
2018	141	469147	0.30	1.0
2019	142	476012	0.30	1.0
2020	101	342340	0.30	1.0
2021	124	443171	0.28	1.0

*Includes colonoscopies for abnormal fecal immunochemical test results, surveillance, family history, symptoms, and other screening.

Table 65: Number of Outpatient Colonoscopies With Polypectomy Among People Ages 50 and Older Followed by Hospital Admissions for Lower Gastrointestinal Bleeding Within 14 Days of Colonoscopy, per 1,000 Colonoscopies with Polypectomy in Ontario, 2017 to 2021

Year	Numerator	Denominator	Rate (per 1,000 Colonoscopies with polypectomy)	Target (per 1,000 Colonoscopies with polypectomy)
2017	509	171,252	3.0	10.0
2018	493	178,762	2.8	10.0
2019	486	185,131	2.6	10.0
2020	378	135,301	2.8	10.0
2021	424	180,718	2.3	10.0

Table 66: Percentage of Hospital Outpatient Colonoscopies Performed in People Ages 18 and Older With Poor Bowel Preparation, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017	8436	270,341	3.1
2018	8348	305,201	2.7
2019	7772	308,393	2.5
2020	5715	222,888	2.6
2021	6837	279,162	2.4

Table 67: Number of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had a Screen-Detected Invasive Colorectal Cancer, per 1,000 Screened Using a ColonCancerCheck Fecal Test, 2017 to 2021

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2017	764	521,509	1.5
2018	683	503,349	1.4
2019*	930	545,847	1.7
2020	681	336,903	2.0
2021	1527	688,421	2.2

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.

Table 68: Number of Screen-Eligible People in Ontario, Ages 50 to 74, Who Had a Screen-Detected Invasive Colorectal Cancer, per 1,000 Screened With Colonoscopy Due to a Family History of Colorectal Cancer, 2017 to 2021

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2017	68	23,664	2.9
2018	DS	DS	3.6
2019*	DS	DS	2.9
2020	44	14,430	3.0
2021	57	17,932	3.2

*In June 2019, ColonCancerCheck transitioned from the guaiac fecal occult blood test to the fecal immunochemical test for people at average risk of colorectal cancer.
DS: Data suppressed to prevent disclosure of small cell counts for stage distribution.

Table 69: Stage Distribution of All Invasive Colorectal Cancers in Ontario in People Ages 50 to 74, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	759	3537	21.5
2018	Stage 2	859	3537	24.3
2018	Stage 3	1117	3537	31.6
2018	Stage 4	802	3537	22.7
2019	Stage 1	775	3621	21.4
2019	Stage 2	974	3621	26.9
2019	Stage 3	1077	3621	29.7
2019	Stage 4	795	3621	22.0

Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

Table 70: Stage Distribution of Screen-Detected Invasive Colorectal Cancers in Ontario in People Ages 50 to 74, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	156	605	25.8
2018	Stage 2	179	605	29.6
2018	Stage 3	194	605	32.1
2018	Stage 4	76	605	12.6
2019	Stage 1	196	719	27.3
2019	Stage 2	222	719	30.9
2019	Stage 3	226	719	31.4
2019	Stage 4	75	719	10.4

Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

Table 71: Invasive Colorectal Cancer Stage Distribution at Diagnosis in People Who Were Screened by a Colonoscopy Due to a Family History of Colorectal Cancer, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	LV	LV	45.2
2018	Stage 2	LV	LV	20.5
2018	Stage 3	LV	LV	28.8
2018	Stage 4	LV	LV	5.5
2019	Stage 1	LV	LV	46.4
2019	Stage 2	LV	LV	25.0
2019	Stage 3	LV	LV	19.6
2019	Stage 4	LV	LV	8.9

LV: Low volume, data suppressed

Note: Data before 2018 are not shown because of a change in the cancer staging classification system in 2018.

Ontario Lung Screening Program

Table 72: Number of Low Dose Computed Tomography (LDCT) Scans Performed for People Age 55 and Older in Ontario Confirmed to be at High Risk for Lung Cancer, 2019 to 2022

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2019	440	358	409	451	479	456	474	419	460	574	546	460
2020	598	527	342	18	10	95	320	470	571	717	703	630
2021	714	633	665	371	348	476	618	681	694	736	785	612
2022	600	645	694	648	671	744	740	818	835	796	771	703

Table 73: Percentage of People Who Completed a Baseline Risk Assessment and Reported That They Currently Smoke, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017*	921	1,799	51.2
2018	2,312	3,660	63.2
2019	2,801	4,301	65.1
2020	1,484	2,259	65.7
2021	1,936	2,929	66.1

*Data began June 2017.

Table 74: Percentage of Screen-Eligible People, Ages 55 to 74, Who Underwent a Low-Dose Computed Tomography Scan After Risk Assessment, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017*	1,113	1,147	97.0
2018	2,314	2,408	96.1
2019	2,723	2,833	96.1
2020	1,365	1,482	92.1
2021	1,768	2,041	86.6

*Data began June 2017.

Table 75: Percentage of Screen-Eligible People, Ages 55 to 74, Who Underwent a Low-Dose Computed Tomography Scan After Risk Assessment, by Material Deprivation, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017*	Ontario Overall	1,113	1,147	97.0
2017	Q1: Least Deprived	200	205	97.6
2017	Q2	205	211	97.2
2017	Q3	206	210	98.1
2017	Q4	262	269	97.4
2017	Q5: Most Deprived	217	229	94.8
2018	Ontario Overall	2,314	2,408	96.1
2018	Q1: Least Deprived	446	465	95.9
2018	Q2	433	445	97.3
2018	Q3	389	398	97.7
2018	Q4	504	527	95.6
2018	Q5: Most Deprived	502	532	94.4
2019	Ontario Overall	2,723	2,833	96.1
2019	Q1: Least Deprived	472	489	96.5
2019	Q2	503	525	95.8
2019	Q3	464	479	96.9
2019	Q4	618	641	96.4
2019	Q5: Most Deprived	626	658	95.1
2020	Ontario Overall	1,365	1,482	92.1
2020	Q1: Least Deprived	246	259	95.0
2020	Q2	216	230	93.9
2020	Q3	249	270	92.2
2020	Q4	307	335	91.6
2020	Q5: Most Deprived	316	355	89.0
2021	Ontario Overall	1,768	2,041	86.6
2021	Q1: Least Deprived	317	361	87.8
2021	Q2	331	383	86.4
2021	Q3	252	292	86.3
2021	Q4	360	422	85.3
2021	Q5: Most Deprived	409	473	86.5

*Data began June 2017.

Table 76: Percentage of Screen-Eligible People, Ages 55 to 74, Who Underwent a Low-Dose Computed Tomography Scan After Risk Assessment, by Ethnic Concentration, 2017 to 2021

Year	Region	Numerator	Denominator	Percentage (%)
2017*	Ontario Overall	1,113	1,147	97.0
2017	Q1: Lowest Ethnic Concentration	376	386	97.4
2017	Q2	252	259	97.3
2017	Q3	235	240	97.9
2017	Q4	171	178	96.1
2017	Q5: Highest Ethnic Concentration	56	61	91.8
2018	Ontario Overall	2,314	2,408	96.1
2018	Q1: Lowest Ethnic Concentration	737	765	96.3
2018	Q2	612	632	96.8
2018	Q3	482	502	96.0
2018	Q4	298	318	93.7
2018	Q5: Highest Ethnic Concentration	145	150	96.7
2019	Ontario Overall	2,723	2,833	96.1
2019	Q1: Lowest Ethnic Concentration	859	885	97.1
2019	Q2	635	659	96.4
2019	Q3	510	529	96.4
2019	Q4	445	475	93.7
2019	Q5: Highest Ethnic Concentration	234	244	95.9
2020	Ontario Overall	1,365	1,482	92.1
2020	Q1: Lowest Ethnic Concentration	425	466	91.2
2020	Q2	321	337	95.3
2020	Q3	270	288	93.8
2020	Q4	198	217	91.2
2020	Q5: Highest Ethnic Concentration	120	141	85.1

Year	Region	Numerator	Denominator	Percentage (%)
2021	Ontario Overall	1,768	2,041	86.6
2021	Q1: Lowest Ethnic Concentration	506	583	86.8
2021	Q2	361	416	86.8
2021	Q3	335	387	86.6
2021	Q4	281	327	85.9
2021	Q5: Highest Ethnic Concentration	186	218	85.3

*Data began June 2017.

Table 77: Low-Dose Computed Tomography Scan Lung-RADS® Score Distribution, 2017 to 2021

Year	Lung-RADS® Score	Numerator	Denominator	Percentage (%)
2017*	Lung-RADS® 1 & 2	633	769	82.3
2017*	Lung-RADS® 3 & 4A	105	769	13.7
2017*	Lung-RADS® 4B & 4X	31	769	4.0
2018	Lung-RADS® 1 & 2	2,545	3,032	83.9
2018	Lung-RADS® 3 & 4A	398	3,032	13.1
2018	Lung-RADS® 4B & 4X	89	3,032	2.9
2019	Lung-RADS® 1 & 2	4,847	5,509	88.0
2019	Lung-RADS® 3 & 4A	503	5,509	9.1
2019	Lung-RADS® 4B & 4X	159	5,509	2.9
2020	Lung-RADS® 1 & 2	4,495	4,988	90.1
2020	Lung-RADS® 3 & 4A	334	4,988	6.7
2020	Lung-RADS® 4B & 4X	159	4,988	3.2
2021	Lung-RADS® 1 & 2	6,526	7,304	89.3
2021	Lung-RADS® 3 & 4A	554	7,304	7.6
2021	Lung-RADS® 4B & 4X	224	7,304	3.1

*Data began June 2017.

Table 78: Percentage of Low-Dose Computed Tomography Scans With Actionable Incidental Findings Detected, 2017 to 2021

Initial Screens

Year	Numerator	Denominator	Percentage (%)
2017	170	758	22.4
2018	464	2,234	20.8
2019	461	2,725	16.9
2020	206	1,296	15.9
2021	394	1,786	22.1

Re-Screens

Year	Numerator	Denominator	Percentage (%)
2017*	0	11	0.0
2018	65	798	8.1
2019	248	2,784	8.9
2020	319	3,692	8.6
2021	667	5,518	12.1

*The Lung Cancer Screening Pilot for People at High Risk began in June 2017, so no annual re-screens were performed in 2017.

Table 79: Percentage of Screen-Eligible People, Ages 55 to 74, With a Suspicious or Very Suspicious Screening Result (Lung-RADS® 4A**, 4B or 4X) Who Underwent Diagnostic Assessment Within 3 Months, 2017 to 2021

Year	Numerator	Denominator	Percentage (%)
2017*	62	64	96.9
2018	147	158	93.0
2019	144	145	99.3
2020	117	127	92.1
2021	150	193	77.7

*Data began June 2017.

**Beginning on October 1, 2018, people with Lung-RADS® score of 4A were scheduled to have a 3-month surveillance low-dose computed tomography scan instead of being referred for a diagnostic assessment consult. Only people with a Lung-RADS® score of 4B or 4X were referred for diagnostic assessment on or after October 1, 2018 in alignment with the Lung-RADS® system.

Table 80: Wait Time in Days From the Date of the LDCT Scan With a Suspicious (Lung-RADS® 4A**) or Very Suspicious (Lung-RADS® 4B or 4X) Result to Definitive Diagnosis of Lung Cancer, 2017 to 2021

Year	Number of People	Median (Days)	90th Percentile (Days)
2017*	18	45	840
2018	51	31	401
2019	67	36	154
2020	67	38	268
2021	78	35	115

*Data began June 2017.

**Beginning on October 1, 2018, people with Lung-RADS® score of 4A were scheduled to have a 3-month surveillance low-dose computed tomography scan instead of being referred for a diagnostic assessment consult. Only people with a Lung-RADS® score of 4B or 4X were referred for diagnostic assessment on or after October 1, 2018 in alignment with the Lung-RADS® system.

Table 81: Number of Screen-Eligible People, Ages 55 to 74, With a Screen-Detected Invasive Lung Cancer per 1,000 People Screened, 2017 to 2021

Year	Numerator	Denominator	Rate (per 1,000 Screened)
2017*	20	758	26.4
2018	DS	DS	19.3
2019	DS	DS	13.5
2020	63	4,681	13.5
2021	76	6,785	11.2

*Data began June 2017.

DS: Data suppressed to prevent disclosure of small cell counts for stage distribution.

Table 82: Stage Distribution of All Invasive Lung Cancers Diagnosed in People Ages 55 to 74 in Ontario, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	1,244	4,657	26.7
2018	Stage 2	361	4,657	7.8
2018	Stage 3	977	4,657	21.0
2018	Stage 4	2,075	4,657	44.6
2019	Stage 1	1,295	4,676	27.7
2019	Stage 2	407	4,676	8.7
2019	Stage 3	922	4,676	19.7
2019	Stage 4	2,052	4,676	43.9

Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

Table 83: Stage Distribution of Screen-Detected Invasive Lung Cancers Diagnosed in People Ages 55 to 74 in Ontario, 2018 to 2019

Year	Stage at diagnosis	Numerator	Denominator	Percentage (%)
2018	Stage 1	LV	LV	65.9
2018	Stage 2	LV	LV	12.2
2018	Stage 3	LV	LV	17.1
2018	Stage 4	LV	LV	4.9
2019	Stage 1	LV	LV	68.7
2019	Stage 2	LV	LV	9.0
2019	Stage 3	LV	LV	19.4
2019	Stage 4	LV	LV	3.0

LV: Low volume, data suppressed

Note: Data before 2018 are not shown because of a major change in the cancer staging classification system in 2018.

Appendix 2: Figure Descriptions

Figure 3: Ontario Breast Screening Program (OBSP) Pathway

Description:
The figure is two side-by-side flow charts, each with nine labeled boxes linked by arrows. The flow charts are unidirectional. At each step, arrows point forward to one or two boxes. Here the flow charts are described as lists in which the possible next steps are listed beneath each numbered box label.

Flow chart one of two:

1. OBSP target populations
    a. Forward to Mammography
2. Mammography
    a. Forward to Normal result; or
    b. Forward to Abnormal result
3. Normal result
    a. Forward to Mammography every 2 years**
4. Abnormal result
    a. Forward to Diagnostic follow-up, including additional imaging and/or biopsy
5. Mammography every 2 years**
6. Diagnostic follow-up, including additional imaging and/or biopsy
    a. Forward to Benign diagnosis; or
    b. Forward to Cancer diagnosis and treatment pathway
7. Benign diagnosis
    a. Forward to Mammography every 2 years**
8. Cancer diagnosis and treatment pathway
9. Mammography every 2 years**

** Some OBSP participants may be called back for screening in 1 year instead of 2 years because of a documented pathology of high-risk lesions, a personal history of ovarian cancer, 2 or more first-degree relatives assigned female at birth with breast cancer at any age, 1 first-

degree relative assigned female at birth with breast cancer under age 50, 1 first-degree relative with ovarian cancer at any age, 1 relative assigned male at birth with breast cancer at any age, BI-RADS breast density Category D at the time of screening or as recommended by the radiologist at the time of screening.

Flow chart two of two:

1. High Risk OBSP target populations
    a. Forward to Mammography and breast MRI*
2. Mammography and breast MRI*
    a. Forward to Normal result; or
    b. Forward to Abnormal result
3. Normal result
    a. Forward to Mammography and breast MRI every year*
4. Abnormal result
    a. Forward to Diagnostic follow-up, including additional imaging and/or biopsy
5. Mammography and MRI every year*
6. Diagnostic follow-up, including additional imaging and/or biopsy
    a. Forward to Benign diagnosis; or
    b. Forward to Cancer diagnosis and treatment pathway***
7. Benign diagnosis
    a. Forward to Mammography and breast MRI every year*
8. Cancer diagnosis and treatment***
    a. Forward to Mammography and breast MRI every year*
9. Mammography and breast MRI every year*

*Screening breast ultrasound is scheduled if breast magnetic resonance imaging (MRI) is not medically appropriate.
*** High Risk OBSP participants who are diagnosed with breast cancer are eligible to return to screening once they have completed treatment and have no breast cancer symptoms.

Figure 4: Ontario Cervical Screening Program (OCSP) Pathway

Description:

The figure is a flow chart, with fifteen labeled boxes linked by arrows. The flow chart is unidirectional. At each step, arrows point forward to one to four boxes. Here the flow chart is described as lists in which the possible next steps are listed beneath each numbered box label.

1. OCSP target population
    a. Forward to Cytology
2. Cytology
    a. Forward to Normal result; or
    b. Forward to Low-grade result; or
    c. Forward to High-grade result; or
    d. Forward to Unsatisfactory result
3. Normal result
    a. Forward to Return to routine screening in 3 years
4. Low-grade result
    a. Forward to Repeat cytology in 12 months
5. High-grade result
    a. Forward to Colposcopy*
6. Unsatisfactory result
    a. Forward to Repeat cytology in 3 months
7. Repeat cytology in 12 months
    a. Forward to Normal result; or
    b. Forward to Abnormal result (low- or high-grade)
8. Colposcopy*
9. Repeat cytology in 3 months
10. Normal result
    a. Forward to Repeat cytology in 12 months
11. Abnormal result (low- or high-grade)
    a. Forward to Colposcopy*

12. Repeat cytology in 12 months
    a. Forward to Normal result; or
    b. Forward to Abnormal result (low- or high-grade)
13. Normal result
    a. Forward to Return to routine screening in 3 years
14. Abnormal (low- or high-grade)
    a. Forward to Colposcopy*
15. Return to routine screening in 3 years

*Please refer to Colposcopy Clinical Guidance for clinical management in colposcopy pathways.

Figure 5: ColonCancerCheck Pathway

Description:

The figure is two side-by-side flow charts. The first flow chart has ten labeled boxes linked by arrows. The second flow chart has six labeled boxes linked by arrows. The flow charts are unidirectional. At each step, arrows point forward to one or two boxes. Here the flow charts are described as lists in which the possible next steps are listed beneath each numbered box label.

Flow chart one of two:

1. ColonCancerCheck Average risk target population
    a. Forward to Fecal immunochemical test (FIT)
2. Fecal immunochemical test (FIT)
    a. Forward to Normal result; or
    b. Forward to Abnormal result
3. Normal result
    a. Forward to Re-screen with FIT in 2 years
4. Abnormal result
    a. Forward to Colonoscopy
5. Re-screen with FIT in 2 years
6. Colonoscopy
    a. Forward to Normal result; or
    b. Forward to Abnormal result
7. Normal result
    a. Forward to Re-screen with FIT in 10 years
8. Abnormal result
    a. Forward to Cancer diagnosis and treatment pathway or colonoscopy surveillance or screen with FIT in 5 years***
9. Re-screen with FIT in 10 years
10. Cancer diagnosis and treatment pathway or colonoscopy surveillance or screen with FIT in 5 years***

***Please refer to ColonCancerCheck's Recommendations for Post-Polypectomy Surveillance at cancercareontario.ca/CCCsurveillance

Flow chart two of two:

1. ColonCancerCheck Increased risk target population*
    a. Forward to Colonoscopy
2. Colonoscopy
    a. Forward to Normal result; or
    b. Forward to Abnormal result
3. Normal result
    a. Forward to Colonoscopy in 5 to 10 years**
4. Abnormal result
    a. Forward to Cancer diagnosis and treatment pathway or colonoscopy surveillance***
5. Colonoscopy in 5 to 10 years**
6. Cancer diagnosis and treatment pathway or colonoscopy surveillance***

*The screening recommendations for people at increased risk for colorectal cancer are currently under review.
**Frequency of screening with colonoscopy depends on family history. People with a first-degree relative who was diagnosed with colorectal cancer before age 60 should be screened every 5 years starting at age 50, or 10 years earlier than the age their relative was diagnosed. People with a first-degree relative who was diagnosed with colorectal cancer at age 60 or older should be screened every 10 years starting at age 50. However, some people may need colonoscopy more often depending on the findings at their initial colonoscopy.
***Please refer to ColonCancerCheck's Recommendations for Post-Polypectomy Surveillance at cancercareontario.ca/CCCsurveillance

Figure 6: Ontario Lung Screening Program (OLSP) Pathway

Description:

The figure is a flow chart, with twenty-three labeled boxes linked by arrows. The flow chart is unidirectional. At each step, arrows point forward to one to four boxes. Here the flow chart is described as lists in which the possible next steps are listed beneath each numbered box label.

1. Recruitment and risk triage
    a. Forward to Individual risk assessment
2. Individual risk assessment
    a. Forward to Informed participation – Eligible; or
    b. Forward to Ineligible
    c. Forward to Smoking Cessation (regardless of eligibility)
3. Informed participation – Eligible
    a. Forward to Low-dose CT scan
4. Ineligible
5. Low-dose CT scan
    a. Forward to Negative scan Lung-RADS® 1 or 2; or
    b. Forward to Positive scan; or
    c. Forward to Incidental findings
6. Negative scan Lung-RADS® 1 or 2
    a. Forward to Recall for annual screening
7. Positive scan
    a. Forward to Probably benign Lung-RADS® 3; or
    b. Forward to Suspicious Lung-RADS® 4A; or
    c. Forward to Very suspicious Lung-RADS® 4B; or
    d. Forward to Very suspicious Lung-RADS® 4X
8. Incidental findings
    a. Forward to Referring and primary care providers contacted
9. Recall for annual screening

10. Probably benign Lung-RADS® 3
    a. Forward to Follow-up low-dose CT in 6 months
11. Suspicious Lung-RADS® 4A
    a. Forward to Follow-up low-dose CT in 3 months
12. Very suspicious Lung-RADS® 4B
    a. Forward to Follow-up low-dose CT in 1 month*; or
    b. Forward to Diagnostics (Additional imaging, work-up, biopsy, etc.)
13. Very suspicious Lung-RADS® 4X
    a. Forward to Diagnostics (Additional imaging, work-up, biopsy, etc.)
14. Referring and primary care providers contacted
15. Follow-up low-dose CT in 6 months
16. Follow-up low-dose CT in 3 months
17. Follow-up low-dose CT in 1 month*
18. Diagnostics (Additional imaging, work-up, biopsy, etc.)
    a. Forward to No Cancer; or
    b. Forward to Cancer
19. No Cancer
    a. Forward to Return to screening, as per recommendation from physician that conducted diagnostic assessment
20. Cancer
    a. Forward to Staging
21. Return to screening, as per recommendation from physician that conducted diagnostic assessment
22. Staging
    a. Forward to Treatment
23. Treatment

*Occurs if a Lung-RADS® score of 4B is assigned to a new large nodule identified on an annual recall low-dose computed tomography (CT) scan and the reporting radiologist suspects an infection or inflammation.
Note: The categories “probably benign,” “suspicious” and “very suspicious” are based on Lung-RADS® (version 1.1).

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