

# About the Data: Cancer prevention

[2018/20](#), [2016/18](#), [2013/15 \(Archived\)](#)

Last Updated: August 22, 2021

## Introduction

The following information was derived from documentation available from the Institute for Clinical Evaluative Sciences (ICES): <https://www.ices.on.ca/>

The proportions of people who underwent cancer prevention screening for breast, cervical and colorectal cancers were derived from hospitalization data, physician service and lab claims from the

- Ontario provincial health insurance database (OHIP),
- Registered Persons Database (RPDB)
- Records from the Ontario Cancer Registry (OCR),
- The Ontario Breast Screening Program (OBSP),
- CytoBase and physician enrollment model codes,
- Canadian Institute for Health Information (CIHI),
- Discharge Abstract Database (DAD)' Same Day Surgery Database (SDS)

all of which are maintained by ICES.

Individual Key Number (IKN) exists for every Ontario resident who has been eligible for health care over time. IKN is the scrambled health card number issued for all Ontarians. Date of Last Contact (DOLC) is the last contact date of each individual with Ontario's health care system.

Information regarding persons eligible for health care coverage in Ontario was derived from the Registered Persons Database (RPDB). Please note that Community Health Centre (CHC) claims and non-OHIP visits are not available.

## Cancer prevention: 2018/19 to 2019/20

The 2018/20 data are provided at the following levels of geography:

- City of Toronto
- Ontario Neighbourhoods
  - 158 City of Toronto Neighbourhoods
  - 108 Neighbourhoods in Central LHIN
  - 94 Neighbourhoods in Hamilton Niagara Haldimand Brant (HNHB)
  - 37 Neighbourhoods in South West (SW)
  - 38 Neighbourhoods in Erie St. Clair (ESC)
- 76 Ontario Sub-Regions:
  - 14 Ontario Local Health Integration Networks (LHINs)
  - 5 Ontario Health Interim and Transitional Regions (Interim Regions)
- Province of Ontario

## Denominator

Data source: Total Population - Registered Persons Database (RPDB) 2019 population estimates.

## Mammography

### Cohort

All women who were aged 50-69 and living in the Ontario on March 31, 2020 were included. In addition, women had to be eligible for OHIP in fiscal years 2018 and 2019 (April 1, 2018– March 31, 2020).

### Exclusions (Exclusions were applied backwards in time from March 31st, 2020)

Women were only excluded from the analysis if they:

1. Had no health system contact during the last 10 years
2. If they died within the observation period
3. Breast cancer diagnosed ever (to end of observation period) using
  - Data sources: (only OCR was used)

Data sources: Ontario Cancer Registry (OCR) data were also used to identify women with a history of breast cancer (OCR-IKN linked)

### Outcome Definitions

Women were considered to have received a mammogram if they had a physician billing code of X185, X172, X178 or had been screened through the Ontario Breast Screening Program (OBSP) between April 1, 2018 and March 31, 2020.

### Analysis

Denominator: Women eligible for provincial health insurance (OHIP) as of April 1, 2019 who had contact with the health system within the previous 10 years. Extra exclusions include:

1. Any history of Breast cancer

Numerator: women belonging to denominator group who had mammogram between April 1, 2018 and March 31, 2020.

Age-Standardized rate – % of mammography among women aged 50-69 in Ontario were created using 5 years age groups, using the direct method and the 2011 Canada population as the standard population.

Additional stratifications: Female, Age 50-59, Age 60-69, Total Population (All Ages 50-69)

## Pap smears

### Cohort

All women who were aged 21-69 and living in the Ontario on March 31, 2020 were included. In addition, women had to be eligible for OHIP in fiscal years 2017, 2018 and 2019 (April 1, 2017 – March 31, 2020).

### Exclusions (Exclusions were applied backwards in time from March 31, 2020)

Women were only excluded from the analysis if they:

1. Had no health system contact during the last 10 years
2. Had a previous diagnosis of cervical cancer
  - ICD-9 codes: 180.0, 180.1, 180.8, 180.9; 182.0, 182.1, 182.8, 183.0, 183.2, 183.3, 183.4, 183.5, 183.8, 183.9, 179; ICD-10 equivalents
3. Had a hysterectomy
  - OHIP fee codes S810, S757, S758, S759, S816, S710, S763, S762, S727, S765, S766, S767
  - CIHI prcode 80.3, 80.4, 80.5, 80.6, 80.7, 86.42; incode 1RM89, 1RM91, 5CA89
4. Died within the observation period.

### Outcome Definitions

Women were considered to have received a Pap smear within a 3 years period (April 1, 2017 – March 31, 2020) if they had:

- OHIP codes G365A, or G394A, or E430 or E431, Q678
- Lab code for Pap smear billing L713, L733, or L812

### Analysis

Denominator: Women eligible for provincial health insurance (OHIP) as of April 1, 2019 who had contact with the health system within the previous 10 years. Extra exclusions include:

1. Any history of cervical cancer
2. Any history of hysterectomy

Numerator: women belonging to denominator group who had Pap smear between April 1, 2017 and March 31, 2020.

Age-Standardized rate – % of Pap smears among women aged 21-69 in Ontario were created using 5 years age groups, using the direct method and the 2011 Canada population as the standard population.

Additional stratifications: Female, Age 21-34, Age 35-49, Age 50-69, Total Population (All Ages 21-69)

### Cancer prevention: 2016/17 to 2017/18

All rates and measures are reported for the following geographies:

-City of Toronto

-Ontario Neighbourhoods

- 140 Toronto Central and City of Toronto Neighbourhoods (LHIN 7)
- 104 Neighbourhoods in Central LHIN (LHIN 8)

-76 Ontario Sub-Regions:

-14 Ontario Local Health Integration Networks (LHINs)

-Province of Ontario

## Mammography

### Cohort

All women who were aged 50-69 and living in the Ontario on March 31, 2018 were included. In addition, women had to be eligible for OHIP in fiscal years 2016 and 2017 (April 1, 2016 – March 31, 2018).

### Exclusions (Exclusions were applied backwards in time from March 31st, 2018)

Women were only excluded from the analysis if they:

4. Had no health system contact during the last 10 years
5. If they died within the observation period
6. Breast cancer diagnosed ever (to end of observation period) using
  - Data sources: (only OCR was used)

Data sources: Ontario Cancer Registry (OCR) data were also used to identify women with a history of breast cancer (OCR-IKN linked)

### Outcome Definitions

Women were considered to have received a mammogram if they had a physician billing code of X185, X172, X178 or had been screened through the Ontario Breast Screening Program (OBSP) between April 1, 2016 and March 31, 2018.

### Analysis

Denominator: women aged 50-69 years on March 31, 2018 who were eligible for OHIP and who had used services in past 10 years (who had DOLC in past 10 years). Extra exclusions include:

1. Any history of Breast cancer

Numerator: women belonging to denominator group who had mammogram between April 1, 2016 and March 31, 2018.

Age-Standardized rate – % of mammography among women aged 50-69 in Ontario were created using 5 years age groups and the 1991 Canada Census population as the standard population.

Additional stratifications: Female, Age 50-59, Age 60-69, Total Population (All Ages 50-69)

## Pap smears

### Cohort

All women who were aged 21-69 and living in the Ontario on March 31, 2018 were included. In addition, women had to be eligible for OHIP in fiscal years 2015, 2016 and 2017 (April 1, 2015 – March 31, 2018).

### Exclusions (Exclusions were applied backwards in time from March 31, 2018)

Women were only excluded from the analysis if they:

1. Had no health system contact during the last 10 years
2. Had a previous diagnosis of cervical cancer

- ICD-9 codes: 180.0, 180.1, 180.8, 180.9; 182.0, 182.1, 182.8, 183.0, 183.2, 183.3, 183.4, 183.5, 183.8, 183.9, 179; ICD-10 equivalents
3. Had a hysterectomy
- OHIP fee codes S810, S757, S758, S759, S816, S710, S763, S762, S727, S765, S766, S767
  - CIHI prcode 80.3, 80.4, 80.5, 80.6, 80.7, 86.42; incode 1RM89, 1RM91, 5CA89
4. Died within the observation period.

### Outcome Definitions

Women were considered to have received a Pap smear within a 3 years period (April 1, 2015 – March 31, 2018) if they had:

- OHIP codes G365A, or G394A, or E430 or E431, Q678
- Lab code for Pap smear billing L713, L733, or L812

### Analysis

Denominator: women aged 21-69 years on March 31, 2018 who were eligible for OHIP and who had used services in past 10 years (who had DOLC in past 10 years). Extra exclusions include:

1. Any history of cervical cancer
2. Any history of hysterectomy

Numerator: women belonging to denominator group who had Pap smear between April 1, 2015 and March 31, 2018.

Age-Standardized rate – % of Pap smears among women aged 21-69 in Ontario were created using 5 years age groups and the 1991 Canada Census population as the standard population.

Additional stratifications: Female, Age 21-34, Age 35-49, Age 50-69, Total Population (All Ages 21-69)

### Colorectal cancer screening

Colorectal cancer screening can involve a number of different screening tests including Fecal Occult Blood Testing (FOBT), Colonoscopy, Rigid sigmoidoscopy, Flexible sigmoidoscopy, single or double contrast barium enema. In Ontario, FOBT and colonoscopy are the most commonly used screening options. For that reason, three separate outcomes were used in these analyses (any colorectal cancer screening, colonoscopy and FOBT).

### Cohort

All individuals were included who were aged 50-74 alive and living in Ontario on March 31, 2018. Must be eligible for OHIP in fiscal years 2016 and 2017 (April 1, 2016 – March 31, 2018)

Exclusions (Exclusions were applied backwards in time from March 31, 2018)

Individuals were excluded from the analysis if they:

1. Had no health system contact during the last 10 years
2. Diagnosed with any colorectal cancer ever (using the Ontario Cancer Registry (IKN linked))
  - ICD-9 codes: 153.0 to 153.4, 153.6 to 154.1
3. Diagnosed with any severe inflammatory bowel disease ever (using CIHI-DAD, SDS (use discharge dates))
  - ICD-9 codes: 556, 556.0 to 556.9 and 555, 555.0 to 555.9; or ICD-10 code equivalents

## Outcome Definitions

### 1. Any Colorectal Investigation

For eligible men and women, individuals were categorized as ‘screened’ if they had undergone any of the following tests:

- L181, G004, L179 (fecal occult blood testing) within 2 years or
- Z535 or Z536 (rigid sigmoidoscopy) within 5 years or
- Z555 (without E740 or E741 or E747 or E705 on the same day) or Z580 (flexible sigmoidoscopy) within 5 years or
- X112 (single contrast barium enema) within 5 years or
- X113 (double contrast barium enema) within 5 years or
- Z555 plus one of E740 or E741 or E747 or E705 on the same day (colonoscopy) within 10 years

### 2. Colonoscopy

For eligible men and women, individuals were categorized as ‘screened’ by colonoscopy if they had undergone a colonoscopy (Z555 plus one of E740 or E741 or E747 or E705 on the same day) within the past 10 years.

### 3. Fecal Occult Blood Testing (FOBT)

For eligible men and women, individuals were categorized as ‘screened’ by FOBT if they had undergone Fecal Occult Blood Testing (L181, G004, L179) within 2 years;

- Further exclude
  - Z535 or Z536 (rigid sigmoidoscopy) within 5 years or
  - Z555 (without E740 or E741 or E747 or E705 on the same day) or Z580 (flexible sigmoidoscopy) within 5 years or
  - X112 (single contrast barium enema) within 5 years or
  - X113 (double contrast barium enema) within 5 years or
  - Z555 plus one of E740 or E741 or E747 or E705 on the same day (colonoscopy) within 10 years

Provide counts and proportions for:

- a) Any sigmoidoscopy and any barium enema, combined
- b) Colonoscopy
- c) Fecal Occult Blood Testing (FOBT)

### Analysis

Denominator (Any Colorectal Investigation, Colonoscopy): individuals (Men and Women) aged 50-74 years on March 31, 2018 who were eligible for OHIP and who had used services in past 10 years (who had DOLC in past 10 years). Extra exclusions include:

1. Any history of Colon cancer
2. Any history of severe inflammatory bowel disease

Numerator (Any Colorectal Investigation): individuals belonging to denominator group who had any colorectal investigation

- between April 1, 2016 and March 31, 2018 for fecal occult blood testing
- between April 1, 2013 and March 31, 2018 for sigmoidoscopy and barium enema
- between April 1, 2008 and March 31, 2018 for colonoscopy

Numerator (Colonoscopy): individuals belonging to denominator group who had colonoscopy between April 1, 2008 and March 31, 2018.

Denominator (FOBT): individuals (Men and Women) aged 50-74 years on March 31, 2018 who were eligible for OHIP and who had used services in past 10 years (who had DOLC in past 10 years). Extra exclusions include:

1. Any history of Colon cancer
2. Any history of severe inflammatory bowel disease
3. rigid sigmoidoscopy, flexible sigmoidoscopy, single or double contrast barium enema or colonoscopy during the last 5 years.

Numerator (FOBT): individuals belonging to denominator group who had Fecal Occult Blood Testing between April 1, 2016 and March 31, 2018.

Age-Standardized rate – % of colorectal investigations above among individuals aged 50-74 in Ontario were created using 5 years age groups and the 1991 Canada Census population as the standard population.

Additional stratifications: Men and Women, Age 50-59, Age 60-74, Total Population (All Ages 50-74).

### Cancer prevention: 2013/14 to 2014/15 (Archived)

The data are provided at the following levels of geography:

- Ontario Neighbourhoods

- 140 Toronto Neighbourhoods (LHIN 7)
  - 105 Neighbourhoods in Central LHIN (LHIN 8)
- 82 Ontario Health Links
- Ontario Sub-LHINs:
- 5 Toronto Central LHIN (LHIN 7)
  - 6 Central LHIN (LHIN 8)
- 14 Ontario Local Health Integration Network (LHIN)

## Mammography

### Cohort

All women who were aged 50-69 and living in the Ontario on March 31, 2015 were included. In addition, women had to be eligible for OHIP in fiscal years 2013 and 2014 (April 1, 2013 – March 31, 2015).

### Exclusions (Exclusions were applied backwards in time from March 31, 2015)

Women were only excluded from the analysis if they:

7. Had no DOLC ever (no health system contact)
8. If they died within the observation period
9. Breast cancer diagnosed ever (to end of observation period) using
  - ICD-9 codes: 174 in CIHI or
  - Record in OCR

Data sources: Ontario Cancer Registry (OCR) data were also used to identify women with a history of breast cancer (OCR-IKN linked)

### Outcome Definitions

Women were considered to have received a mammogram if they had a physician billing code of X185, X172, X178 or had been screened through the Ontario Breast Screening Program (OBSP) between April 1, 2013 and March 31, 2015.

### Analysis

Denominator includes only women aged 50-69 years on March 31, 2015 who were eligible for OHIP **and** who had used services in past 3 years (who had DOLC in past 3 years).

Numerator includes women belonging to denominator group who had mammogram between April 1, 2013 and March 31, 2015.

Age-Standardized rate – % of mammography among women aged 50-69 in Ontario were created using 5 years age groups and the 1991 Canada Census population as the standard population.

Additional stratifications: Females, Age-Groups: 50-59, 60-69, Total Population (All Ages 50-69)

## Pap smears

### Cohort



All women who were aged 21-69 and living in the Ontario on March 31, 2015 were included. In addition, women had to be eligible for OHIP in fiscal years 2012, 2013 and 2014 (April 1, 2012 – March 31, 2015).

#### Exclusions (Exclusions were applied backwards in time from March 31, 2015)

Women were only excluded from the analysis if they:

1. Had no DOLC ever (no health system contact)
2. Had a previous diagnosis of cervical cancer
  - ICD-9 codes: 180.0, 180.1, 180.8, 180.9; 182.0, 182.1, 182.8, 183.0, 183.2, 183.3, 183.4, 183.5, 183.8, 183.9, 179; ICD-10 equivalents
3. Had a hysterectomy
  - OHIP fee codes S810, S757, S758, S759, S816, S710, S763, S762, S727, S765, S766, S767
  - CIHI prcode 80.3, 80.4, 80.5, 80.6, 80.7, 86.42; incode 1RM89, 1RM91, 5CA89
4. Died within the observation period.

#### Outcome Definitions

Women were considered to have received a Pap smear within a 3 years period (April 1, 2012 – March 31, 2015) if they had:

- OHIP codes G365A, or G394A, or E430 or E431, Q678
- Lab code for Pap smear billing L713, L733, or L812

#### Analysis

Denominator includes only women aged 21-69 years on March 31, 2015 who were eligible for OHIP **and** who had used services in past 3 years (who had DOLC in past 3 years).

Numerator includes women belonging to denominator group who had Pap smear between April 1, 2012 and March 31, 2015.

Age-Standardized rate – % of Pap smears among women aged 21-69 in Ontario were created using 5 years age groups and the 1991 Canada Census population as the standard population.

Additional stratifications: Females, Age-Groups: 21-34, 35-49, 50-69, Total Population (All Ages 21-69)

#### **Colorectal cancer screening**

Colorectal cancer screening can involve a number of different screening tests including Fecal Occult Blood Testing (FOBT), Colonoscopy, Rigid sigmoidoscopy, Flexible sigmoidoscopy, single or double contrast barium enema. In Ontario, FOBT and colonoscopy are the most commonly used screening options. For that reason, three separate outcomes were used in these analyses (any colorectal cancer screening, colonoscopy and FOBT).

#### **Cohort**

All individuals were included who were aged 50-74 alive and living in Ontario on March 31, 2015. Must be eligible for OHIP in fiscal years 2013 and 2014 (April 1, 2013 – March 31, 2015)

Exclusions (Exclusions were applied backwards in time from March 31st, 2015)

Individuals were excluded from the analysis if they:

1. Had no DOLC ever (no health system contact)
2. Diagnosed with any colorectal cancer ever (using the Ontario Cancer Registry (IKN linked))
  - ICD-9 codes: 153.0 to 153.4, 153.6 to 154.1
3. Diagnosed with any severe inflammatory bowel disease ever (using CIHI-DAD, SDS (use discharge dates))
  - ICD-9 codes: 556, 556.0 to 556.9 and 555, 555.0 to 555.9; ICD-10 code equivalents

Outcome Definitions

1. Any Colorectal Investigation

For eligible men and women, individuals were categorized as 'screened' if they had undergone any of the following tests:

- L181, G004, L179 (fecal occult blood testing) within 2 years or
- Z535 or Z536 (rigid sigmoidoscopy) within 5 years or
- Z555 (without E740 or E741 or E747 or E705 on the same day) or Z580 (flexible sigmoidoscopy) within 5 years or
- X112 (single contrast barium enema) within 5 years or
- X113 (double contrast barium enema) within 5 years or
- Z555 plus one of E740 or E741 or E747 or E705 on the same day (colonoscopy) within 10 years

2. Colonoscopy

For eligible men and women, individuals were categorized as 'screened' by colonoscopy if they had undergone a colonoscopy (Z555 plus one of E740 or E741 or E747 or E705 on the same day) within the past 10 years.

3. Fecal Occult Blood Testing (FOBT)

For eligible men and women, individuals were categorized as 'screened' by FOBT if they had undergone Fecal Occult Blood Testing (L181, G004, L179) within 2 years;

- Further exclude
  - Z535 or Z536 (rigid sigmoidoscopy) within 5 years or
  - Z555 (without E740 or E741 or E747 or E705 on the same day) or Z580 (flexible sigmoidoscopy) within 5 years or
  - X112 (single contrast barium enema) within 5 years or

- X113 (double contrast barium enema) within 5 years or
- Z555 plus one of E740 or E741 or E747 or E705 on the same day (colonoscopy) within 10 years

Provide counts and proportions for:

- a) Any sigmoidoscopy and any barium enema, combined
- b) Colonoscopy
- c) Fecal Occult Blood Testing

### Analysis

Denominator includes individuals aged 50-74 years on March 31, 2015 who were eligible for OHIP **and** who had used services in past 3 years (who had DOLC in past 3 years).

Numerator (Any Colorectal Investigation) includes individuals belonging to denominator group who had any colorectal investigation

- between April 1, 2013 and March 31, 2015 for fecal occult blood testing
- between April 1, 2010 and March 31, 2015 for sigmoidoscopy and barium enema
- between April 1, 2005 and March 31, 2015 for colonoscopy

Numerator (Colonoscopy) includes individuals belonging to denominator group who had colonoscopy between April 1, 2005 and March 31, 2015.

Numerator (Fecal Occult Blood Testing) includes individuals belonging to denominator group who had Fecal Occult Blood Testing (FOBT) between April 1, 2013 and March 31, 2015

Age-Standardized rate – % of colorectal investigations above among individuals aged 50-74 in Ontario were created using 5 years age groups and the 1991 Canada Census population as the standard population.

Additional stratifications: Men and Women, Age-Groups: 50-59, 60-74, Total Population (All Ages 50-74).