

Technical Appendix

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Breast Cancer Burden & Outcomes

Age-Standardized Incidence Rates

Definition:

The incidence rate that would have occurred if the age distribution in the population of interest was the same as that of the standard, where incidence rate is defined as the number of cases of cancer (malignant neoplasms) newly diagnosed during a year, per 100,000 population at risk

Numerator:

Number of new cancer cases (all ages) for breast (female).

Denominator:

Annual female population estimate in hundreds of thousands

Age Standardization:

Direct method using the 1991 Canadian Census population

Data Sources:

Canadian Cancer Registry (CCR) Database (July 2011 file)—cancer incidence data

Demography Division of Statistics Canada—population estimates

Measurement Timeframe:

1992 to 2007

Stratification Variables:

Province

Notes:

1. World Health Organization, International Classification of Diseases for Oncology, Third Edition (ICD-O-3) and the International Agency for Research on Cancer (IARC) rules for determining multiple primaries sites were used: female breast (ICD-O-3 C50.0 to C50.9). The four categories are excluding morphology types M-9050 to M-9055, M-9140, and M-9590 to M-9989.

2. Cells with small counts were suppressed, as well as any cell that could result in the disclosure of a previously suppressed cell by using the column or row total. If the variables that defined the rows and columns were province and age group, then the program suppressed low counts first within each province. If any province contained only 1 suppressed cell, the next lowest count in that province was suppressed. This process was repeated within each age group. Records where age was not specified were included in the total.

Age-Standardized Mortality Rates

Definition:

The mortality rate that would have occurred if the age distribution in the population of interest was the same as that of the standard, where mortality rate is defined as the number of deaths due to cancer (malignant neoplasms) in a year per 100,000 population at risk

Numerator:

Number of deaths from cancer (all ages) for breast (female).

Denominator:

Annual female population estimate in hundreds of thousands

Age Standardization:

Direct method using the 1991 Canadian Census population

Data Sources:

Canadian Vital Statistics—Death Database (annual file)—cancer mortality data

Demography Division of Statistics Canada—population estimates

Measurement Timeframe:

1992 to 2007

Stratification Variables:

Province

Notes:

- Up to the year 1999, causes of death were coded according to World Health Organization (WHO), International Classification of Diseases, Ninth Revision (ICD-9): female breast (ICD-9: 174) After the year 1999, causes of death were coded according to the World Health Organization (WHO), International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10): Female breast cancer (ICD-10: C50).
- Cells with small counts were suppressed as well as any cell that could result in the disclosure of a previously suppressed cell by using the column or row total. If the variables that defined the rows and columns were province and age group, then the program suppressed low counts first within each province. If any province contained only 1 suppressed cell, the next lowest count in that province was suppressed. This process was repeated within each age group. Records where age was not specified were included in the total.

Relative Survival Ratios

Definition:

Relative survival is the ratio of the observed survival for a group of cancer patients (malignant neoplasms) to the expected survival for members of the general population who have the same main factors affecting survival (sex, age, place of residence) as the cancer patients (referred to as the comparison population).

Numerator:

Observed survival of female breast cancer patients (aged 15–79) who were alive for 1, 2, 3, 4 and 5 years after diagnosis for patients with follow-up in 2004 to 2006.

Denominator:

Expected survival of comparison population that was alive for 1, 2, 3, 4 and 5 years for female patients with follow-up in 2004 to 2006.

Age Standardization:

Direct method by weighing age-specific estimates for a given cancer to the age distribution of persons diagnosed with cancer during 1992 to 2001

Population Exclusions:

- age <15 or >79 at time of diagnosis for breast cancer
- subjects diagnosed through autopsy only or death certificate only
- subjects with an unknown year of birth or death

Data Sources:

Canadian Cancer Registry (July 2010 with death clearance complete up to 2006)

Provincial life tables (Statistics Canada)

Urban Canada by income quintile life tables (Statistics Canada)

Measurement Timeframe:

Patients with follow-up in 2004 to 2006

Stratification Variables:

Province, income (see Canadian Census 2006 stratification variables)

Notes:

- World Health Organization, International Classification of Diseases for Oncology, Third Edition (ICD-O-3) and the International Agency for Research on Cancer (IARC) rules for determining multiple primaries sites were used: female breast (ICD-O-3 C50.0 to C50.9). The four categories are excluding morphology types M-9050 to M-9055, M-9140, and M-9590 to M-9989.
- “Canada” represents all provinces and territories, minus Quebec. Data from Quebec have been excluded, in part, because the method of ascertaining the date of cancer diagnosis differs from the method used by other

registries and because of issues in correctly ascertaining the vital status of cases.

3. Survival estimates from Newfoundland and Labrador are included in the national average but are not shown in this Report. In the years under study, there was a known under-reporting of cancer cases in Newfoundland and Labrador. There is likely to be some overestimation of survival for this province as the survival of such 'missed' cases is generally less favourable than that of cases in the registry population. Relative survival was calculated using the period method and all primary cancers.¹

4. Expected survival proportions were derived from sex-specific complete provincial life tables produced by Statistics Canada, using the Ederer II approach.²

5. Abridged life tables with 5-year age group for 1991, 1996 and 2001 of urban Canada by income quintile were produced by Statistics Canada and then extended to complete life tables with each single year of age using Elandt-Johnson method. Complete life tables between any 2 census years were estimated by using linear interpolation.^{3,4}

6. Patients aged >80 for breast cancer are excluded from the analysis because there was

¹ Brenner H, Gefeller O. An alternative approach to monitoring cancer patient survival. *Cancer*. 1996;78:2004–10

² Ederer F, Heise H. The effect of eliminating deaths from cancer on general population survival rates (methodological note 11, End Results Evaluation section). National Cancer Institute; August 1959

³ Baili P, Micheli A, Montanari A, Capocaccia R. Comparison of Four Methods for Estimating Complete Life Tables from Abridged Life Tables Using Mortality Data Supplied to EUROCARE-3. *Mathematical Population Studies*, 2005;12:183–198.

⁴ Elandt-Johnson RC and Johnson NL. *Survival Models and Data Analysis*. 1980;111–115. New York: Wiley series.

empirical evidence of systematic bias in provincial survival estimates for older patients.

Breast Cancer Screening

Program-based Breast Cancer Screening — Participation

Definition:

Percentage of women aged 50-69 who participated in an organized breast cancer screening program across Canada in the last 2 years based on biennial recall.

Numerator:

Women aged 50-69 who underwent breast cancer screening through an organized program in 2009 and 2010.

Denominator:

Women aged 50-69 in Canada

Data Source:

Provincial breast cancer screening program's population files;

Measurement Timeframe:

2009 and 2010

Provinces/territories submitting data:

AB, QC, MB, NB, NS, BC, SK, NL. Data from ON are from the CSQI

Province-specific notes:

MB Data are for 2008-2010; QC data are for 2009

Stratification Variables:

Province

Notes:

Denominator values are slightly different from the denominators used in previously published reports, and therefore the participation rates are not identical to those published.

Self-Reported Breast Cancer Screening—Asymptomatic

Definition:

Percentage of asymptomatic females aged 40-49, 50-69 receiving a mammogram within the past 2 years and percentage of asymptomatic females aged 35+, by single year of age receiving a mammogram within the past year, where asymptomatic is defined as:

Respondents who indicated going for a mammogram for any of the following reasons:

- Family history; Routine screen/check-up; Age; HRT
- And not for any of the following reasons:
- Lump; Breast problem; Follow-up to breast cancer treatment; Other

Numerator:

1. Asymptomatic females aged 40-49 or 50-69 who indicated going for a mammogram within the past 2 years.
2. Asymptomatic females 35+ by single year of age who indicated going for a mammogram within the past 1 year.

Denominator:

1. Total number of asymptomatic females aged 40-49 or 50-69
2. Total number of asymptomatic females aged 35+ by single year of age.

Data Source:

Canadian Community Health Survey

Measurement Timeframe:

2008 (CCHS 2008)

CCHS Variables:

- Ever had a mammogram
- Reasons for having mammogram (mark all that apply): Family history; Routine screen; Age; HRT; Lump; Follow-up to breast cancer treatment; Breast problem; Other

- Last time respondent had undergone a mammogram

Provinces/territories submitting data:

Pan-Canadian

Stratification variables:

Province, Age, Income, Education, urban/rural/rural-remote/rural-very remote, immigrant status - less than or equal to 10 years in Canada since immigration, more than 10 years in Canada since immigration, non-immigrant (see CCHS stratification variables)

Notes:

1. This indicator is presented for 2008 as data are not available for all provinces/territories in later survey cycles
2. CCHS data is based on representative sample which is then extrapolated to the overall population.

Breast Cancer Diagnosis

Stage Availability (based on Stage Distribution)

Definition:

Percentage of stageable incident breast cancer cases for which stage data are available in provincial cancer registries

Numerator:

Number of stageable incident breast cancer cases for which stage data is available in the provincial cancer registry

Denominator:

Total number of stageable incident breast cancer cases

Data Source:

Reported by provincial cancer agencies and programs to the Canadian Partnership Against Cancer

Measurement Timeframe:

2009, 2010 diagnosis years

Stratification Variable:

Province

Provinces Submitting Data:

AB, BC, MB, NB, NL, NS, ON, PE, SK

Province Specific Notes:

ON: Excludes stage 0 with behaviour code =2 (in situ).

PE: Stage 0 does include behaviour code=3 (invasive) for Pagets Disease only.

General Notes:

1. The source data for this indicator were submitted by the provincial cancer agencies based on definitions provided by the Canadian Partnership Against Cancer for the distribution of cases by stage.
2. Invasive incident cases that are stageable as per AJCC Cancer Staging Manual 6th Edition for cases diagnosed before January 1st, 2010, and AJCC Cancer Staging Manual 7th edition after. Cases with unknown stage are included in the denominator and numerator. Incident cases that can be staged but were not because coding was incomplete or data not available are included in the denominator (i.e. Not available).
3. Indicator is based on data reported directly by the provinces for this Report. No separate validation or verification of the submitted data was done.
4. The Canadian Partnership Against Cancer has recently launched an initiative to support the implementation of Collaborative Staging across the country. Upon the conclusion of this initiative, complete staging is expected to be available from the participating provinces for the top four disease sites: Breast, Prostate, Lung and Colorectal.

Wait Times, Abnormal Breast Screen to Resolution

Definition:

Time (in weeks) from abnormal breast screen to resolution (test date of definitive diagnosis)

Population:

Women aged 50–69 participating in the organized breast screening program with an abnormal breast screen result (mammogram or clinical breast examination):

1. Requiring a tissue biopsy
2. Not requiring a tissue biopsy

Measures:

1. 90th percentile
2. Percentage with resolution within the target wait time—targets are 7 weeks for women requiring a tissue biopsy and 5 weeks for women not requiring a tissue biopsy

Data Source:

Provincial breast cancer screening programs

Measurement Timeframe:

2010

Provinces reporting data:

AB, BC, MB, NB, NL, NS, SK, QC

Province Specific Notes:

AB Data reported are from the Screen Test program only. Screen Test is an organized program that conducts approximately 10-12% of screening mammograms in the province, about 65% of which are performed in mobile screening units.

ON, PE Median and 90th percentile data were not provided.

QC QC data are for 2008.

General Notes:

1. Indicator excludes tests beyond 6 months post screen.
2. Time to diagnosis is based on the date of the first pathological biopsy result of breast cancer (excludes fine needle aspiration and all

inconclusive procedures) or the date of the last benign test or pathological biopsy.

3. Definitive diagnosis of cancer is the first core or open surgical biopsy that confirms cancer. In rare occasions fine needle aspiration (FNA) biopsy may also be used as a definitive diagnosis of cancer. Definitive diagnosis of benign cases is the last benign test up to 6 months following an abnormal screen.
4. Tissue biopsy includes open and core/needle biopsy.
5. The wait times presented must be evaluated in the context of the overall participation in organized breast cancer screening programs.

Hormone Receptor and Growth Factor Receptor Testing

Definition:

1. Percentage of women newly diagnosed with invasive breast cancer in 2010 and staged who had ER or PR test completed.
2. Percentage of women newly diagnosed with invasive breast cancer in 2010 and staged and tested who were ER or PR positive.
3. Percentage of women newly diagnosed with invasive breast cancer in 2010 and staged who had HER2 test completed
4. Percentage of women newly diagnosed with invasive breast cancer in 2010 and staged and tested who were HER2 positive.

Population:

Total number of women with incident invasive breast cancer that were staged using Collaborative Staging in the year 2010 in the province.

Stratification:

Province

Data Source:

Provincial Cancer Agencies

Measurement Timeframe:

2010

Data Reported:

BC, AB, SK, MB, ON, NB, NS, PE, NL

General Notes:

1. Invasive cases with stage 0 are included unless indicated otherwise.
2. Data include invasive incident breast cancer cases with stage I, II, III, IV or unknown.
3. The source data for this indicator were submitted by the provincial cancer agencies based on definitions provided by the Canadian Partnership Against Cancer. No separate validation or verification of the submitted data was done.
4. SSF1 or SSF2 code = 010, 020 or 030 indicates that an ER or PR test was completed.
5. SSF1 or SSF2 code = 010 indicates a positive ER or PR test.
6. SSF15 code = 010, 020 or 030 indicates that HER2 test was completed.
7. SSF15 code = 010 indicates a positive HER2 test.

Breast Cancer Treatment

Radiation Therapy Wait Times

Definition:

1. The 90th percentile elapsed time from ready to treat to start of radiation therapy measured in days/weeks
2. The percentage of radiation therapy cases for which the above wait time was within target timeframes

Included Population:

Breast cancer patients receiving radiation therapy who have wait time data collected as consistent with the specifications of this indicator

Measures:

1. Median wait time (days)
2. 90th percentile wait time in days
3. Percentage of patients starting treatment within target timeframe (4 weeks after ready to treat)

Data Source:

Reported by provincial cancer agencies and programs to the Canadian Partnership Against Cancer

Measurement Timeframe:

2011 treatment year

Stratification Variables:

Province

Provinces Submitting Data:

BC, AB, SK, MB, ON, NS, PE, NL

General Notes:

1. The source data for this indicator were submitted by the provincial cancer agencies based on definitions provided by the Canadian Partnership Against Cancer.
2. ICD03 codes C50.0 to C50.9 excluding morphology codes M-95 to M-98 (lymphoma) with a behaviour code of 3 were used to define invasive breast cancer cases.
3. Of note, if the province obtains this data from a wait times database as opposed to a registry, then breast cancer cases were to be included per the database definition.
4. There are known discrepancies in the ways in which different provinces measure wait times. One of the key sources of variation is the way the “Ready to Treat” timeframe is defined. Efforts are underway to standardize these definitions. The following table outlines the definitions used by the different provinces.

Definition of Ready to Treat for the Radiation Wait Time Indicator, by Province:

AB The date when the patient is physically ready to commence treatment.

BC The date at which both oncologist and patient agree that treatment can commence. Being ready to treat requires that all diagnostic tests and procedures required to assess the appropriateness of, indications for, and fitness to undergo radiation therapy are complete.

MB The date when a decision has been made by the radiation oncologist and is agreed to by the patient that radiation therapy is appropriate and should commence AND the patient is medically ready to start treatment AND the patient is willing to start treatment.

NL The date when all pre-treatment investigations and any planned delay are over, and the patient is ready to begin the treatment process from both a social/personal and medical perspective.

NS The date when all pre-treatment investigations and any planned delay are over, and the patient is ready to begin the treatment process from both a social/personal and medical perspective. Nova Scotia did not have a ready to treat date until February 2010; a proxy date was used prior to this time.

ON The time from when the specialist is confident that the patient is ready to begin treatment to the time the patient receives treatment.

PE The date when all pre-treatment investigations and any planned delay are over, and the patient is ready to begin the treatment process from both a social/personal and medical perspective.

SK The date when the patient is ready to receive treatment, taking into account clinical factors and patient preference. In the case of radiation therapy, any preparatory activities (e.g., simulation, treatment planning, dental work) do not delay the ready to treat date.

Radiation Therapy Utilization Rate

Definition:

Rate of females aged 18+ diagnosed with invasive breast cancer in 2009 receiving radiation therapy within 2 years of diagnosis

Numerator:

The number of females starting radiation therapy within 2 years of diagnosis (i.e., before December 31, 2011) in the province, regardless of treatment intent.

Denominator:

The number of females age 18+ diagnosed with invasive breast cancer in 2009 in the province.

Data Source:

Reported by provincial cancer agencies and programs to the Canadian Partnership Against Cancer

Measurement Timeframe:

2009 diagnosis year, 2010-2011 treatment years

Stratification Variables:

Province

Provinces Submitting Data:

ON, BC, MB, PE, AB, SK, NS

General Notes:

1. The source data for this indicator were submitted by the provincial cancer agencies based on definitions provided by the Canadian Partnership Against Cancer.
2. ICD03 codes C50.0 to C50.9 excluding morphology codes M-95 to M-98 (lymphoma) with a behaviour code of 3 were used to define invasive breast cancer cases.
3. The time period between the radiation therapy start date and diagnosis date had to be less than or equal to 730 days.

Adjuvant Radiation Therapy Following Breast-Conserving Surgery for Stage I and II Breast Cancer

Definition:

Percentage of women diagnosed with stage I or II breast cancer receiving adjuvant radiation therapy following breast-conserving surgery

Numerator:

Stage I or II breast cancer cases diagnosed in the province during the year and starting radiation therapy within 270 days following breast-conserving surgery, females only

Denominator:

Stage I and II breast cancer cases diagnosed in the province during the year and receiving breast-conserving surgery within one year of diagnosis, females only

Exclusions:

Cases receiving a mastectomy within one year after breast conserving surgery

Data Source:

Reported by provincial cancer agencies and programs to the Canadian Partnership Against Cancer

Measurement Timeframe:

2007, 2008 and 2009 diagnosis year

Stratification Variables:

Province, age, sex

Provinces Submitting Data:

AB, SK, MB, ON, PE, NL

Province Specific Notes:

NL Includes treatment provided out of province to provincial residents.

AB Treatment information is based on initial treatment only; limited to primary tumour.

General Notes:

1. The source data for this indicator were submitted by the provincial cancer agencies based on definitions provided by the Canadian Partnership Against Cancer.

2. ICDO3 codes C50.0 to C50.9 excluding morphology codes M-95 to M-98 (lymphoma) with a behaviour code of 3 were used to define invasive breast cancer cases. Cases with AJCC Group Stage at Diagnosis = I or II were included.
3. Only cases receiving breast-conserving surgery and no subsequent mastectomy within 1 year are included. Include CCI Codes: 1YM87 or 1YM88; exclude CCI Codes = 1YM89 to 1YM92 in specified time period.
4. Resected cases included regardless of margin status (due to data limitations).
5. Resection timeframe: Last resection date (if multiple) <= 365 days from diagnosis date.
6. Radiation therapy limited to that delivered to primary tumour.
7. Patients under 18 years of age were excluded.
8. Cases with Contralateral synchronous tumours were included.

Simplified Measure—Radiation Therapy for Stage I and II Breast Cancer

Definition:

Percentage of women with stage I and II breast cancer cases receiving radiation therapy

Numerator:

Stage I and II breast cancer cases diagnosed during the year and starting radiation therapy within 1 year plus 270 days (635 days) following diagnosis, females only

Denominator:

Stage I and II breast cancer cases diagnosed in the province during the year, females only

Data Source:

Reported by provincial cancer agencies and programs to the Canadian Partnership Against Cancer

Measurement Timeframe:

2007, 2008 and 2009 diagnosis year

Stratification Variables:

Province

Provinces Submitting Data:

AB, SK, MB, ON, NS, PE, NL

Province Specific Notes:

- NL Includes treatment provided out of province to provincial residents.
- AB Treatment information is based on initial treatment only; limited to primary tumour.

General Notes:

1. The 635 day timeframe for inclusion of radiation therapy was chosen so this indicator lines up with the radiation therapy post breast conserving surgery definition which included cases resected within one year (365 days) of diagnosis and then patients receiving radiation therapy within 270 days of resection.
2. The source data for this indicator were submitted by the provincial cancer agencies based on definitions provided by the Canadian Partnership Against Cancer.
3. Cases for patients under 18 years of age were excluded.
4. ICDO3 codes C50.0 to C50.9 excluding morphology codes M-95 to M-98 (lymphoma) with a behaviour code of 3 were used to define invasive breast cancer cases. Cases with AJCC Group Stage at Diagnosis = I or II were included.
5. Resected cases included regardless of margin status (due to data limitations).
6. Radiation therapy limited to that delivered to primary tumour.
7. Patients under 18 years of age were excluded.
8. Cases with Contralateral synchronous tumours were included.

Mastectomy/Breast Conserving Surgery

Definition:

The percentage of surgical resections among women with unilateral invasive breast cancer that are mastectomies.

Numerator:

Women in the denominator who received a mastectomy first as well as women who received breast conserving surgery first followed by a mastectomy within one year

Denominator:

Women with unilateral invasive breast cancer who received breast conserving surgery and/or a mastectomy between April 2007 and March 2010.

Data Source:

Hospital Morbidity Database, Canadian Institute for Health Information (CIHI)

National Ambulatory Care Reporting System, CIHI

Fichier des hospitalisations MED-ÉCHO, ministère de la Santé et des Services sociaux du Québec

Alberta Ambulatory Care Reporting System, Alberta Health and Wellness

Measurement Timeframe:

The analysis incorporated FY 2006-2007 to 2010-2011

Data relates to patients who received their index procedure between 2007-2008 and 2009-2010.

Stratification Variables:

Province, Age (18-39, 40-49, 50-59, 60-69, 70-79, 80+), Neighbourhood Income Quintile, One-way Travel Time from place of residence to closest Cancer Centre in Minutes

General Notes:

1. The following surgical and diagnostic codes, as documented in hospital patient records and reported to CIHI, were used to

identify diagnoses and procedures per the following:

a. In order to identify a breast cancer diagnosis, the following ICD-10-CA codes were used: C50.00, C50.01, C50.09, C50.10, C50.11, C50.19, C50.20, C50.21, C50.29, C50.30, C50.31, C50.39, C50.40, C50.41, C50.49, C50.50, C50.51, C50.59, C50.60, C50.61, C50.69, C50.80, C50.81, C50.89, C50.90, C50.91, C50.99.

Women with unilateral invasive breast cancer were the focus of this analysis (comprising 98% of women with invasive breast cancer).

b. In order to identify a mastectomy, the following surgical codes were used according to CCI: 1.YM.89 to 1.YM.92

c. The following CCI codes were used to identify a breast conserving surgery: 1.YM.87, 1.YM.88

2. The index surgical interventions and the subsequent treatment episodes were constructed using the following steps:

a. Select all inpatient and day surgery records from 2006/2007 to 2010/2011 meeting the inclusion/exclusion criteria for surgical treatment of breast cancer.

b. Link records to identify all inpatient and day surgery records associated with individual patients.

c. Identify patient's index surgery. Sort records by: procedure, location of care (inpatient, day surgery), admission date, discharge date.

i. When multiple procedures are coded in the same record, mastectomy was prioritized over BCS.

ii. When multiple procedures of the same type

Checklist (CPC) and the Psychosocial Screen for Cancer (PSSCAN).

2. Percentage of breast cancer incident cases who have been assessed for symptoms using a standardized tool in 2011.
3. Average number of assessments per patient.

Information Requested:

1. Identify if any cancer centres in the province implemented standardized screening for distress tools at time of data request (i.e., for cases diagnosed in 2011).
2. Denominator - total number of breast cancer patients actively seen in a cancer centre in 2011. Numerator – total number of breast cancer patients assessed using such tools in 2011.
3. Denominator - total number of unique breast cancer patients assessed using such tools in 2011. Numerator: total number of assessments done for breast cancer patients in 2011.

Information Sources:

Reported by provincial cancer agencies and programs to the Canadian Partnership Against Cancer for this Report, as well as from the Canadian Partnership Against Cancer’s Person-Centred Perspective, Patient-Reported Outcomes Steering Group.

Provinces Submitting Data:

All provinces provided data for standardized screening assessment implementation. BC, ON, PE provided data for percentage screened for distress.

Province Specific Notes:

BC The data for percentage of patients screened for distress is not restricted to those with a breast cancer diagnosis, and is an estimate only.

General Notes:

1. The source data for this indicator were submitted by the provincial cancer agencies

based on definitions provided by the Canadian Partnership Against Cancer.

2. All provinces except for BC, ON and PE provided only descriptive information and did not provide numerical data.

Place of Death

Definition:

The percentage of breast cancer patients (female) who die of cancer by location of death: hospital; other health care facility; private home; or other specified location/unknown location.

Numerator:

Number of breast cancer patients who die of cancer in: hospital; other health care facility; private home or other specified location/unknown location.

Denominator:

Number of breast cancer patients (female) who died of cancer

Data Source:

Canadian Vital Statistics – Death Database (annual file)

Measurement Timeframe:

2009

Stratification Variables:

N/A

Notes:

1. The categories other specified location and unknown location were combined to avoid cell suppression due to small numbers.
2. Territories are not included

Breast Cancer Prevention

Overweight & Obesity

Definition:

Percentage of females aged 18 years and older by BMI group— overweight (BMI 25.00–29.99) or obese (BMI 30.00+)

Numerator:

Number of females (age 18+) overweight or obese

Denominator:

Total number of females (age 18+) with valid height and weight responses

Population Exclusions:

Pregnant females, lactating females, persons less than 3 feet tall or greater than 6 feet 11 inches

Data Source:

Canadian Community Health Survey (CCHS)

Measurement Timeframe:

2010 (CCHS 2010)—Pan-Canadian data

CCHS Variables:

- Self-reported weight (kg)
- Self-reported height (m)
- Calculated BMI values:

$BMI = \text{weight} / (\text{height})^2$

Stratification Variables:

Province/territory, income, education, urban/rural/rural-remote/rural-very remote (see CCHS stratification variables)

Notes:

1. CCHS data was based on a survey administered annually since 2007 using a representative sample of 65,000 respondents and every two years over a one-year period from 2001 to 2005 using a representative sample of approximately 130,000 residents. Excluded from the sampling frame are individuals living on Indian Reserves and on Crown lands, institutional residents, full-time

members of the Canadian Forces, and residents of certain remote regions. Survey results are extrapolated to the rest of the population using bootstrap weighting techniques. More details on the methodology behind the CCHS can be found online.⁵

Physical Activity - Leisure

Definition: Percentage of females aged 12-17, 18-49, 50 and older, and 18 and older in each physical activity level—active (3.0 KKD ≤ EE < 4.5 KKD); very active (EE ≥ 4.5 KKD) Daily energy expenditure (EE) is calculated for each leisure physical activity and measured in kilocalories per day (KKD). The daily EE values from each activity are added up, resulting in an overall daily EE value for leisure-time physical activity.

Numerator:

Number of females in the specified age group (12-17, 18-49, 50+, 18+) who are active or very active

Denominator:

Female population in corresponding age group (12-17, 18-49, 50+, 18+)

Data Source:

Canadian Community Health Survey

Measurement Timeframe:

2010 (CCHS 2010)—Pan-Canadian data

CCHS Variables:

- Type of physical activities for leisure
- Number of times spent on each physical activity for leisure
- Amount of hours spent on each physical activity for leisure

Stratification Variables:

⁵ Statistics Canada. Canadian Community Health Survey – Annual Component (CCHS). Available at: <http://www23.statcan.gc.ca:81/imdb/p2SV.pl?Function=getSurvey&SDDS=3226&lang=en&db=imdb&adm=8&dis=2>

Province/territory, age (see CCHS stratification variables)

Notes:

1. Daily EE for each activity = (N x 4 x D x MET value)/365

Where:

N = the number of times a respondent engaged in an activity over a 3-month period (N is further multiplied by 4 in order to get the number of times respondent engaged in the activity over a 12-month period)

D = the average duration in hours of the activity

MET value = the energy cost of the activity expressed as kilocalories expended per kilogram of body weight per hour of activity (kcal/kg per hour)/365 (to convert yearly data into daily data)

2. Examples of leisure activities include gardening, walking, playing soccer and skiing.

3. CCHS data is based on representative sample which is then extrapolated to the overall population.

Alcohol Consumption—No alcohol

Definition:

Percentage of females aged 18 years and older that reported no alcohol drinking in the past 12 months

Numerator:

Number of females aged 18+ who reported drinking no alcohol in the past 12 months

Denominator:

Female population, aged 18+

Data Source:

Canadian Community Health Survey

Measurement Timeframe:

2010 (CCHS 2010)—Pan-Canadian data

CCHS Variables:

During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?

Stratification Variables:

Province/territory, income, education, urban/rural/rural-remote/rural-very remote (see CCHS stratification variables)

Notes:

1. The word drink means: one bottle or can of beer or a glass of draft, 1 glass of wine or a wine cooler, or 1 drink or cocktail with 1 1/2 ounces of liquor.

2. CCHS data is based on representative sample which is then extrapolated to the overall population.

Alcohol Consumption—Low-risk drinking guideline

Definition:

Percentage of females aged 18 and older that reported exceeding the low-risk drinking guideline as defined below:

Low-Risk Drinking Guideline: An AVERAGE of no more than 2 drinks per day for males, and an AVERAGE of no more than 1 drink per day for females. The daily average was calculated based on the total number of drinks the respondent reported consuming in the week prior to the CCHS interview, divided by 7 days.

Numerator:

Number of females aged 18+ who reported exceeding the low-risk drinking guideline

Denominator:

Female population, aged 18+

Data Source:

Canadian Community Health Survey

Measurement Timeframe:

2005 (CCHS Cycle 3.1)—Pan-Canadian data

CCHS Variables:

- During the past 12 months, have you had a drink of beer, wine, liquor or any other alcoholic beverage?
- Thinking back over the past week, did you have a drink of beer, wine, liquor or any other alcoholic beverage?
- How many drinks did you have on each day during the past week?

Stratification Variables:

Province/territory, income, education, urban/rural/rural-remote/rural-very remote (see CCHS stratification variables)

Notes:

1. This indicator is presented for 2005 as data are not available for all provinces/territories in later survey cycles.
2. The word drink means: one bottle or can of beer or a glass of draft, 1 glass of wine or a wine cooler, or 1 drink or cocktail with 1 1/2 ounces of liquor.
3. CCHS data is based on representative sample which is then extrapolated to the overall population.

Breast Cancer Research

Research Funding

Definition:

Proportion of total site-specific cancer research funding devoted to breast cancer research in the calendar year 2009, as reported by 39 organizations/programs in Canada.

Numerator:

Total site-specific cancer research funding devoted to breast cancer research in the calendar year 2009.

Denominator:

Total site-specific cancer research funding in the calendar year 2009.

Stratification Variables:

Province, Cancer types

Exclusions:

Analysis was excluded to include only site-specific research project funding, which comprised 50% of cancer research funding in 2009. Therefore, non-site specific research funding was excluded from the figure.

Data Source:

Canadian Cancer Research Survey (CCRS)

Measurement Timeframe:

January 1, 2009 to December 31, 2009

Provinces Submitting Data:

39 organizations/programs

General notes:

1. While CCRS does include data from major cancer research funders, it does not include data on funding from the following:
 - a. federal government organizations (ex., Canadian Foundation of Innovation, NSERC, SSHRCC);
 - b. other non-governmental/voluntary sector organizations (ex., CARO, Rethink Breast Cancer);
 - c. hospital foundations (ex., Princess Margaret Hospital Foundation);
 - d. provincial government organizations (ex., Change Foundation, Saskatchewan Health Research Foundation);
 - e. organizations from outside Canada that fund Canada-based researchers, such as NCI; and
 - f. business/industry.

Clinical trial enrolment

Definition:

The ratio of the total number of all patients (≥ 19 years) enrolled in cancer-related clinical trials or clinical research studies (all phases and intervention types) in 2011 to the total number of cancer cases (≥ 19 years) who had their first registered visit at the provincial cancer centre/clinic in 2011.

Numerator:

Total number of adult cases registered in clinical trials in 2011 (by CRC, Breast, Lung, Prostate and All invasive) at provincial cancer centres/clinics.

Denominator:

Total number of adult cancer cases (excluding in situ and borderline tumour cases) who had their first registered visit at a provincial cancer centre/clinic in 2011 (by CRC, Breast, Lung, Prostate and All invasive) – total for all cancer centres

Stratification Variables:

Disease site, province combined

Data Source:

Provincial cancer agencies

Measurement Timeframe:

2011

Provinces Submitting Data:

AB, BC, MB, NB, NS, PE

General Notes:

1. This is a proxy measure for clinical trial participation and is intended to approximate the actual clinical trial accrual rate, which cannot be calculated given current data limitations.
2. The disease site breakdown includes AB, BC, MB, NB, and NS. The all invasive includes AB, BC, MB, NB, NS, PE.
3. See the following table for indicator inclusion and exclusion by province.
4. All first-time registrations at cancer centres should be counted. The same case may be counted more than once in the overall results if registered at two or more cancer centres in the same year.

Table 1	AB	BC	MB	NB	NS	PE
Numerator: Cancer cases (≥19 years), whether incident or previously diagnosed, newly enrolled in therapeutic clinical trials at provincial cancer centres in 2010						
Cases for non-therapeutic trials are EXCLUDED from the numerator	Yes (with caveat that some IGAR studies appeared interventional)	Yes	Yes	Yes	No	Yes
Cases registered for longer-term follow-up are EXCLUDED from the numerator	No	Yes	Yes	Yes	No	Yes
Questionnaire/Interview studies without intervention are EXCLUDED	Yes	Yes	Yes	Yes	No	Yes
Cases identified but did not commence intervention in 2010 are EXCLUDED	Yes (Patients who had consented but not randomized would be excluded)	Yes	Yes	Yes	No	Yes
Persons who did NOT have a cancer diagnosis are EXCLUDED from the numerator	Yes	Yes	Yes	Yes	Yes	Yes
Persons with borderline tumours are EXCLUDED from the numerator	Yes	Yes	Yes	Yes	Yes	Yes
Persons with <i>in situ</i> cancer are EXCLUDED from the numerator	Yes	Yes	Yes (except for enrolment to a trial that allowed both <i>in situ</i> and invasive cancers)	No [†]	Yes	Yes
Denominator: Cancer centre cases, whether incident or previously diagnosed, newly referred to provincial cancer centres in 2010						
Persons who did NOT have a cancer diagnosis are EXCLUDED from the denominator	Yes	Yes	No	No	Yes	No
Persons with borderline tumours are EXCLUDED from the denominator	Yes	Yes	No	No	No*	No
Persons with <i>in situ</i> cancer are EXCLUDED from the denominator	Yes	Yes	No	No	No*	No
Notes:	[†] 2 of 3 centres excluded persons with <i>in situ</i> cancers from the numerator * If answered “unsure”, response displayed as “No” (i.e. no exclusion process was undertaken)					

CCHS Stratification Variables

1. Income Quintiles (Socio-economic status)

Definition:

A relative measure of each respondent's household income to the household incomes of all other respondents. The measure is a ratio of the total household income to the low income cut-off (LICO) (varies according to the size of the household and the community where the household is located). After calculating the ratio between the household income and its corresponding low income cut-off (LICO), the ratios are standardized across all regions of Canada and then ordered from lowest to highest and then divided into 5 equal groups to get the quintiles.

2. Urban/Rural/Rural-Remote/Rural-Very Remote Status

Definition:

Whether the respondent lives in an urban or rural area. Rural area is subcategorized into 'Rural', 'Rural-Remote' and 'Rural-Very Remote'.

- Urban areas are areas having a population concentration of 10,000 or more and adjacent areas with 50% or more of the population who commute to the urban core.
- Rural areas are areas with a population less than 10,000 and proportion of population who commute to an urban area of 30% to 49%.
- Rural-Remote areas are areas with a population less than 10,000 and proportion of population who commute to an urban area of 5% to 29%.
- Rural-Very Remote areas are areas with a population less than 10,000 and proportion of population who commute to an urban area of 0% to less than 5%. This category includes non-urban parts of territories.

3. Highest Level of Education

Definition:

Highest level of education acquired by the household:

- Less than secondary school graduation
- Secondary school graduation
- Some post-secondary
- Post-secondary graduation
- Not stated

4. Immigrant Status

Definition:

Respondent's immigrant status:

- Respondent has been in Canada less than or equal to 10 years since immigration
- Respondent has been in Canada more than 10 years since immigration
- Non-immigrant (including respondent who was born in Canada or who was Canadian citizen by birth)

Canadian Census 2006 Stratification Variables

1. Neighbourhood Income Quintiles (Socio-economic status)

Definition:

Neighbourhood income per person equivalent is a household size-adjusted measure of household income, based on 2006 census summary data at the Dissemination Area (DA) level and using person-equivalents implied by the 2006 low income cut-offs (LICOs).

Notes:

1. The postal code of each subject's (non-institutional population) usual place of residence at the time of diagnosis was ascertained with the Postal Code Conversion File 5C+. ⁶
2. Quintiles of population by neighbourhood (Dissemination Area) are derived within Census Metropolitan Areas, Census Agglomerations or Residual areas within each province and then pooled across areas. The reason for creating the quintiles within each area is that housing costs vary enormously across Canada.

2. Urban/Rural/Rural-Remote/Rural-Very Remote Status

Definition:

Whether the respondent lives in an urban or rural area. Rural area is subcategorized into 'Rural', 'Rural-Remote' and 'Rural-Very Remote'.

- Urban areas are areas having a population concentration of 10,000 or more and adjacent areas with 50% or more of the population who commute to the urban core.
- Rural areas are areas with a population less than 10,000 and proportion of population who commute to an urban area of 30% to 49%.
- Rural-Remote areas are areas with a population less than 10,000 and proportion of population who commute to an urban area of 5% to 29%.
- Rural-Very Remote areas are areas with a population less than 10,000 and proportion of population who commute to an urban area of 0% to less than 5%. This category includes non-urban parts of territories.

Notes:

1. The postal code of each subject's (non-institutional population) usual place of residence at the time of diagnosis was ascertained with the Postal Code Conversion File 5C+ (see reference 1 below).
2. Community Size is defined in terms of the 2006 census population in each census metropolitan area or census agglomeration (CMA or CA), as shown above. Community Size 1 consists of Toronto, Montreal and Vancouver CMAs. Community Size 2 consists of Ottawa-Gatineau, Edmonton, Calgary, Québec, Winnipeg and Hamilton CMAs. Community Size 3 includes all 18 other CMAs plus 7 of the larger CAs. Community Size 4 includes all 106 other CAs. Community Size 5—"rural and small town Canada"—

⁶ Russell Wilkins. PCCF+ Version 5C User's Guide. Automated Geographic Coding Based on the Statistics Canada Postal Code Conversion Files, Including Postal Codes through March 2008. Catalogue 82F0086-XDB. Health Information and Research Division, Statistics Canada, Ottawa, November 2008.

includes all places not included in any CMA or CA. (i.e., places with an urban area population less than about 10,000, plus rural areas).

3. For rural postal codes and for urban postal codes of outlying suburban and rural areas, the same postal code is generally used for multiple enumeration areas or dissemination areas. The selection of a single such area for coding purposes is random but with probabilities respecting the proportions of population with that postal code in each of the possible small areas. Thus, the coding is far less precise than for centralized urban postal codes, which are usually linked only to a single enumeration area or dissemination area.

3. Education Level

Note this variable was not available from the census data.