CANADIAN **PARTNERSHIP** AGAINST CANCER
PARTENARIAT CANADIEN CONTRE LE CANCER

Colorectal Cancer Screening System Level Indicators: Data Specifications

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Indicator 1a: Screen-Eligible Population Based Participation Rate

Definition	Proportion of the screen-eligible population who successfully completed ≥ one fecal test (FT) in the program within the measurement timeframe, as defined by the duration of the 24-month screening cycle plus 6 months grace period.
Target	≥ 60% of the screen-eligible population within the defined 24-month screening cycle
Measurement Timeframe	Jan 1, 2017 – Dec 31, 2018
Stratification Variables	• Age at FT (50-54, 55-59, 60-64, 65-69, 70-74) • Gender (male, female) • Optional: Geography (Urban, Rural, Rural-remote, Rural-very remote)
Numerator	Number of individuals who **successfully** completed ≥ one FT in the program within a 30-month period (24-month screening cycle plus 6 months grace period: Jan 1, 2017 to Jun 30, 2019)
Denominator	Number of individuals in the screen-eligible population within measurement timeframe
Notes	Age at FT is the age of the individual at FT laboratory result, which will be used for age break down. Date of FT result refers to the date the laboratory has processed the sample (date of result). Only count one FT per individual per screening cycle; if more than one FT has been completed, use the most severe test for entering the cohort (e.g. if an individual has a normal and abnormal result for the same measurement timeframe, use the abnormal result); if more than one abnormal FT in the measurement timeframe, use the first one as the index for entering the cohort, if more than one normal FT in the measurement timeframe, use the most recent. The numerator excludes individuals who have only an inadequate FT; if an individual has an adequate and an inadequate FT, use the adequate FT. The denominator will be provided by the program and be calculated to identify the population of screen-eligible individuals within the measurement timeframe; use the best rule as per provincial program. If the province uses the population data from Statistics Canada CANSIM projections, we suggest you take the average of July 1, 2017 and July 1, 2018 populations as the denominator. Geography refers to individual's place of residence or mailing address. Use the most recent version of PCCF+ (e.g. v7b) to perform the analysis by geography. If other methodology is used, describe the details and data limitations in the 'Data Qualification Notes' section in the template. The categories (urban/rural/rural remote/rural very remote) are classified based on the CSIZEMIZ (Community size and metropolitan influence zone) variable from PCCF+: 1, 2, 3, 4: urban 5: rural 6: remote rural 7: very remote rural

Indicator 1b: Screening Program Participation Rate (Participation Rate Among Those Invited to Screen)

Definition	Proportion of the eligible population invited to screen who successfully completed ≥ one FT in the program within the measurement timeframe of 30 months
Target	n/a
Measurement Timeframe	Jan 1, 2017 – Dec 31, 2018
Stratification Variables	• Age at FT (50-54, 55-59, 60 – 64, 65-69, 70-74) • Gender (male, female) • Optional: Geography (Urban, Rural, Rural-remote, Rural-very remote)
Numerator	Number of individuals invited to screen who **successfully** completed ≥ one FT in the program within a 30-month period (24-month screening cycle plus 6 months grace period: Jan 1, 2017 to Jun 30, 2019)
Denominator	Number of individuals who were sent an invitation within the measurement timeframe
Notes	An 'invitation to screen' is to be interpreted as an invitation letter via direct mail to the personal address of an individual who is part of the target population and has access to the program. Age at FT is the age of the individual at FT laboratory result, which will be used for age break down. The numerator excludes individuals with only inadequate FT. This indicator is only applicable to provinces that send invitations for colorectal cancer screening (SK, NB, ON, MB, NS, PE, NL). Geography refers to individual's place of residence or mailing address. Use the most recent version of PCCF+ (e.g. v7b) to perform the analysis by geography. If other methodology is used, describe the details and data limitations in the 'Data Qualification Notes' section in the template. The categories (urban/rural/rural remote/rural very remote) are classified based on the CSIZEMIZ (Community size and metropolitan influence zone) variable from PCCF+: 1, 2, 3, 4: urban 5: rural 6: remote rural 7: very remote rural

Indicator 1c: Overdue for Colorectal Cancer Screening

Definition	Proportion of screen-eligible individuals who were overdue for colorectal screening in each calendar year
Target	N/A
Measurement timeframe	Jan 1 – Dec 31, 2018
Stratification variables	• Age (50-54, 55-59, 60-64, 65-69, 70-74) • Gender (male, female) • Optional: Geography (Urban, Rural, Rural-remote, Rural-very remote)
Numerator	Number of screen-eligible individuals who were overdue for colorectal screening by the end of the measurement timeframe • Individuals were considered overdue for colorectal screening if they: 1. did not have a FT within the last two years (Jan 1st of the previous year to Dec 31st of the calendar year of interest) AND 2. did not have a colonoscopy in the last ten years (Jan 1st nine years prior to the calendar year of interest to Dec 31st of the calendar year of interest) AND 3. did not have a flexible sigmoidoscopy in the last ten years (Jan 1st nine years prior to the calendar year of interest to Dec 31st of the calendar year of interest)
Denominator	Total number of screen-eligible individuals in the specified calendar year
Notes	Age is the age of the individual on Dec 31, 2018 Individual with inadequate FT or unsuccessfully colonoscopy/sigmoidoscopy would be considered overdue

Indicator 2: Follow-Up Colonoscopy Rate

Definition	Proportion of individuals with an abnormal FT result having a follow-up colonoscopy within 180 days (6 months)
Target	≥ 85%
Measurement Timeframe(s)	Jan 1, 2017 – Dec 31, 2018
Stratification Variables	• Screening round (First screen ever/Subsequent screen) • All screens: ➢ Age at FT (50-54, 55-59, 60-64, 65-69, 70-74) ➢ Gender (male, female) ➢ Optional: Geography (Urban, Rural, Rural-remote, Rural-very remote)
Numerator	Number of individuals with an abnormal FT lab result within the measurement timeframe who have a follow-up colonoscopy within 180 days of the date of the abnormal FT lab result
Denominator	Number of individuals with an abnormal FT lab result within the measurement timeframe
Notes	Incomplete colonoscopies (caecum not reached, stopped due to patient discomfort, etc.) are included. Any colonoscopy after 180 days of abnormal FT is excluded, even if it is the first and only colonoscopy. Use the first colonoscopy after the abnormal FT even if multiple colonoscopies are performed. Date of FT result refers to the date the laboratory has processed the sample (date of result). Age at FT is the age of the individual at FT laboratory result, which will be used for age break down. Geography refers to individual's place of residence or mailing address. Use the most recent version of PCCF+ (e.g. v7b) to perform the analysis by geography. If other methodology is used, describe the details and data limitations in the 'Data Qualification Notes' section in the template. The categories (urban/rural/rural remote/rural very remote) are classified based on the CSIZEMIZ (Community size and metropolitan influence zone) variable from PCCF+: 1, 2, 3, 4: urban 5: rural 6: remote rural 7: very remote rural

Indicator 3: Wait Time to Follow-up Colonoscopy

Definition	Time interval from abnormal FT result to follow-up colonoscopy
Target	≥ 90% within 60 days
Measurement Timeframe(s)	Jan 1, 2017 – Dec 31, 2018
Stratification Variables	• Age at FT (50-54, 55-59, 60-64, 65-69, 70-74) • Gender (male, female) • Optional: Geography (Urban, Rural, Rural-remote, Rural-very remote)
Calculation	Median and 90th percentile number of calendar days from an abnormal FT result within the measurement timeframe to a follow-up colonoscopy (within 180 days of the abnormal FT) Exclusions: • Individuals who had a positive FT result but did not have a follow-up colonoscopy within 180 days
Notes	Date of the abnormal FT is the date the result is reported by the laboratory for each individual test; if there is more than one abnormal FT, the date of the first test is used. The colonoscopy may have been performed inside or outside the screening program, please provide data only for individuals whose abnormal FT was performed in the screening program. Age at FT is the age of the individual at FT laboratory result, which will be used for age break down. Geography refers to individual's place of residence or mailing address. Use the most recent version of PCCF+ (e.g. v7b) to perform the analysis by geography. If other methodology is used, describe the details and data limitations in the 'Data Qualification Notes' section in the template. The categories (urban/rural/rural remote/rural very remote) are classified based on the CSIZEMIZ (Community size and metropolitan influence zone) variable from PCCF+: 1, 2, 3, 4: urban 5: rural 6: remote rural 7: very remote rural

Indicator 4: Program Invasive Colorectal Cancer Rate

Definition	Rate per 1,000 of individuals with colorectal cancer confirmed by pathology from a follow-up colonoscopy performed within 180 days of an abnormal screening FT screened within the measurement timeframe
Target	≥ 2 colorectal cancers per 1000 screened
Measurement Timeframe(s)	Jan 1, 2016 – Dec 31, 2017
Stratification Variables	• Screening round (First screen ever/Subsequent screen) • All screens: ➢ Age at FT (50-54, 55-59, 60-64, 65-69, 70-74) ➢ Gender (male, female)
Numerator	Number of individuals with invasive colorectal cancer on pathology from a follow- up colonoscopy performed within 180 days of an abnormal fecal test result obtained within the measurement timeframe <u>Inclusions:</u> • ICD-10 codes of malignant CRC (behaviour 3): C18.0; C18.2 – C18.9; C19; C20; C26.0 <u>Exclusions:</u> • Histology types in ICD-O3: 9590-9992(leukemia, lymphoma and multiple myeloma), 9050-9055 (mesothelioma), and 9140 (Kaposi sarcoma) • 8806 (for sarcoma) • 881_ - 883_ fibromatous neoplasms • 8840 – 8842 myxomatous neoplasms • 8850 – 8881 lipomatous neoplasms • 8890 – 8921 myomatous neoplasms • 8240, 8246, and 8249 for carcinoid tumors (a.k.a. neuroendocrine ca)
Denominator	Number of individuals having had ≥ one successful FT processed by the laboratory within the measurement timeframe
Notes	Age at FT is the age of the individual at FT laboratory result, which will be used for age break down.

Indicator 5: Colorectal Cancer Stage Distribution

<table>
<tr><td>Definition</td><td>Distribution of detected colorectal cancer by TNM stage</td></tr>
<tr><td>Target</td><td>n/a</td></tr>
<tr><td>Measurement Timeframe(s)</td><td>Jan 1, 2016 – Dec 31, 2017</td></tr>
<tr><td>Stratification Variables</td><td>• Screening round (First screen ever/Subsequent screen)
• All screens:
➢ Age at FT (50-54, 55-59, 60-64, 65-69, 70-74)
➢ Gender (male, female)</td></tr>
<tr><td>Numerator</td><td>Number of individuals with invasive CRC stage I, II, III or IV, unknown stage and unstaged diagnosed by the screening program from a follow-up colonoscopy within 180 days after an abnormal laboratory FT result within the measurement timeframe
<u>Inclusions:</u>
• ICD-10 codes of malignant CRC (behaviour 3): C18.0; C18.2 – C18.9; C19; C20; C26.0

<u>Exclusions:</u>
• Histology types in ICD-O3: 9590-9992(leukemia, lymphoma and multiple myeloma), 9050-9055 (mesothelioma), and 9140 (Kaposi sarcoma)
• 8806 (for sarcoma)
• 881_ - 883_ fibromatous neoplasms
• 8840 – 8842 myxomatous neoplasms
• 8850 – 8881 lipomatous neoplasms
• 8890 – 8921 myomatous neoplasms
• 8240, 8246, and 8249 for carcinoid tumors (a.k.a. neuroendocrine ca)</td></tr>
<tr><td>Denominator</td><td>Number of individuals with invasive CRC confirmed by pathology at follow-up colonoscopy within 180 days after an abnormal laboratory FT result within the measurement timeframe (same as numerator for indicator 4)
<u>Inclusions:</u>
• Number of individuals with CRC of unknown stage</td></tr>
<tr><td>Notes</td><td>Stageable incident cases per AJCC Cancer Staging Manual 8th Edition

Collaborative staging, leading to CRC stage grouping TNM I to IV, or Duke’s or Astler-Coller classifications A to D can be used when providing aggregated data, and the following table be used for equivalence:

<table>
<tr><th>TNM Stage</th><th>TNM Characteristics</th><th>Dukes Equivalent</th><th>Astler-Coller Equivalent</th></tr>
<tr><td>I</td><td>T1, N0, M0
T2, N0, M0</td><td>A</td><td>A and B1</td></tr>
<tr><td>II</td><td>T3, N0, M0
T4, N0, M0</td><td>B</td><td>B2 and B3</td></tr>
<tr><td>III</td><td>Any T, N1, M0
Any T, N2, M0</td><td>C</td><td>C1 - C3</td></tr>
<tr><td>IV</td><td>Any T, Any N, M1</td><td>D</td><td>D</td></tr>
</table>
</td></tr>
</table>

	Unknown stage: Individuals for whom staging has been completed and for whom with the information collected, a stage group cannot be assigned, should be reported as “unknown stage” **Unstaged**: Individuals with known invasive CRC but for whom the stage is not yet completed should be reported as “unstaged” Age at FT is the age of the individual at FT laboratory result, which will be used for age break down.

Indicator 6: 14-day Post-Colonoscopy Hospitalization Rate for Perforation or Bleeding

Definition	Rate (per 1,000) of colonoscopies that resulted in the individual being admitted to hospital within 14 days of colonoscopy for bleeding and/or perforation
Target	N/A
Measurement Timeframe(s)	Jan 1, 2017 – Dec 31, 2018
Stratification Variables	Reason for hospitalization (perforation, bleeding) • Age at colonoscopy (50-54, 55-59, 60-64, 65-69, 70-74) • Gender (male, female)
Numerator	Number of colonoscopies followed by hospital admissions occurring within 14 days of colonoscopy
Denominator	Total number of colonoscopies performed within the measurement timeframe
Notes	Include all colonoscopies (performed within or outside of screening program) Refer to Appendix A for details.

Indicator 7a: Interval Cancer Rate after Negative Fecal Test Result

Definition	Rate (per 1,000) of individuals with FT screening results that were negative who were subsequently diagnosed with colorectal cancer before their next scheduled screening test
Target	n/a
Measurement Timeframe(s)	Jan 1, 2014 – Dec 31, 2015
Stratification Variables	• Age at FT (50-54, 55-59, 60-64, 65-69, 70-74) • Gender (male, female) • Screening round (First screen ever/Subsequent screen)
Numerator	Number of individuals subsequently diagnosed with colorectal cancer within 24 months of a negative FT result in the measurement timeframe <u>Inclusions:</u> • ICD-10 codes of malignant CRC (behaviour 3): C18.0; C18.2 – C18.9; C19; C20; C26.0 <u>Exclusions:</u> • Colon lymphoma, sarcoma and carcinoid tumors
Denominator	Number of individuals with negative FT screening result within the measurement timeframe
Notes	Interval Cancers are described as cancers that occur after a negative FT or after a positive FT followed by a negative colonoscopy. The definition is expressed as the proportion of individuals with screening results that are negative for colon cancer and are subsequently diagnosed with colorectal cancer before the next scheduled test. Age at FT is the age of the individual at FT laboratory result, which will be used for age break down.

Indicator 7b: Post-Colonoscopy Colorectal Cancer Rate after Negative Colonoscopy Performed for Positive Fecal Test

Definition	Rate (per 1,000) of individuals with abnormal FT results and colonoscopy results negative for colorectal cancer (performed within 180 days of the abnormal FT) who were subsequently diagnosed with colorectal cancer between 6 months and 3 years after the colonoscopy
Target	n/a
Measurement Timeframe(s)	Jan 1, 2012 – Dec 31, 2013
Stratification Variables	• Age at FT (50-54, 55-59, 60-64, 65-69, 70-74) • Gender (male, female) • Screening round (First screen ever/Subsequent screen)
Numerator	Of the denominator, number of individuals who were subsequently diagnosed with CRC within 6 to 36 months of the colonoscopy <u>Inclusions:</u> • ICD-10 codes of malignant CRC (behaviour 3): C18.0; C18.2 – C18.9; C19; C20; C26.0 <u>Exclusions:</u> • Colon lymphoma, sarcoma and carcinoid tumors
Denominator	Number of individuals with abnormal FT screening result within the measurement timeframe and colonoscopy results negative for colorectal cancer (performed within 180 days of the abnormal FT)
Notes	Interval Cancers are described as cancers that occur after a negative FT or after a positive FT followed by a negative colonoscopy. The definition is expressed as the proportion of individuals with screening results that are negative for colon cancer and are subsequently diagnosed with colorectal cancer before the next scheduled test. Age at FT is the age of the individual at FT laboratory result, which will be used for age break down.


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