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SYSTEM PERFORMANCE REPORTS

Quality and Sustainability in Cancer Control

A SYSTEM PERFORMANCE SPOTLIGHT REPORT

MARCH 2016

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This document has been made possible through a financial contribution from Health Canada, through the Canadian Partnership Against Cancer. The views expressed herein represent the views of the Canadian Partnership Against Cancer.

Suggested citation:
Canadian Partnership Against Cancer. Quality and Sustainability in Cancer Control: A System Performance Spotlight Report. Toronto (ON): Canadian Partnership Against Cancer; 2016 Mar.

Downloadable at:
systemperformance.ca

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Aussi offert en français sous le titre:
Qualité et durabilité de la lutte contre le cancer : Rapport cible sur le rendement du système

Acknowledgements

The production of this report was made possible through the dedicated efforts of the members of the **System Performance Steering Committee and Technical Working Group** (see list at the end of this section) and the data collection and analysis efforts of staff from the provincial cancer agencies and programs and associated registries. We would also like to acknowledge the **Oncology Expert Panel** (see list at the end of this section) for providing guidance and expert advice. This group included medical oncologists, radiation oncologists, a surgeon and researchers from across the country. We also acknowledge the **Canadian Institute for Health Information** for providing data and conducting analyses for the surgical and intensive care unit indicators in this report. Finally, we acknowledge **Statistics Canada**, in particular the Health Statistics Division, for providing data or access to data used in this report.

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Highlights

When it comes to health care, more is not always better. Many cancer patients are receiving medical tests, treatments and procedures that may not add value to their care—that is, care that patients may not need because it offers limited or no clinical benefit. High-value care requires that patients receive services that are supported by evidence, are truly necessary and are patient centred, and that resources are used efficiently. The concept of value is especially important given that the growing and aging population, along with the rising costs of cancer therapies, is putting increasing pressure on the sustainability of the health care system.

Quality and Sustainability in Cancer Control: A System Performance Spotlight Report presents indicators that measure the evidence-based use of certain interventions in cancer care across Canada, particularly those recommended by Choosing Wisely Canada—a national campaign to identify low-value, unnecessary or harmful services that are frequently used in Canada.

Summary of key findings

This section summarizes the findings of the report in three categories: areas with the greatest potential for improvement, areas where the system is mostly doing well and areas where there is wide variation among provinces and territories. It also summarizes the impact of the indicator findings on patients and the health care system.

Areas for improvement

- Use of longer courses of radiation (e.g., 25 fractions) as part of breast-conservation therapy for women aged 50 and older with Stage I or II breast cancer is high in some provinces (up to 37%) despite the evidence that shorter courses of radiation (e.g., 16 fractions) provide equivalent tumour control, cosmetic outcomes and survival; reduce acute and late toxicity; and optimize patient and caregiver convenience.
- More than half of patients in most of the reporting provinces received multiple fractions of palliative radiation to the bone despite evidence that single fraction radiation offers equivalent pain relief and morbidity.
- While there is an increasing trend in the use of active surveillance for men with low-risk prostate cancer, a large proportion of men in some provinces are still receiving treatment(s) with potential side effects that could be avoided.

Many high-quality, sustainable cancer control practices are already in place

- Cervical cancer screening outside the recommended age range of 21–69 is minimal, which means there is alignment with the recommendations across the country and that women are not subjected to unnecessary harm with little benefit.
- Use of aggressive end-of-life care—chemotherapy in the last month of life and intensive care unit (ICU) admission in the last two weeks of life—is relatively low in most provinces, which reduces negative implications for patient experience and quality of life.
- The use of day surgery for mastectomies is increasing, which could mean that more women are able to recover at home and benefit from the psychological boost of early discharge.

Substantial variations exist across the country

There was at least a 20 percentage point difference between the provinces with the lowest and highest reported use of the following low-value and potentially unnecessary cancer control practices:

- screening mammograms for average risk women aged 40–49, and
- surgical resection of the primary tumour for patients with Stage IV colorectal and breast cancer.

Measuring the impact on patients and the health care system

Based on the indicator findings related to the small subset of cancer control practices examined in this report, there were more than an estimated 770,000 instances of practices that may be of low value and may expose patients to unnecessary harm:

- More than 740,000 screening tests for breast and cervical cancer were performed outside the recommended age groups (i.e., in women aged 40–49 for breast cancer screening and in women under age 21 or over age 69 for cervical cancer screening).
- More than 17,000 cancer patients received treatment that may be of low value and potentially unnecessary.
- Approximately 9,000 cancer patients near the end of life were admitted to an ICU, a setting that is not optimal for addressing the palliative care needs of patients at the end of life.
- Approximately 5,000 mastectomies were performed in an inpatient setting even though the procedure can be safely performed as day surgery as long as adequate system supports are in place.

Findings suggest that many cancer control practices may be of low value:

740,000
screening tests for breast and cervical cancer were performed outside recommended age groups

17,000
cancer patients received treatment that may be of low value

9,000
cancer patients near end of life received care in an ICU

5,000
mastectomies were performed in an inpatient setting

A 15% reduction in the use of the cancer control practices measured in this report could result in:

9,000
false positive results could be avoided

3,000
treatments and treatment-related side effects could be avoided

4,500
hours of linear accelerator capacity could be freed up

$27M
could be redirected to other health care services

A 15% (or 50%) reduction in the use of the cancer control practices measured in this report could have positive implications for patients and the health care system:

- Approximately 9,000 (or 29,000 at 50%) false positive results could be avoided, which means fewer people would be subjected to unnecessary biopsies that show benign results.
- Approximately 3,000 (or 10,000 at 50%) treatments could be avoided, which means fewer people would experience unnecessary treatment-related side effects.
- Approximately 4,500 (or 15,000 at 50%) hours of linear accelerator capacity could be freed up for use by patients who need the treatment.
- Approximately $27 million (or $89 million at 50%) could be redirected to other health care services.

Where we go from here

Ensuring that patients receive high-value cancer care consistent with their needs and preferences requires the coordinated efforts of patients, clinicians and health care organizations. Although the cancer care practices described in the report may be of low value and potentially unnecessary for many patients, it is important to note that they may in fact be necessary for some patients. Further work is therefore needed to understand what amounts and types of cancer care represent overuse of practices that are not supported by evidence or underuse of practices that are supported by evidence.

About This Publication

Quality and Sustainability in Cancer Control: A System Performance Spotlight Report *presents indicators that measure the evidence-based use of certain cancer care practices across Canada, particularly those recommended by Choosing Wisely Canada, that may be of low value and potentially unnecessary. It is important to understand the current state of these cancer care practices so that the cancer control community can identify opportunities to optimize quality of care while ensuring the future sustainability of the system through the efficient allocation of health care resources. The Report is part of the Spotlight Report series of System Performance products produced by the Canadian Partnership Against Cancer (the Partnership) in collaboration with national, provincial and territorial partners.*

Why report on the quality of cancer care?

Poor-quality care can be defined as when ***"practices of known effectiveness are being under-utilized, practices of known ineffectiveness are being over-utilized and when services of equivocal effectiveness are being utilized in accordance with provider rather than patient preferences."***[1]

People with cancer often have several life-saving and life-prolonging treatment options available to them, including radiation, systemic therapies and surgical interventions. Ensuring that patients receive high-quality care requires that they receive the right patient-centred treatment(s) at the right time and place.

However, many cancer patients are receiving medical tests, treatments and procedures that are unnecessary (e.g., the potential harms outweigh the benefits) and/or are receiving care that could be effectively delivered in more efficient settings.[2]

Additionally, although screening can lead to early detection of cancers, there is growing awareness of the potential risks of certain screening and early detection interventions, including over-diagnosis (e.g., diagnosing a disease that is unlikely to cause harm or death in a person's lifetime) and consequent over-treatment (e.g., unnecessary follow-up and intervention). In some cases, these risks may outweigh the benefits of screening, both to individual patients and to cancer mortality overall.

Why report on the sustainability of the health care system?

In addition to the quality of cancer care, the sustainability of the health care system (the ability to support it economically into the future) is vitally important and is underpinned by the need to maximize value. The consistent delivery of high-value care that provides the best outcomes with the most efficient use of resources promotes system sustainability. Although there are different perspectives on how outcomes and resources should be prioritized and measured, patients, clinicians, the health care system and society are united in the desire for high-value care. The concept of high-value care is especially important given that the average annual number of new cancer cases is expected to increase by 40% in the next 15 years, which will put considerable strain on Canada's health care resources.[3] The increase in new cancer cases is driven primarily by Canada's growing and aging population—Canadians 65 years of age or older will represent close to a quarter of the population by 2032.[3]

What is Choosing Wisely Canada?

Created to help improve quality of care and system sustainability, Choosing Wisely Canada—modelled after the Choosing Wisely® campaign in the United States[4]—is a national campaign to identify low-value, unnecessary or harmful services that are frequently used in Canada.[2] This physician-driven campaign facilitates conversations between physicians and patients about unnecessary tests, treatments and procedures and helps both to make effective choices to improve the quality of care.

In 2014, recommendations specific to oncology were developed through a Task Force approach, convened by the Partnership. The Task Force consisted of physician representatives from the Canadian Society of Surgical Oncology, the Canadian Association of Medical Oncologists and the Canadian Association of Radiation Oncology.[5] The Task Force used an iterative approach to compile a list of low-value or harmful oncology practices. A final list of 10 recommendations was developed, which includes oncology practices that have evidence of low value or harm, that are frequently used in Canada and whose curtailment should lead to a shifting of health care resources to where they are needed most. Although the ability to measure was not a criteria used in compiling the list, the development of these recommendations prompted the need to develop baseline measures of the current utilization rates for these practices across Canada.

For further details, please refer to *In Depth: Choosing Wisely Canada* on page 11.

How do we quantify the impact on patients and the health care system?

Each indicator in this report measures the use of specific cancer practices that are commonly used in Canada but may not be supported by evidence and/or may expose patients to unnecessary harm. This report therefore has a special focus on the impact of the indicator findings on patients and on the health care system. Based on the indicator findings, this report highlights

- the number of people affected by the cancer practice,
- the effect of the cancer practice on patient outcomes (e.g., side effects) and resources (e.g., health human resources, therapies and cost), and
- the impact of reducing the use of the cancer practice on patient outcomes and resources.

This information can be found in the *What is the impact on patients and the health care system?* section for each indicator.

The impact measures were calculated using data from several sources: provincial cancer agencies, Statistics Canada's CANSIM tables (socio-economic database), the Partnership's Cancer Risk Management Model (CRMM), provincial fee schedules and the literature. A 15% reduction scenario (a conservative estimate) is contrasted with a 50% reduction scenario (a liberal estimate) to highlight the effect of reducing the use of selected cancer practices on patient outcomes and resources.

For detailed calculation methodology on both the indicators and the impact measures included in this report, please see the Technical Appendix at systemperformance.ca.

In Depth: Choosing Wisely Canada

Choosing Wisely is a campaign launched in 2012 by the American Board of Internal Medicine Foundation to advance the dialogue on avoiding medical tests, treatments and procedures that have minimal clinical benefit for patients.[4] The campaign focuses on encouraging clinician-patient conversations about evidence-based care and attitudinal change (e.g., by increasing awareness that more is not always better). The goal is to ensure that the care provided to patients is supported by evidence, is not duplicative and is truly necessary. Literature is starting to emerge on the impact of the campaign: one population-based study has shown modest but desirable decreases in the use of certain low-value practices in the United States.[6] To date, over 15 countries, including Canada, have developed campaigns modelled on Choosing Wisely.

To help improve quality of care and system sustainability, all provincial and territorial medical associations have adopted Choosing Wisely Canada. The campaign has resulted in over 160 recommendations about tests, treatments and procedures that physicians and patients should question. Table 1 describes 15 recommendations relevant to cancer patients. Of the 15 recommendations, 10 were developed by a Tri-Society Task Force, convened by the Partnership, with representation from the Canadian Society of Surgical Oncology, the Canadian Association of Medical Oncologists and the Canadian Association of Radiation Oncology; two were developed by the Canadian Medical Association's Forum on General and Family Practice Issues and the College of Family Physicians of Canada; one was developed by the Canadian Urological Association; and two were developed by the Canadian Association of General Surgeons. For each recommendation, the table indicates whether this report includes an indicator to measure use of the practice described in the recommendation.

TABLE 1

Choosing Wisely Canada recommendations and associated performance indicators

Specialty	Choosing Wisely Canada recommendation	Indicator included in this report
Family medicine	Do not routinely do screening mammography for average risk women aged 40–49.	☑
	Do not screen women with Pap smears (tests) if under 21 years of age or over 69 years of age.	☑
Oncology	Do not routinely use extensive locoregional therapy in most cancer situations where there is metastatic disease and minimal symptoms attributable to the primary tumour (e.g., colorectal cancer).	☑
	Do not initiate management in patients with low-risk prostate cancer (T1/T2, PSA < 10 ng/ml and Gleason score < 7) without first discussing active surveillance.	☑
	Do not initiate whole-breast radiation therapy in 25 fractions as part of breast-conservation therapy in women aged ≥ 50 with early-stage invasive breast cancer without considering shorter treatment schedules.	☑

Specialty	Choosing Wisely Canada recommendation	Indicator included in this report
Oncology (cont'd)	Do not recommend more than a single fraction of palliative radiation for an uncomplicated painful bone metastasis.	☑
	Avoid chemotherapy and instead focus on symptom relief and palliative care in patients with advanced cancer unlikely to benefit from chemotherapy (e.g., performance status 3 or 4).	☑
	Do not order tests to detect recurrent cancer in asymptomatic patients if there is not a realistic expectation that early detection of recurrence can improve survival or quality of life.	☒
	Do not perform routine cancer screening, or surveillance for a new primary cancer, in the majority of patients with metastatic disease.	☒
	Do not perform routine colonoscopic surveillance every year in patients following their colon cancer surgery; instead, frequency should be based on the findings of the prior colonoscopy and corresponding guidelines.	☒
	Do not delay or avoid palliative care for patients with metastatic cancer because they are pursuing disease-directed treatment.	☒
	Do not deliver care (e.g., follow-up) in a high-cost setting (e.g., inpatient, cancer centre) that could be delivered just as effectively in a lower-cost setting (e.g., primary care).	☒
Urology	Do not order routine bone scans or CT scans of the pelvis in men with low-risk prostate cancer.	☒
General surgery	Do not perform axillary lymph node dissection for clinical Stages I and II breast cancer with clinically negative lymph nodes without attempting sentinel node biopsy.	☒
	Avoid colorectal cancer screening on asymptomatic patients with a life expectancy of less than 10 years and no family or personal history of colorectal neoplasia.	☒

This report presents baseline indicators measuring current practice patterns associated with seven of the 15 recommendations.

The other eight recommendations are not included in the report because of limitations in or a lack of available data.

Findings

This section presents seven indicators based on cancer-directed recommendations issued by Choosing Wisely Canada. It is important to note that because of limitations in the available data, some of these indicators are proxy measures of the recommendations. In addition, two indicators relevant to system sustainability outside of the Choosing Wisely Canada recommendations are presented: intensive care unit admissions in the last two weeks of life and mastectomies performed as day surgery. The findings will form a baseline for future monitoring and will help the cancer control community identify areas where cancer care can be optimized.

Self-reported breast cancer screening mammograms performed on average risk women aged 40–49

Choosing Wisely Canada Recommendation

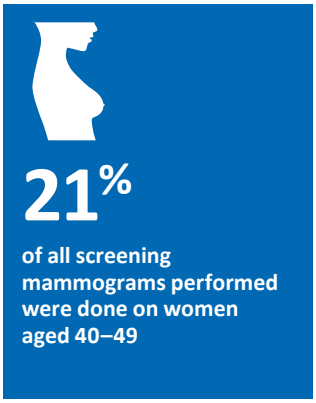
Do not routinely do screening mammography for average risk women aged 40–49.

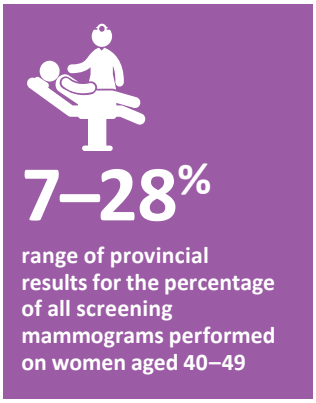
Key Message

Current breast cancer screening practices across Canada result in more than 450,000 mammograms being performed on women aged 40–49 in one year.

Indicator Definition

Percentage of all screening mammograms performed in the past year that were reported by women aged 40–49. Results are reported by province/territory for the 2008–12 reporting years combined.[a]





Why measure this?

Screening mammography has been shown to reduce breast cancer mortality and morbidity associated with advanced cancer, particularly in women between the ages of 50 and 74.[7,8] While there is evidence of the benefit of screening on breast cancer mortality, it is essential to balance that benefit with the potential harms, namely false positives, over-diagnosis, over-treatment and financial costs to both the system and the patient.[7,9,10] For women aged 40–49, the benefits of screening mammography (i.e., on mortality) are low and the risk of false positives is higher than it is for older women.[11] The Choosing Wisely Canada recommendation aligns with other guidelines published for screening mammography. Both the Canadian Task Force for Preventive Health Care and the World Health Organization guidelines also recommend not routinely screening women aged 40–49 with mammography.[9-11]

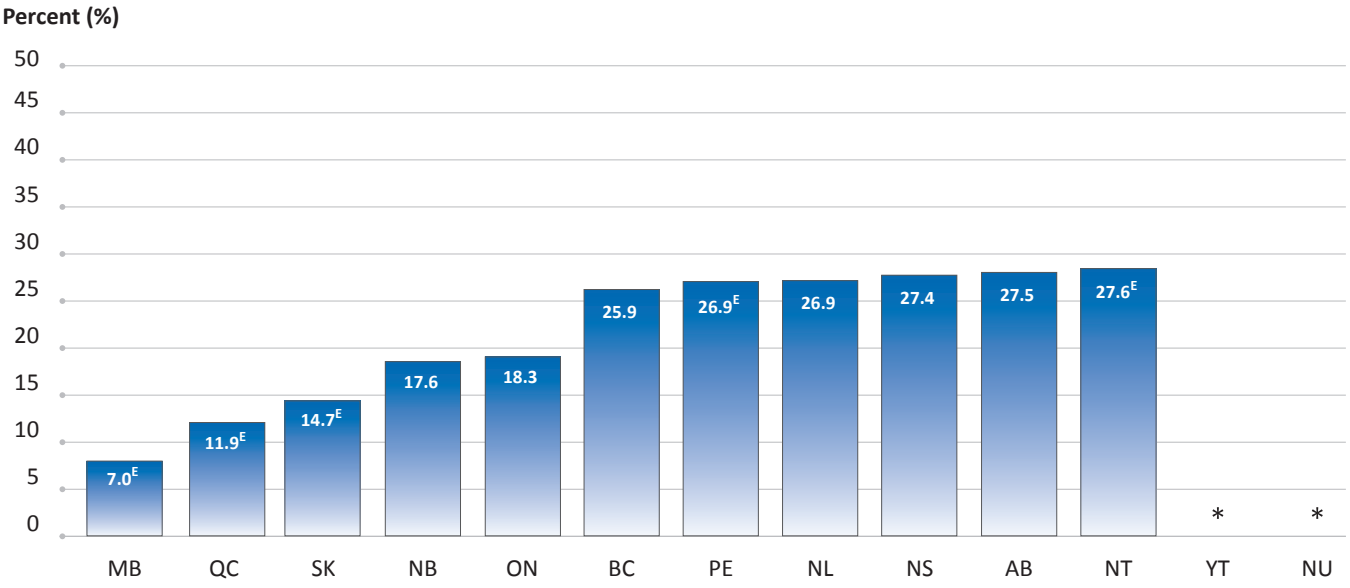
[a] Based on women reporting having received a screening mammogram in the past year in the 2008–12 Canadian Community Health Surveys combined.

What are the key findings?

- Of all the screening mammograms performed in the past year, 20.8% were done on women aged 40–49 and 65.6% were on women aged 50–69 (2008–12 data) (Table 2).
- Between 7.0% (Manitoba) and 27.6% (Northwest Territories) of screening mammograms performed in the past year were done on women aged 40–49 (2008–12 data) (Figure 1).

FIGURE 1

Percentage of all screening[†] mammograms in the past year that were reported by women aged 40–49, by province/territory — 2008–12 reporting years combined[‡]



[†] A woman is deemed to have had screening mammography if her reason for undergoing a mammogram was one of the following: family history of breast cancer, regular check-up/routine screening, age, or current use of hormone replacement therapy.

[‡] All jurisdictions provided data in 2008 and 2012. Screening content was optional in 2009–11 and the following jurisdictions provided data: 2009: AB, NB, NS, NL, NT; 2010: AB, NB, NS, NL, NT; 2011: AB, ON, NL, NU.

[E] Interpret with caution owing to large variability in the estimates.

[*] Suppressed owing to small numbers.

Women aged ≥ 40 were included in the denominator for this indicator.

Data source: Statistics Canada, Canadian Community Health Survey.

TABLE 2

Percentage of screening[†] mammograms performed in the past year, by age group — 2008–12 reporting years combined[‡]

Age group	Percentage of screening mammograms performed
40–49	20.8%
50–59	36.2%
60–69	29.4%
70–74	7.9%
75+	5.7%

[†] A woman is deemed to have had screening mammography if her reason for undergoing a mammogram was one of the following: family history of breast cancer, regular check-up/routine screening, age, or current use of hormone replacement therapy.

[‡] All jurisdictions provided data in 2008 and 2012. Screening content was optional in 2009–11 and the following jurisdictions provided data: 2009: AB, NB, NS, NL, NT; 2010: AB, NB, NS, NL, NT; 2011: AB, ON, NL, NU.

Women aged ≥ 40 were included in the denominator for this indicator.

Data source: Statistics Canada, Canadian Community Health Survey.

Why do these findings matter?

While a considerable proportion of screening mammograms were performed on women aged 40–49 in some provinces/territories, there is large variability across the country. This may be partly because provincial and territorial screening program guidelines vary in their acceptance of women in their 40s. Some programs accept women via self-referral or physician referral or if they are at high risk; other programs may not accept them at all.[12] Women can also access mammography opportunistically (e.g., through their physicians or by self-referral), which may be governed by different guidelines and eligibility.

The Choosing Wisely Canada recommendations for screening mammography can provide a starting point for doctors to have discussions with women in their 40s about whether or not screening is right for them. These discussions enable women to understand the benefits of screening mammography and the associated risks, allowing them to make an informed decision.[10,13]

The goal is not to eliminate all screening mammograms performed on women in their 40s but to ensure that mammography is targeted to women who need it most—those at high risk of developing breast cancer. According to previous work done by the Partnership, the self-reported mammography screening participation rate for Canadian women aged 40–49 was 29% (based on 2012 CCHS data),[14] though it is likely that not all of these women were high risk. Shedding light on differences in breast cancer screening practices (both programmatic and opportunistic) can identify how they can be streamlined across the country to better align with guidelines and recommendations and to reduce unnecessary and potentially harmful interventions. Examining differences may identify opportunities in some provinces/territories for balancing resource allocations, as both unnecessary screening mammography in women aged 40–49 and subsequent follow-up testing are highly resource-intensive.

What is the impact on patients and the health care system?[b]

The findings suggest that screening women aged 40–49 accounts for more than 450,000 mammograms annually, out of a total of 2.6 million (based on 2012 data). Women who undergo screening mammography face potential harms. For example, studies have shown that approximately 11.1% of women aged 40–49 experience false positive mammograms,[15-18] which would be approximately 50,000 of the 450,000 screening mammograms performed in this age group. False positive rates are highest in women under age 50.[15-18] Additional harms could include increased detection of indolent (slow-growing) cancers that pose minimal risk, unnecessary biopsies, over-treatment and emotional harm (e.g., anxiety, stress).[10,19] Additionally, screening women aged 40–49 with mammography uses substantial resources. At an approximate cost of $97 per mammogram (based on a weighted average of screening mammography costs outlined in provincial fee schedules), screening mammograms performed on women in their 40s cost $44.3 million per year.

If the number of screening mammograms performed on women aged 40–49 could be reduced by 15% per year (67,000 fewer mammograms), 7,500 women could avoid the anxiety and additional testing brought on by false positive results. In addition, approximately $6.6 million could be reallocated to other health care services. A 50% reduction could result in 220,000 fewer mammograms, 25,000 women avoiding false positive results and $22.2 million being made available for other health services.

450,000
mammograms were performed on women aged 40–49

15% reduction
could mean 67,000 fewer mammograms each year

50% reduction
could mean more than 220,000 fewer mammograms each year

Data and measurement considerations

- This indicator is based on five combined years of data from the CCHS (2008–12) to reduce the variability of the estimate. Screening questions were core content in 2008 and 2012, with all jurisdictions providing data. In 2009, 2010 and 2011, screening questions were optional content, meaning not all jurisdictions collected data on screening mammography.
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[b] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Self-reported cervical cancer screening outside the recommended age range of 21–69 years

Choosing Wisely Canada Recommendation

Do not screen women with Pap smears (tests) if under 21 years of age or over 69 years of age.

Key Message

Across Canada, close to 300,000 Pap tests per year are being performed on women outside the recommended age range (21–69 years).

Indicator Definition

Percentage of all Pap tests that were reported by women under 21 or over 69 years of age. Results are reported by province/territory for the 2008–12 reporting years combined.[c]

7%
of Pap tests were performed outside the recommended age range (21–69)

4–11%
range of provincial results for the percentage of all Pap tests performed outside the recommended age range (21–69)

Why measure this?

Cervical cytology (the Pap test), which detects both cervical cancer and precancerous lesions, is largely responsible for declines in cervical cancer incidence and mortality in Canada and other developed countries.[20-22] Despite this, early and frequent screening has been shown to be of little value: screening women younger than age 21 does not contribute to additional reductions in incidence and mortality compared with beginning screening at 21 and may lead to greater harm than benefit. Screening after age 69 also shows little to no benefit.[20,23] The harms of Pap testing can include false positive results, unnecessary follow-up and treatment, and side effects associated with these procedures.[20,23] While women younger than 21 or older than 69 years should discuss the harms and benefits of cervical screening with their health care providers and make an informed decision based on their individual circumstances and preferences,[20] adherence to evidence-informed screening recommendations maximizes the benefits of screening while offsetting the harms caused by unnecessary interventions associated with false positive results.

The Choosing Wisely Canada recommendation largely aligns with organized screening program guidelines (programs generally accept woman aged 21–65 or 21–69; some programs also accommodate younger women if they become sexually active before 21). Both Choosing Wisely Canada and the Canadian Task Force on Preventive Health Care (CTFPHC) recommend not screening women older than 69 who have had three clear Pap tests in a row, not performing annual screening and not screening women who have undergone a total hysterectomy. The guidelines differ on the age at which to start screening—Choosing Wisely Canada recommends beginning at age 21 while the CTFPHC recommends age 25.[11,20]

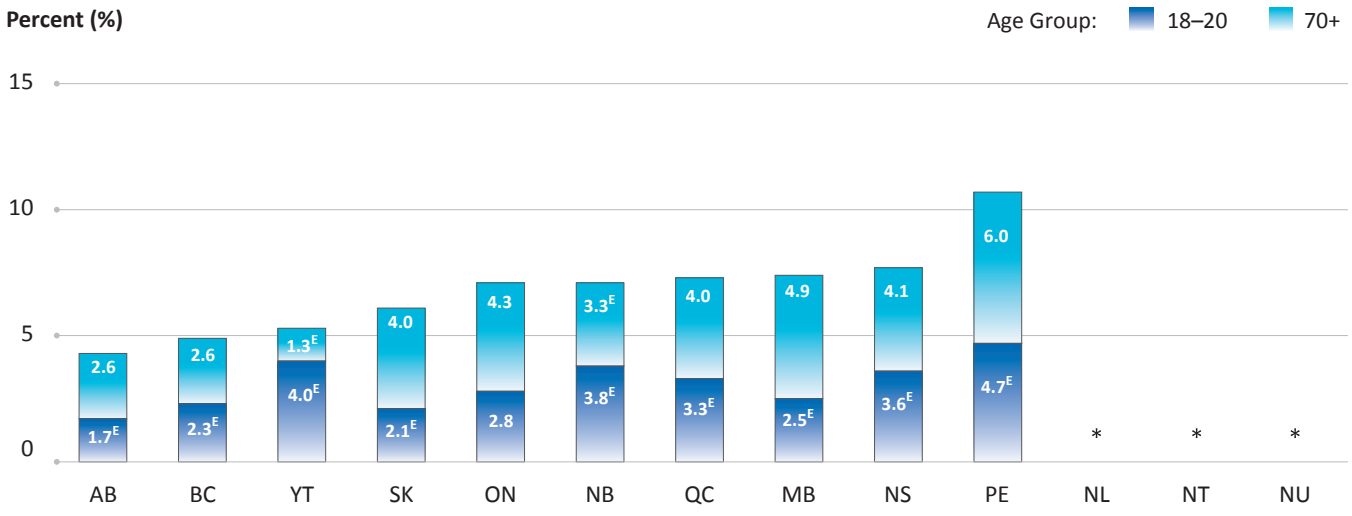
[c] Based on women reporting having undergone a Pap test in the past three years in the 2008–12 Canadian Community Health Surveys combined.

What are the key findings?

- Of all the Pap tests performed in the past three years, 6.7% were done outside the recommended age range of 21–69 years (2.8% and 3.9% were performed on women aged 18–20 and 70+, respectively) (2008–12 data; data not shown).
- Between 4.3% (Alberta) and 10.7% (Prince Edward Island) of Pap tests performed in the past three years were done on women outside the recommended age range (2008–12 data) (Figure 2).

FIGURE 2

Percentage of all Pap tests performed in the past three years that were reported by women outside the recommended age range of 21–69 years, by province/territory — 2008–12 reporting years combined[†]



[†] All jurisdictions provided data in 2008 and 2012. Screening content was optional in 2009–11 and the following jurisdictions provided data: 2009: NS, PE, YT, NU; 2010: NS, PE, YT, NU; 2011: ON, NU.

[E] Interpret with caution owing to large variability in the estimates.

[*] Suppressed owing to small numbers.

Data source: Statistics Canada, Canadian Community Health Survey.

Why do these findings matter?

The findings suggest that cervical cancer screening before age 21 and after age 69 was minimal in Canada, although there is some variation across provinces. This is a positive finding, indicating that women are not being subjected to needless harm with little benefit, that there is alignment across the country in recommendations regarding cervical cancer screening and that resources are not being allocated to unnecessary services.

There are two routes to screening for women in Canada: programmatic (through an organized provincial/territorial screening program) and opportunistic (e.g., through physician or self-referral). While organized screening program guidelines generally indicate that they will accept women only aged 21 to 65 or 69 (with three negative Pap tests),[24] women of any age can access screening opportunistically and may not be subject to the same eligibility criteria (e.g., age limits).

While cervical cancer screening outside the recommended age range is low compared with screening in women aged 21–69, the self-reported participation rate was still 29%

for women under 20, 49% for women aged 70–74 and 19% for women over 75 (based on 2012 CCHS data).[14] While eliminating all Pap testing in women outside the 21–69 age range is not realistic, it is important to ensure that testing is targeted to women who need it most—for instance, older women who have not had three clear Pap tests or younger women who became sexually active before turning 21. The Choosing Wisely Canada recommendation allows health care providers to discuss with women whether or not cervical cancer screening is right for them so that women can make an informed decision, particularly when this recommendation is paired with a discussion around harms, benefits and follow-up.

Interprovincial/territorial comparisons of Pap tests being done outside the recommended age range may identify differences in both cervical cancer screening practices (both programmatic and opportunistic) and practitioner practices, which could be streamlined across the country. Streamlining could provide opportunities for some provinces and territories to allocate resources to different areas of the health care system.

What is the impact on patients and the health care system?[d]

If these findings are extrapolated to look at the annual impact of cervical screening across Canada, screening women outside the recommended age range (21–69) accounts for approximately 290,000 Pap tests annually, out of a total of 5.1 million (based on 2012 data). Women who have a Pap test may face potential harms. For example, the false positive rate for Pap testing is approximately 3.3%.[25] This is the equivalent of more than 9,500 women outside the recommended age range who undergo a Pap test receiving a false positive result and potentially undergoing follow-up testing (e.g., repeat testing, a colposcopy or a biopsy) and unnecessary treatment. These procedures can result in anxiety, pain, bleeding and discharge, infection and also the potential for loss of a pregnancy or preterm labour.[20,23] Additionally, cervical cancer screening outside the recommended age range is resource-intensive. At a cost of $59.49 per test (based on screening costs used in the Partnership's Cancer Risk Management Model), Pap tests performed outside the recommended age range cost $17.5 million each year.

If the number of Pap tests performed in women under 21 and over 69 could be reduced by 15% per year (44,000 fewer Pap tests), 1,500 women could avoid false positive results and subsequent unnecessary treatment. In addition, $2.6 million could be reallocated to other health care services. A 50% reduction could result in 150,000 fewer Pap tests, 5,000 women being spared false positive results and $8.8 million being freed up for other health care services.

290,000
Pap test were performed on women outside the recommended age range

15% reduction
could mean 44,000 fewer Pap tests each year

50% reduction
could mean 150,000 fewer Pap tests each year

[d] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Data and measurement considerations

- This indicator is based on five combined years of data from the CCHS (2008–12) to reduce the variability of the estimate. Screening questions were core content in 2008 and 2012, with all jurisdictions providing data. In 2009, 2010 and 2011, screening questions were optional content, meaning not all jurisdictions collected data on Pap testing.
- Between 2008 and 2012, some provincial screening program guidelines (including those for Prince Edward Island and Newfoundland and Labrador) accepted women under age 21 for Pap testing.[26] It is expected that Pap testing in this age group could be even lower in those provinces in recent years, given alignment with the change in CTFPHC guidelines that came into effect in 2013.
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

Locoregional treatment for patients with Stage IV cancer

Choosing Wisely Canada Recommendation

Do not routinely use extensive locoregional therapy in most cancer situations where there is metastatic disease and minimal symptoms attributable to the primary tumour.

Key Message

There are substantial interprovincial variations in the use of locoregional treatments for individuals with Stage IV colorectal, rectal or breast cancer. The variation could suggest that surgery or radiation therapy may be overused in a portion of patients who would likely benefit more from timely systemic therapy—often the priority treatment.

Indicator Definition

- Percentage of patients with Stage IV colorectal cancer (CRC) undergoing colorectal resection
- Percentage of patients with Stage IV rectal cancer receiving radiation therapy to the rectum
- Percentage of patients with Stage IV breast cancer receiving a mastectomy or lumpectomy

The data are for adult patients (18 years or older) diagnosed with Stage IV disease in 2013. Data are reported by province and age group.

15–39%

range of provincial results for the percentage of Stage IV rectal cancer patients who received radiation therapy to the rectum

20–48%

range of provincial results for the percentage of Stage IV breast cancer patients who received a mastectomy or lumpectomy

32–58%

range of provincial results for the percentage of Stage IV colorectal cancer patients who received colorectal resections

Why measure this?

Generally, for patients with metastatic disease from solid organ malignancies and a relatively asymptomatic primary tumour, systemic therapy is the priority treatment.[27-29] In many such cases, locoregional treatments such as surgery or radiation therapy do not yield material improvements in outcomes (e.g., survival) and are associated with significant morbidity in patients with metastatic disease.[30-33]

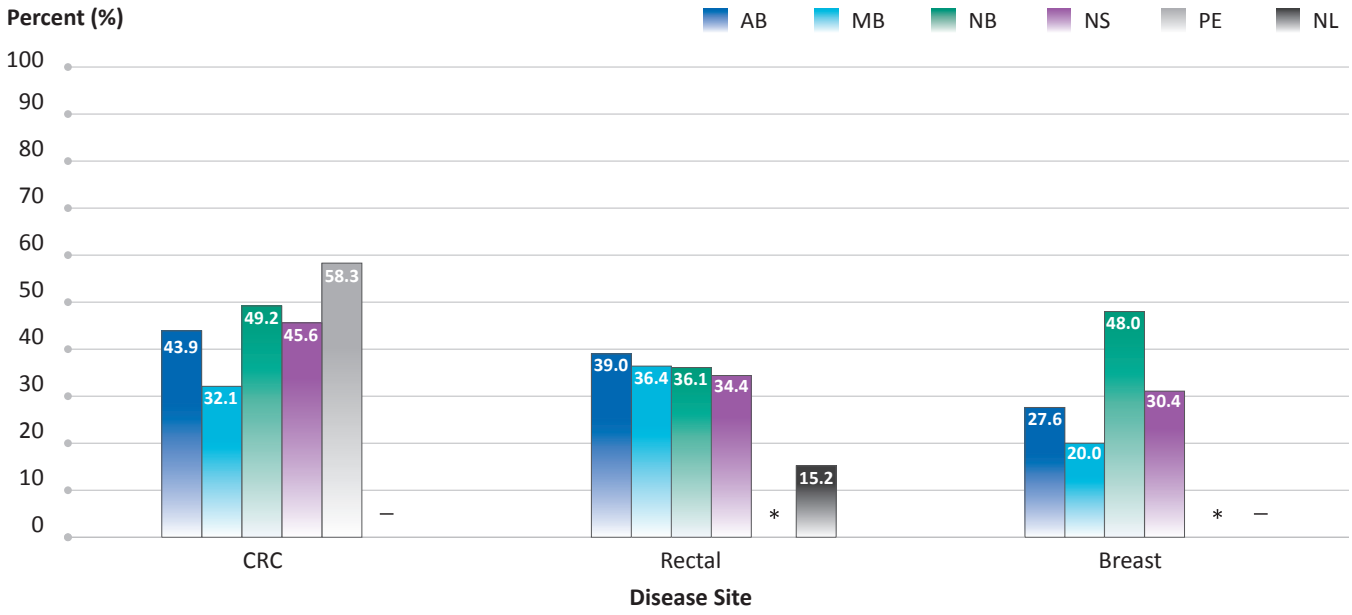
However, it is important to note that locoregional therapy is often appropriate and indeed beneficial for patients with metastatic disease who have significant symptoms. Measuring variations across the country in the use of locoregional treatments for individuals with Stage IV cancer helps to identify opportunities for benchmarking, which could enhance alignment with evidence-based guidelines. Improved alignment could increase the use of treatments that maximize clinical benefit and improve quality of life.

What are the key findings?

- In 2013, between 32.1% (Manitoba) and 58.3% (Prince Edward Island) of patients with Stage IV CRC received colorectal resections (five provinces submitted data) (Figure 3).
- Between 15.2% (Newfoundland and Labrador) and 39.0% (Alberta) of patients with Stage IV rectal cancer received radiation therapy to the primary site (six provinces submitted data) (Figure 3).
- Between 20.0% (Manitoba) and 48.0% (New Brunswick) of patients with Stage IV breast cancer received either a mastectomy or lumpectomy (five provinces submitted data) (Figure 3).
- Generally, younger individuals (aged 18–59) with Stage IV colorectal, rectal or breast cancer were more likely to receive treatment to their primary cancer site than were individuals aged 70+ (Figure 4).

FIGURE 3

Percentage of patients with Stage IV cancer receiving treatment to the primary site, by province and disease site — 2013 diagnosis year



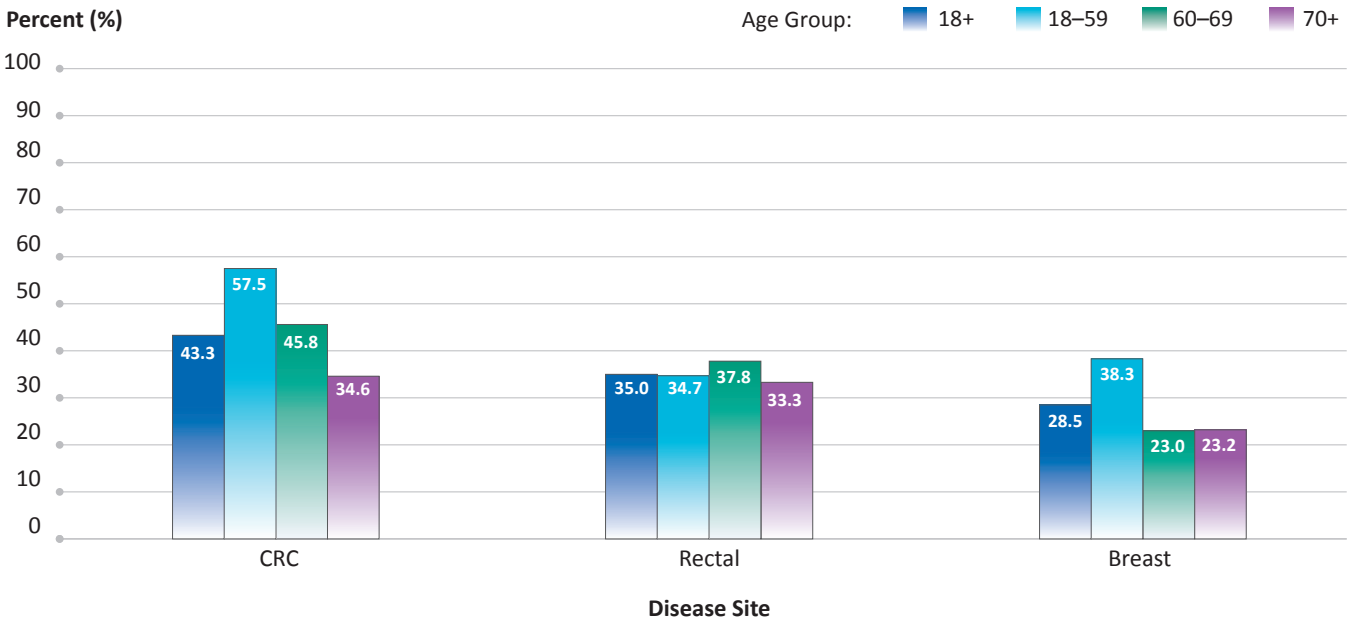
"—" Data not available.

* Suppressed owing to small numbers.

Data source: Provincial cancer agencies.

FIGURE 4

Percentage of patients with Stage IV cancer receiving treatment to the primary site, by disease site and age group, all provinces combined[†] — 2013 diagnosis year



[†] All provinces combined included AB, MB, NB, NS, PE and NL for rectal cancer data. NL was not included in CRC and breast cancer data.

Data source: Provincial cancer agencies.

Why do these findings matter?

There was substantial variation by province in the rate of locoregional treatments (i.e., surgery or radiation therapy) for individuals with Stage IV colorectal, rectal or breast cancer. This variation suggests that surgery or radiation therapy may be overused in a portion of these patients who would likely benefit more from timely systemic therapy—the priority treatment. In addition, individuals aged 18–69 generally appear more likely to receive locoregional treatment than individuals aged 70 or older. The age-related variation may suggest that physicians are more likely to offer surgery or radiation therapy to younger patients with metastatic disease.

It is important to note that the Choosing Wisely Canada recommendation suggests that locoregional treatments should not be *routinely* used in most cancer situations where there is metastatic disease. Locoregional treatments for Stage IV cancer are necessary and indeed beneficial for some patients.[31] For Stage IV CRC, patients with a resectable primary tumour and resectable synchronous metastases can be treated with surgery; palliative resection of a primary tumour may also be considered if there is an imminent risk of obstruction or significant bleeding.[27,28] For Stage IV breast cancer, surgery may be used for palliation of symptoms or to treat complications such as ulcerated breast tumours and pain.[29] Such clinical scenarios would be expected to be distributed relatively evenly across the country, but the interprovincial variation identified for these three indicators suggests that differing proportions of Stage IV cancer patients are undergoing extensive locoregional treatment.

The findings on locoregional treatment patterns show that utilization is slightly lower than what is observed in the United States and Europe. Population-based cohort studies have found that 58% of American patients and 50% of patients from Rotterdam, Netherlands, diagnosed with Stage IV CRC undergo primary site resection; 39% of American patients diagnosed with Stage IV rectal cancer receive radiation therapy with or without surgery; and 40% of American women diagnosed with Stage IV breast cancer have surgery on the primary site.[34-37] Further work is needed to better understand the use of locoregional treatment in patients with metastatic disease.

In Depth: The projected impact of surgery for Stage IV colorectal cancer on patients and the health care system[e]

For most patients with Stage IV CRC, surgery to remove the primary tumour does not improve outcomes and can be associated with significant morbidity.[30-33] Importantly, surgery of the primary tumour is warranted in a subgroup of patients with Stage IV CRC where cure is possible; examples include patients with resectable liver and/or lung metastases, or when response to chemotherapy has resulted in resectable metastatic disease. In addition, surgery is useful for palliation of existing or likely symptoms such as bleeding or obstruction. However, for most patients with metastatic CRC, the priority treatment is systemic therapy with the goals of prolonging survival, controlling symptoms and improving or maintaining quality of life.

The Partnership's Cancer Risk Management Model (CRMM) is a web-based decision-support modelling platform that projects the impact of various cancer control interventions on Canada's population health and economy. The CRMM was used to develop microsimulation modelling scenarios that show the impact of selected cancer control interventions for CRC.

The CRMM estimated that there were 4,000 patients with Stage IV CRC in 2013, 1,000 of whom had colorectal resections. The total cost of colorectal resections was over $38.8 million. If the number of colorectal surgeries for unresectable Stage IV CRC could be reduced from the number done in 2013 by 15% and these patients could instead be provided with chemotherapy (the priority treatment), there would be approximately 200 fewer surgeries. This reduction would mean fewer people would experience surgery-related side effects and over $4.1 million could be redirected to other health care services. A 50% reduction could result in 650 fewer surgeries and $13.7 million being made available for other services.

The CRMM projects that the number of patients with Stage IV CRC will increase from 4,371 in 2013 to 5,696 in 2030—a 30% increase. If the number of colorectal resections could be reduced from the number performed in 2013 by 15%, by 2030 approximately 5,000 surgeries could be avoided (cumulatively). In addition, over $122.2 million could be redirected to other health care services. This change would also free up over 43,000 bed-days in the hospital and over 11,000 hours of surgery time for other patients. A 50% reduction could mean 17,000 fewer surgeries, $407.4 million made available for other services, 144,000 bed-days freed up and 38,000 hours of surgery time saved by 2030.

1,000
patients with Stage IV colorectal cancer received colorectal resections in 2013

15% reduction
could mean 200 surgeries avoided each year

50% reduction
could mean 650 surgeries avoided each year

Data and measurement considerations

- One of the criteria of the Choosing Wisely Canada recommendation—minimal symptoms attributable to the primary tumour—was not captured because of data limitations. Patients with symptoms related to the primary tumour are therefore included in the analysis—surgery or radiation therapy may be necessary for these patients.
- This indicator looks at surgery to the primary site for colorectal and breast cancer within one year of diagnosis, and radiation therapy to the primary site for rectal cancer within one year of diagnosis.
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[e] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Patterns of care for patients with low-risk prostate cancer

Choosing Wisely Canada Recommendation

Do not initiate management in patients with low-risk prostate cancer without first discussing active surveillance.

Key Message

"The era of active surveillance has arrived."[38] From 2011 to 2013, there was a nine percentage point increase in the proportion of men with low-risk prostate cancer who could be managed under active surveillance—often the preferred management option.

Indicator Definition

Percentage of men with non-metastatic low-risk prostate cancer (i.e., PSA ≤ 10 ng/ml, Gleason score ≤ 6 and T1–T2a) aged 35 years or older who received different types of primary treatment. The data are for men diagnosed in 2011, 2012 and 2013. Results are reported by province.

12–42%
range of provincial results for the percentage of men who had surgery as their primary treatment

6–18%
range of provincial results for the percentage of men who had radiation therapy as their primary treatment

54–91%
range of provincial results for the percentage of men who had no record of treatment—a proxy for active surveillance

61–70%
the percentage of men under active surveillance from 2011 to 2013

Why measure this?

Men with localized low-risk prostate cancer (i.e., cancer that is not likely to grow or spread for many years[39]) have several management options. These include surgery (radical prostatectomy), radiation therapy and active surveillance.[40,41] Many prostate cancer cases are slow-growing and will not cause harm (i.e., morbidity or death) in a man's lifetime if left untreated. As a result of prostate-specific antigen (PSA) testing, more such cases are identified, leading to concerns about the over-diagnosis and consequent over-treatment of prostate cancer.

To mitigate the risks associated with over-treatment, active surveillance (i.e., monitoring the patient closely and providing definitive treatment only if the disease progresses) is recommended for many men with low-risk prostate cancer. [f,40]

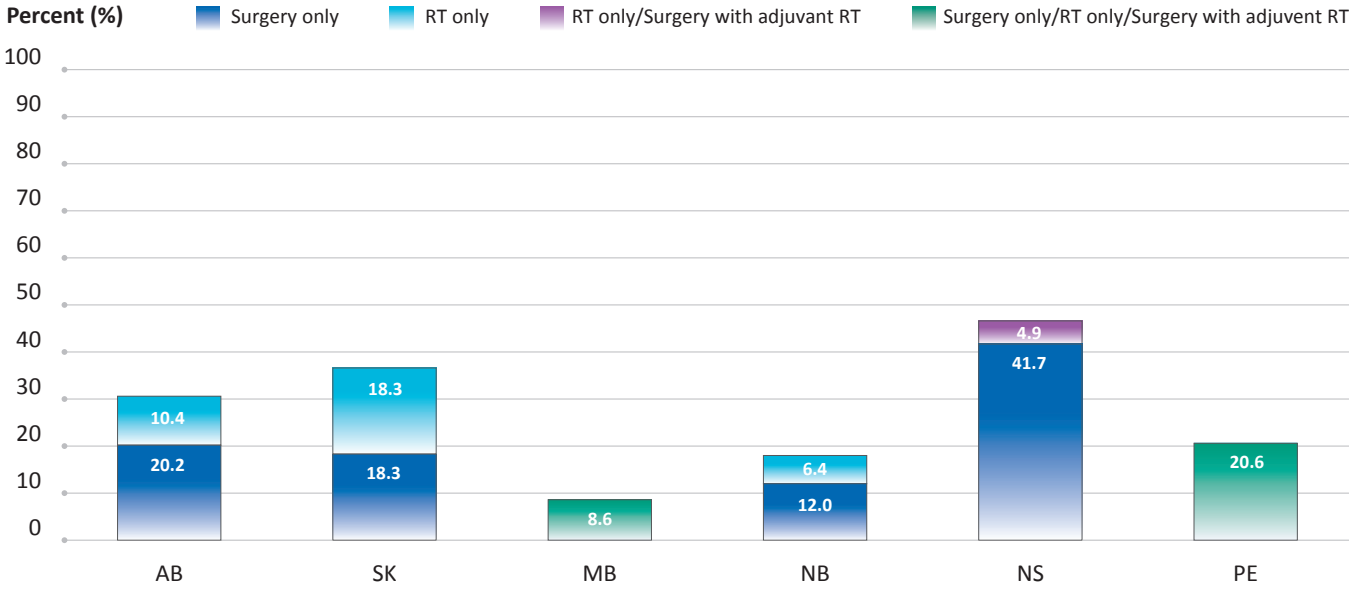
[f] Observation is another option for men with low-risk prostate cancer who have a current life expectancy of less than 10 years (i.e., men diagnosed in their late 70s or 80s). This approach involves monitoring the disease and providing palliation when it progresses or symptoms arise. This is the preferred option for men who have comorbidity that is likely to cause mortality or significant morbidity before the prostate cancer does.

What are the key findings?

- In 2013, surgery was the most common type of primary treatment for men with low-risk prostate cancer, ranging from 12.0% in New Brunswick to 41.7% in Nova Scotia (six provinces submitted data) (Figure 5).
- Radiation therapy was the second most common type of primary treatment, ranging from 6.4% in New Brunswick to 18.3% in Saskatchewan (Figure 5).
- Almost no men with low-risk prostate cancer received surgery with adjuvant radiation therapy (Figure 5).
- Between 53.4% (Nova Scotia) and 91.4% (Manitoba) of men had no record of surgical or radiation therapy in the data available, suggesting the use of active surveillance (data not shown).
- The average percentage of men with no record of treatment increased from 60.7% in 2011 to 69.9% in 2013 (Figure 6).

FIGURE 5

Percentage of men with low-risk prostate cancer who received various types of treatment, by province — 2013 diagnosis year



RT = radiation therapy.

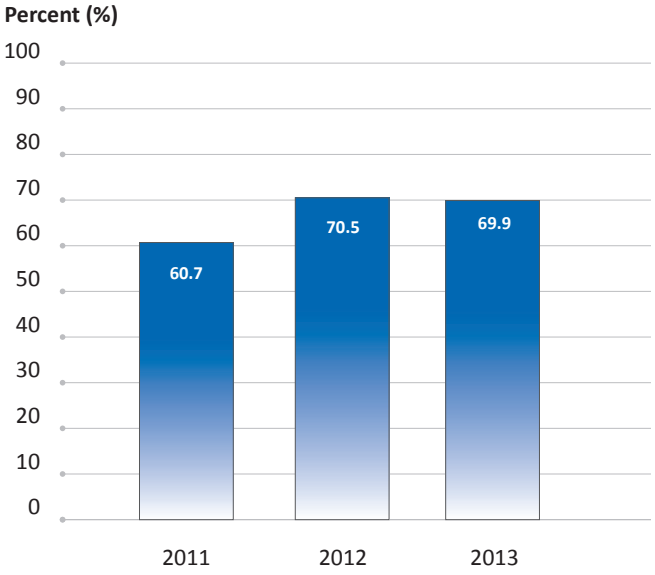
MB and PE: "Surgery only," "RT only" and "Surgery with adjuvant RT" were combined owing to small numbers.

NS: "RT only" and "Surgery with adjuvant RT" were combined owing to small numbers.

Data source: Provincial cancer agencies.

FIGURE 6

Percentage of men with low-risk prostate cancer who had no record of treatment, by year, all provinces combined[†] — 2011, 2012 and 2013 diagnosis years



[†] Provinces combined include AB, SK, MB, NB, NS, PE and NL.

NB: Radiation therapy data were available starting January 1, 2012.

NL: Data not available in 2013. Data were available for 2011 and 2012.

Data source: Provincial cancer agencies.

Why do these findings matter?

The findings suggest that the use of active surveillance has increased since 2011. This is important given that a recent population-based cohort study found that two-thirds of men diagnosed with prostate cancer qualify for active surveillance.[42] Since 2011, there has been a nine percentage point increase in the proportion of low-risk prostate cancer cases that had no record of treatment, suggesting greater use of active surveillance. This trend has also been observed in other countries, suggesting greater uptake of active surveillance among patients and urologists.[43,44]

It is important to note that surgery and/or radiation therapy is necessary for some patients with low-risk prostate cancer and these treatments are, in fact, guideline-recommended management options.

Given the number of management approaches available for prostate cancer, it is important to ensure that patients are being managed according to evidence-based treatment guidelines and that management is guided by patients' risk profiles, personal preferences and quality of life considerations.

What is the impact on patients and the health care system?[g]

An estimated 22,000 men were diagnosed with prostate cancer in 2013. Given that 20.3% of these men were diagnosed with low-risk prostate cancer, approximately 4,500 men would, based on this estimate, be candidates for non-active treatment approaches such as active surveillance. Depending on the province, the findings suggest that 9–47% of men with low-risk prostate cancer were treated with surgery and/or radiation therapy. Extrapolating these findings to the entire country, it is estimated that 1,500 men would have received cancer treatment, some of which was unnecessary and may have resulted in avoidable treatment-related complications and side effects.

If treatment could be reduced by 15% and these patients instead put on active surveillance, treatment-related complications (e.g., incontinence, sexual dysfunction) could be reduced, quality of life could be improved and approximately $1.7 million in treatment-related costs could be redirected to other health care each year. Additionally, this shift could result in approximately 200 fewer surgeries or radiation treatment courses each year, which would free up over 500 hours of operating room time and approximately 1,000 hours of linear accelerator capacity annually. A 50% reduction could make $5.8 million available for other health services, result in 700 fewer surgeries or radiation courses, and free up 1,500 hours of operating room time and 3,000 hours of linear accelerator capacity each year.

1,500

men with low-risk prostate cancer received treatment in 2013; some of these men were likely candidates for active surveillance

15% reduction

could mean 200 fewer surgeries or radiation courses each year

50% reduction

could mean 700 fewer surgeries or radiation courses each year

Data and measurement considerations

- The Choosing Wisely Canada recommendation suggests that management should not be initiated for men with low-risk prostate cancer without first discussing the option of active surveillance. Discussions of active surveillance between physicians and their patients could not be directly measured because of data limitations. Instead, “no record of treatment” was used as a proxy for active surveillance. It is important to note that “no record of treatment” may also include patients who are being managed under observation (“watchful waiting”) and patients who chose not to receive treatment.
- The Genitourinary Radiation Oncologists of Canada’s Canadian Consensus definition was used to assign patients to the low-risk category (i.e., PSA ≤ 10 ng/ml, Gleason score ≤ 6 and T1–T2a). Three collaborative stage data elements were used to assign risk category: site-specific factor 1 (PSA), site-specific factor 8 (Gleason score) and CS extension (clinical T-stage). Not all cases were captured because of incomplete data for one or more of these three prognostic factors.
- The indicator looks at treatment patterns within one year of diagnosis and within one year post surgery for adjuvant radiation therapy. This time frame will more likely differentiate active surveillance from primary treatment and will more likely capture patients receiving adjuvant radiation therapy for the first time as opposed to those undergoing salvage therapy (i.e., treatment given after the cancer has not responded to other treatments).
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[g] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Radiation fractions as part of breast-conservation therapy for women with Stage I or II breast cancer

Choosing Wisely Canada Recommendation

Do not initiate whole-breast radiation therapy in 25 fractions as part of breast-conservation therapy in women aged ≥ 50 with early-stage invasive breast cancer without considering shorter treatment schedules.

Key Message

In all reporting provinces, women aged 50 or older with Stage I or II breast cancer were much more likely to receive shorter fractionation schedules (i.e., 16 fractions) as part of breast-conservation therapy, suggesting alignment with evidence-based recommendations.[h]

Indicator Definition

Percentage of patients aged 50 or older diagnosed with Stage I or II breast cancer in 2013 receiving radiation therapy in 16 versus 25 fractions after breast-conserving surgery (BCS). The data are reported by province and age group.

9–37%

range of provincial results for the percentage of women aged 50 or older who received 25 fractions of radiation therapy after BCS

43–95%

range of provincial results for the percentage of women aged 50 or older who received a shorter course of radiation (16 fractions) after BCS, as recommended

Why measure this?

For women with early-stage breast cancer treated with BCS, adjuvant whole-breast radiation therapy (WBRT) decreases the risk of recurrence and cancer-related death.[45,46] In North America, conventional fractionation (i.e., 45–50 Gy in 25–28 fractions[i] over five weeks, with or without a subsequent radiation boost to the primary site) has been the standard for WBRT following BCS.[47] Evidence suggests, however, that shorter courses of radiation (e.g., 42.5 Gy in 16 fractions delivered over three weeks with or without a boost) provides equivalent tumour control, cosmetic outcomes and survival; reduces acute and late toxicity; and optimizes patient convenience by reducing the number of visits to a treatment centre.[46,48] As a result, several organizations have recommended that shorter fractionation schedules be the standard of care for WBRT.[46,47,49]

Understanding variations in the use of conventional versus shorter fractionation schedules can inform quality improvement efforts, which could enhance alignment with evidence-based guidelines and improve quality of life (e.g., by reducing treatment-related side effects and the burden of multiple visits to radiation therapy treatment centres).

[h] Breast-conservation therapy includes BCS (i.e., partial mastectomy) followed by radiation therapy.

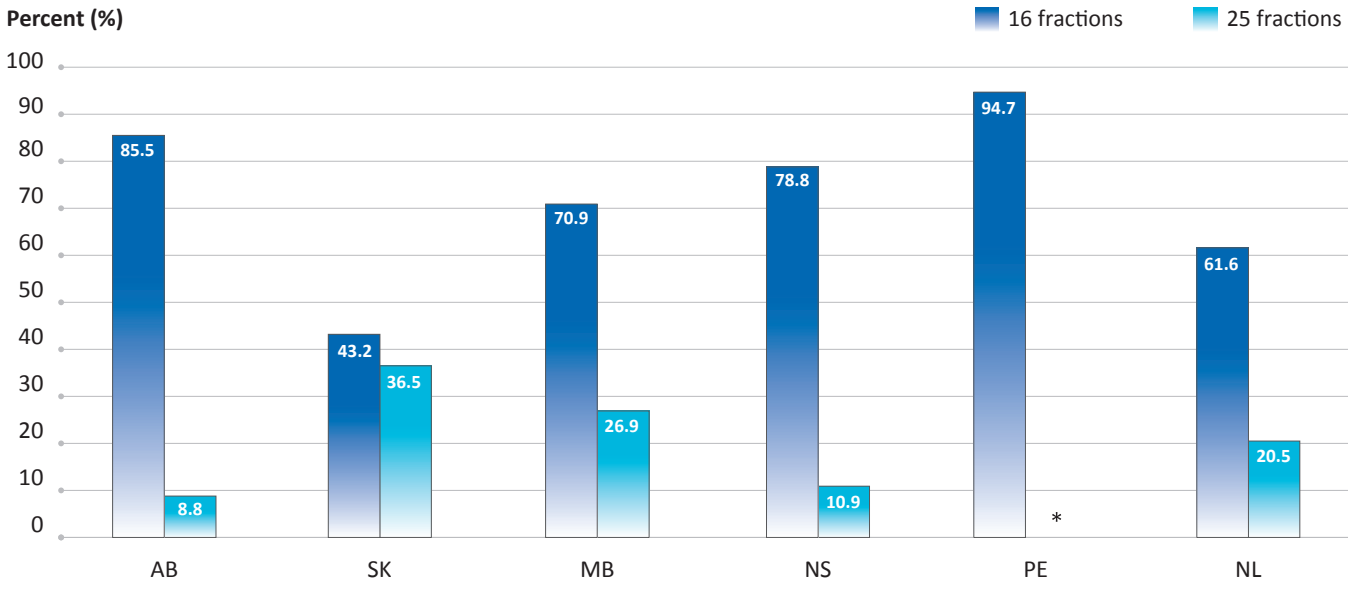
[i] Gray (Gy) is the unit of absorbed radiation dose. A full dose of radiation therapy is typically divided into smaller doses called fractions. A fraction is a single session of radiation therapy delivered to a patient. The most common way for patients to receive a full dose of radiation therapy is to receive one fraction per day, 5 days per week, for 5–8 weeks.

What are the key findings?

- In 2013, between 8.8% (Alberta) and 36.5% (Saskatchewan) of women aged 50 or over received a longer fractionation schedule of 25 fractions as part of BCS (six provinces submitted data) (Figure 7).
- Between 43.2% (Saskatchewan) and 94.7% (Prince Edward Island) of women aged 50 or over received radiation therapy in 16 fractions after BCS (Figure 7).
- There were no notable age-related variations in the use of 16 versus 25 fractions for those aged 50–69 compared with those 70 and older (data not shown).

FIGURE 7

Percentage of patients aged ≥ 50 with Stage I or II breast cancer† receiving 16 vs. 25 fractions of radiation therapy after breast-conserving surgery,‡ by province — 2013 diagnosis year



† Data include female patients only.

‡ Data on radiation therapy fractions exclude boosts.

* Suppressed owing to small numbers.

MB: Data reflect number of planned fractions rather than number of fractions actually delivered.

Data source: Provincial cancer agencies.

Why do these findings matter?

For women aged 50 and older with Stage I or II breast cancer who received WBRT, the findings suggest considerable variation among provinces in the use of 16 versus 25 fractions as part of breast-conservation therapy. However, a substantial majority of patients with Stage I or II breast cancer received radiation therapy in 16 fractions—the preferred fractionation schedule for many patients—in five of the six reporting provinces. This suggests alignment with evidence-based guidelines that recommend a shorter fractionation schedule (e.g., 16 fractions) because it provides equivalent tumour control, cosmetic outcomes and survival; reduces acute and late toxicity; and optimizes patient and caregiver convenience.[29]

It is important to note that conventional fractionation (e.g., 25 fractions) is appropriate for some patients. For example, patients with large breasts or who have had breast reconstruction or augmentation may have better cosmetic outcomes with conventional fractionation.[50] However, a relatively even distribution of these clinical scenarios would be expected across the country.

What is the impact on patients and the health care system?[j]

For women aged 50 or more with Stage I or II breast cancer who received WBRT, the data suggest that 9–37% (depending on the province) received radiation in 25 fractions as part of breast-conservation therapy. Extrapolating these findings to the entire country, over 2,500 women would have received a longer fractionation schedule to manage their breast cancer. Compared with longer courses, shorter courses of radiation (e.g., 16 fractions) have been shown to offer equivalent outcomes and reduced toxicity, and could enhance patient and caregiver convenience.

If 15% of women who received 25 fractions instead received 16 fractions to manage their breast cancer, 400 more women each year would receive a shorter course of radiation. As a result, there could be fewer adverse effects overall. For example, approximately 40 fewer women each year would experience toxic effects of radiation to the skin and subcutaneous tissue five years post treatment. This change would also free up approximately 1,500 hours of linear accelerator capacity and $630,000 annually that could be reallocated to providing care to more patients. A 50% reduction could result in 1,500 more women receiving shorter radiation courses, 125 fewer patients experiencing toxic effects, 4,500 hours of linear accelerator time being saved and $2.1 million being made available for other health services each year.

2,500

women received a longer fractionation schedule to manage their breast cancer; evidence suggests that shorter courses of radiation provide equivalent outcomes

15% reduction

could mean 400 fewer women receive longer courses of radiation each year

50% reduction

could mean 1,500 fewer women receive longer courses of radiation each year

Data and measurement considerations

- The indicator excludes boost irradiation.
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[j] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Fractionation of palliative radiation therapy for bone metastases in cancer patients

Choosing Wisely Canada Recommendation

Do not recommend more than a single fraction of palliative radiation for an uncomplicated painful bone metastasis.

Key Message

Despite the supporting evidence for palliation with a single fraction, about half of patients receive multi-fraction regimens to manage their bone metastases.

Indicator Definition

Percentage of all cancer patients receiving palliative radiation therapy to the bone who receive more than one fraction of radiation. The data are for adult patients (18 and older) treated in 2013 and are reported by province and number of fractions.

1

the most common number of fractions delivered to the bone, as recommended

40–69%

range of provincial results for the percentage of cancer patients who received more than one fraction to the bone

Why measure this?

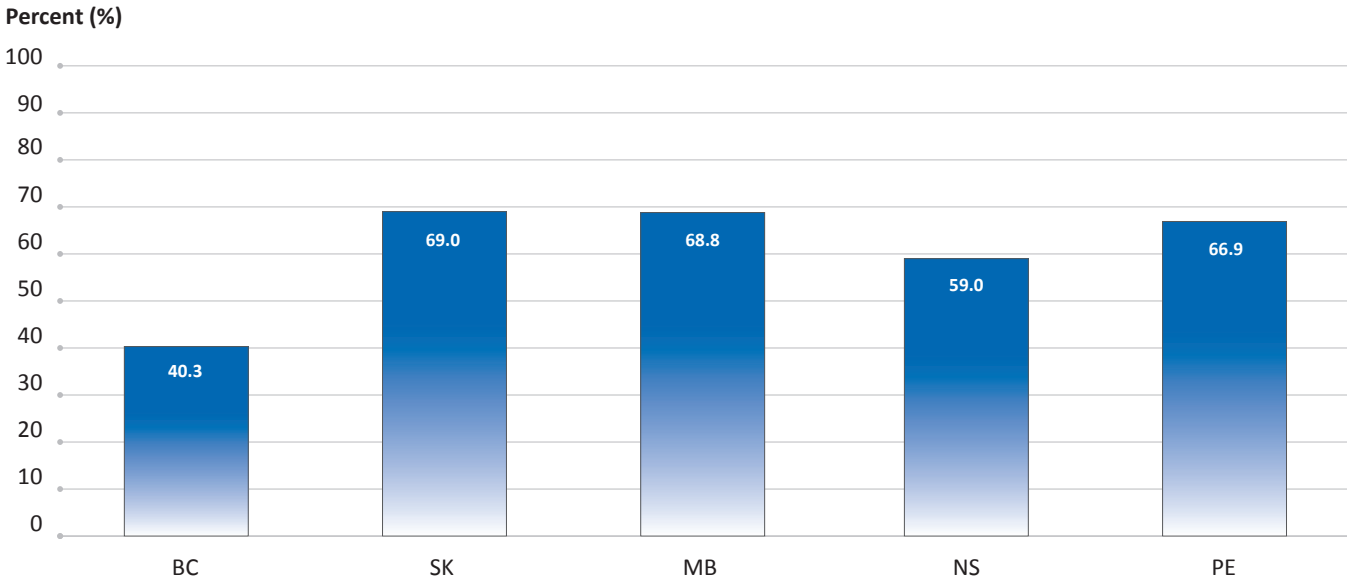
External beam radiation therapy is often an effective therapy for cancer patients who have painful bone metastases.[51] It reduces the size of the tumour so that it does not invade or interfere with normal tissue. Up to 30% of patients will have complete resolution of pain and 50–80% will experience a significant decrease in pain at the treated site.[52] Evidence suggests that compared with multi-fraction regimens, single-fraction radiation (i.e., one dose of radiation treatment) to a previously unirradiated, uncomplicated peripheral bone metastasis offers equivalent pain relief and morbidity, but a higher incidence of re-treatment at a later date.[51,53] However, single-fraction regimens decrease patient and caregiver burden (e.g., by reducing the number of clinic visits needed for treatment) and this may often outweigh any considerations of long-term effectiveness for patients with a limited life expectancy.[51,54,55] Despite the supporting evidence for palliation with a single fraction, survey data suggest that few radiation oncologists routinely use a single fraction.[55] Identifying variations in the use of single- versus multi-fraction regimens can help inform future strategies to encourage evidence-based use of radiation therapy for bone metastases, which can improve quality of life and convenience.

What are the key findings?

- In 2013, between 40.3% (British Columbia) and 69.0% (Saskatchewan) of cancer patients received more than one fraction of radiation to the bone (five provinces submitted data) (Figure 8).
- The most common number of fractions delivered to the bone was one, at 50.2%. The second most common was 2–5 fractions, at 41.7% (Figure 9).

FIGURE 8

Percentage of cancer patients receiving more than one fraction of palliative radiation therapy to the bone, by province — 2013 treatment year

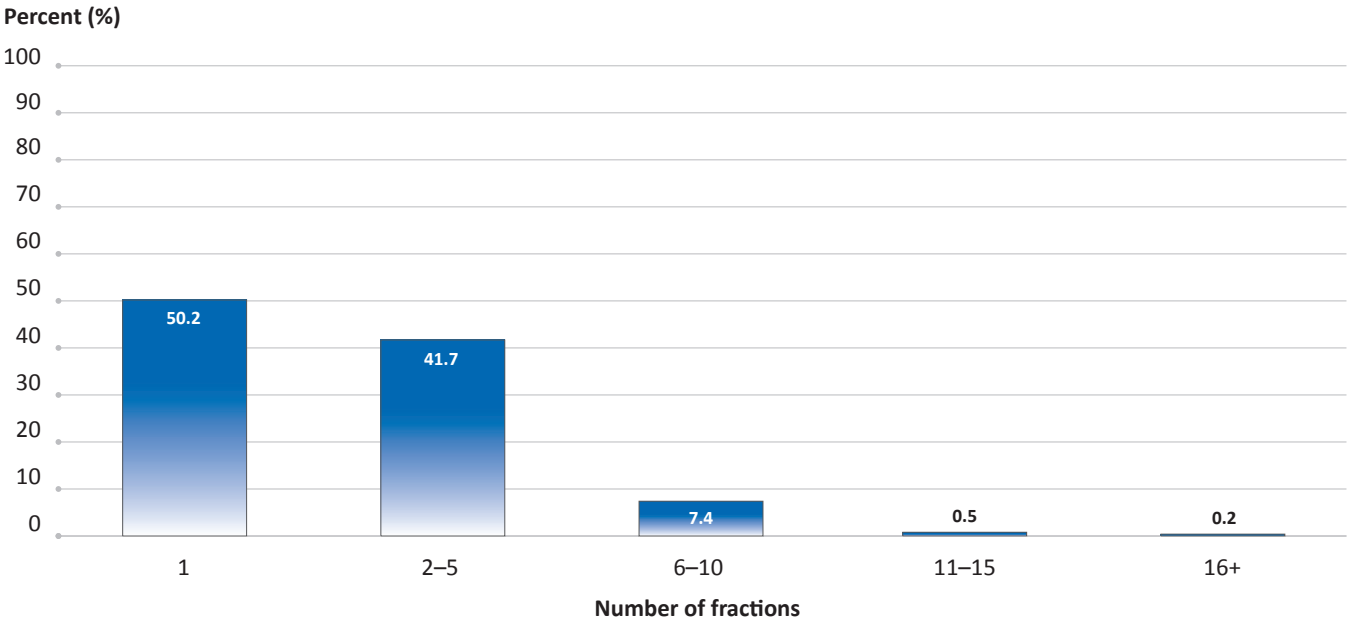


MB: Data reflect number of planned fractions rather than number of fractions actually delivered.

Data source: Provincial cancer agencies.

FIGURE 9

Percentage of cancer patients receiving palliative radiation therapy to the bone, by number of fractions, all provinces combined† — 2013 treatment year



† All provinces combined include BC, SK, MB, NS and PE.

MB: Data reflect number of planned fractions rather than number of fractions actually delivered.

Data source: Provincial cancer agencies.

Why do these findings matter?

The findings suggest that half of all cancer patients treated with radiation therapy to the bone received single-fraction radiation. This means there is still considerable use of multi-fraction regimens, which may increase patient and caregiver burden (e.g., by increasing the number of trips to a treatment facility) and increase the use of health system resources. Given that single-fraction and multi-fraction regimens provide equivalent pain relief and morbidity, the additional use of resources with multi-fraction regimens may provide limited clinical benefit to some patients.

The use of multi-fraction regimens may be a result of physician-driven factors. Factors that may influence radiation oncologists' choice of dose fractionation schedule include prognosis, performance status and risk of spinal cord compression.[55,56]

Evidence suggests that compared with multi-fraction regimens, single-fraction radiation (i.e., one dose of radiation treatment) to a previously unirradiated, uncomplicated peripheral bone metastasis offers equivalent pain relief and morbidity.

What is the impact on patients and the health care system?[k]

The data suggest that depending on the province, 40–69% of individuals received more than one fraction of palliative radiation to the bone in 2013. Extrapolating these findings to the entire country, over 11,000 individuals in Canada would have received multi-fraction regimens to manage bone metastases. It is likely that for a portion of these individuals, palliation with multi-fraction radiation was of limited clinical benefit and they could have been effectively managed with a single fraction.

If 15% of individuals who received multiple fractions instead received a single fraction to manage their bone metastases, approximately 1,500 patients annually could avoid multi-fraction radiation. As a result, fewer individuals would experience radiation-related adverse effects. For example, approximately 100 fewer people may experience radiation-related toxicity each year. It would also optimize patient and caregiver convenience because of the smaller time investment of single-fractionation schedules. In addition, approximately 2,000 hours of linear accelerator capacity and $960,000 annually could be freed up for other patients or to reduce radiation therapy wait times, which are commonly described as a barrier to accessing radiation therapy.[57] A 50% reduction could mean 5,500 fewer patients receiving multi-fraction radiation treatments, 350 fewer people experiencing toxic effects, 7,000 hours of linear accelerator time saved and $3.2 million being made available for other health services each year.

11,000

patients received more than one fraction of palliative radiation to the bone in 2013; evidence suggests that single-fraction radiation provides equivalent pain relief and morbidity

15% reduction

could mean 1,500 fewer patients receiving multi-fraction radiation each year

50% reduction

could mean 5,500 fewer patients receiving multi-fraction radiation each year

Data and measurement considerations

- Two criteria of the Choosing Wisely Canada recommendation could not be captured. Palliative intent was not captured owing to data limitations. Instead, bone cancers were excluded and radiation therapy delivered to the bone was used as a proxy for palliative radiation to bone metastases. Radiation to previously unirradiated, uncomplicated bone metastases could also not be captured because of data limitations.
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[k] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Chemotherapy use in the last 30 days of life

Choosing Wisely Canada Recommendation

Avoid chemotherapy and instead focus on symptom relief and palliative care in patients with advanced cancer unlikely to benefit from chemotherapy.

Key Message

Only a small percentage of cancer patients are started on a chemotherapy regimen in their last 30 days of life, with those aged 18–59 being the most likely to receive this treatment.

Indicator Definition

Percentage of all cancer patients who were started on a new chemotherapy regimen in their last 30 days of life. The data are for adult patients (18 or older) who died in 2012 and 2013, and are reported by province and age group.

1% vs. 5%

of patients aged 80 or older vs. 18–59 received chemotherapy in their last 30 days of life

3%

of patients received chemotherapy in their last 30 days of life

Why measure this?

In general, cancer-directed therapies are not likely to be effective in patients with advanced metastatic tumours who are markedly debilitated by their cancer. Providing symptom control and palliative care aimed at improving quality of life should therefore be the priority.[58] Despite this, studies have found that many individuals with cancer continue to receive aggressive care near the end of life, which can have detrimental effects on quality of life.[59-61] Specifically, chemotherapy use in the last weeks of life has been associated with less satisfaction with care, no or very short hospice involvement and death in an acute-care setting.[60]

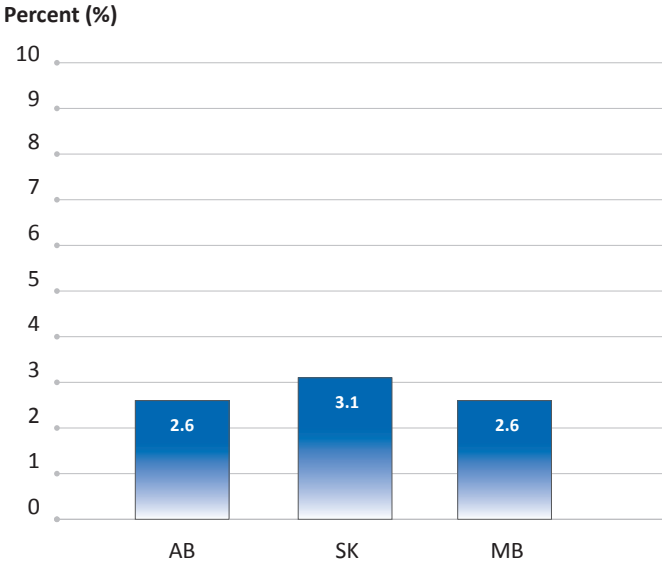
Measuring variations across the country in the use of chemotherapy near the end of life could enhance alignment with evidence-based guidelines, thereby increasing the use of services that offer the most benefit to patients and improving quality of life.

What are the key findings?

- For cancer patients who died in 2012 and 2013, between 2.6% (Alberta and Manitoba) and 3.1% (Saskatchewan) received chemotherapy in their last 30 days of life (three provinces submitted data) (Figure 10).
- Receiving chemotherapy in the last 30 days of life became less likely with age: 5.0% of those aged 18–59 received chemotherapy compared with 0.7% of those aged 80 and older (Figure 11).

FIGURE 10

Percentage of cancer patients receiving chemotherapy[†] in the last 30 days of life, by province — 2012 and 2013 death years combined



[†] AB, SK and MB included oral chemotherapy. In MB, data on oral chemotherapy were not complete in the cancer registry, but have been included if available.

AB: Data are for patients who started a new chemotherapy regimen within 30 days of death.

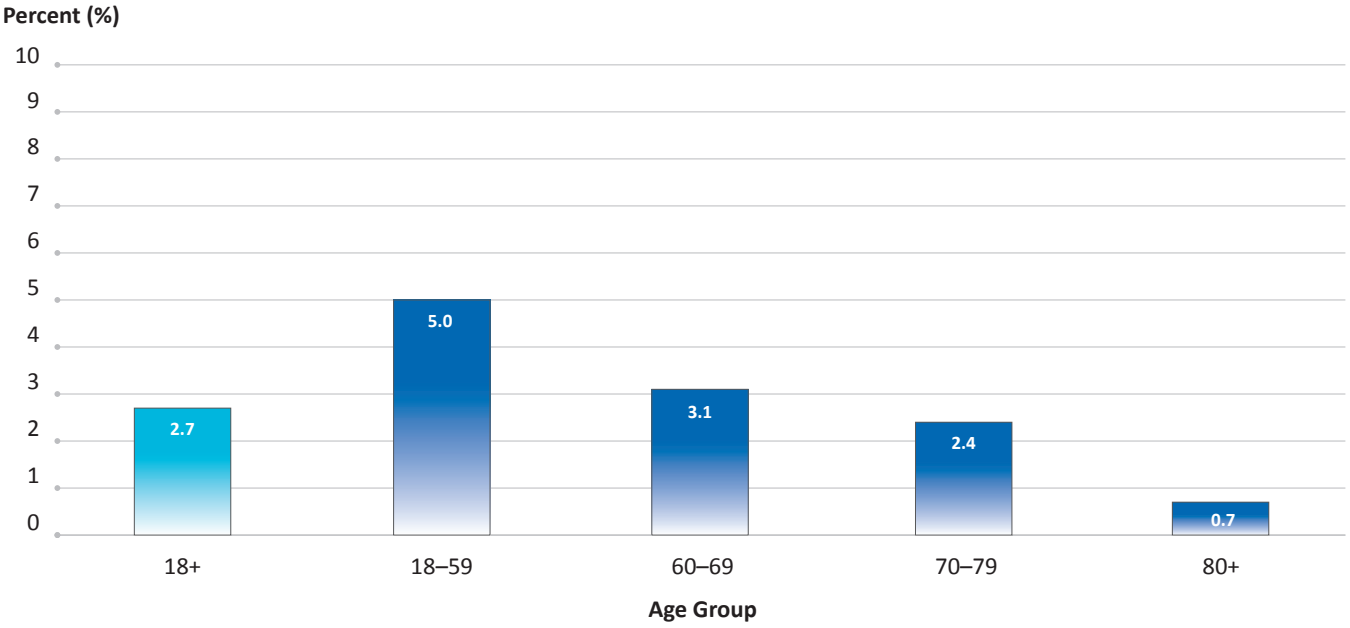
SK: Death information was not available for all of 2013, so data for 2013 cover January–July. Data are for patients who started a new chemotherapy regimen within 30 days of death, as indicated by a new chemotherapy order.

MB: Data include 2012 only (cause of death information was not available for 2013). Data on chemotherapy are recorded only once per year. Therefore, only patients who started their first cycle of chemotherapy within 30 days of death are included in the indicator.

Data source: Provincial cancer agencies.

FIGURE 11

Percentage of cancer patients receiving chemotherapy[†] in the last 30 days of life, by age group, all provinces combined[‡] — 2012 and 2013 death years combined



[†] AB, SK and MB included oral chemotherapy. In MB, data on oral chemotherapy were not complete in the cancer registry, but have been included if available.

[‡] All provinces combined includes AB, SK and MB.

AB: Data are for patients who started a new chemotherapy regimen within 30 days of death.

SK: Death information was not available for all of 2013, so data for 2013 cover January–July. Data are for patients who started a new chemotherapy regimen within 30 days of death, as indicated by a new chemotherapy order.

MB: Data include 2012 only (cause of death information was not available for 2013). Data on chemotherapy are recorded only once per year. Therefore, only patients who started their first cycle of chemotherapy within 30 days of death are included in the indicator.

Data source: Provincial cancer agencies.

Why do these findings matter?

There were provincial and age-related variations in the use of chemotherapy in the last 30 days of life. The data (based on three provinces) suggest that in 2012 and 2013, approximately 3% of patients received chemotherapy in their last month of life. These rates are much lower than those observed in other countries.[62] For example, a population-based cohort study in Sweden found that a quarter of patients with terminal cancer received chemotherapy in the last month of their lives.[63] The 2012 and 2013 findings also suggest that increasing age was associated with a decreasing likelihood of receiving chemotherapy near the end of life. The literature supports the age-related variation in chemotherapy use.[60,64]

Variations in chemotherapy use could be explained by differences in access to palliative care resources, differences in care protocols and patient-driven factors.[62,64]

Evidence suggests that many individuals with advanced cancer do not clearly understand the intent of chemotherapy (i.e., they do not understand that chemotherapy is unlikely to cure their cancer).[65] It is important for clinicians to improve patients' understanding of the risks and benefits of treatment so that they can make informed decisions that align with their preferences and personal considerations.

An effective, person-centred focus on palliative care can help patients with the treatment decision making process, increasing the use of services that offer the most benefit to patients and improving quality of life.[66,67] It is important to note that chemotherapy near the end of life may have been warranted in some cases. For example, some patients who received chemotherapy in their last month of life may have been expected to live longer, but died of unforeseen complications.

What is the impact on patients and the health care system?[I]

The data suggest that approximately 3% of individuals with cancer received chemotherapy in their last 30 days of life. Extrapolating these findings to the entire country, approximately 1,500 individuals would have received chemotherapy near the end of their lives; it is likely that some of them could have been more appropriately managed with supportive care. Providing supportive care can significantly improve the quality of life of patients with advanced cancer.

Reducing the use of chemotherapy in the last month of life by 15% would translate to approximately 250 fewer people receiving chemotherapy near the end of life. In addition, approximately 200 fewer people may experience fatigue related to chemotherapy. As a result, fewer people would be hospitalized for chemotherapy-related side effects, and fewer would experience impairments in their physical function and ability to perform activities of daily living. A 50% reduction in end-of-life chemotherapy could lead to 900 fewer patients receiving that treatment and 800 fewer patients experiencing negative effects of chemotherapy.

1,500

patients received chemotherapy near the end of their lives; some of them could have been more appropriately managed with supportive care

15% reduction

could mean 250 fewer patients receiving end-of-life chemotherapy each year

50% reduction

could mean 900 fewer patients receiving end-of-life chemotherapy each year

Data and measurement considerations

- One criteria of the Choosing Wisely Canada recommendation—a performance status of 3 or 4—was not captured owing to data limitations. The data may also include a subset of patients who may benefit from chemotherapy, such as those with specific disease types (e.g., germ cell cancer) or characteristics (e.g., mutations) that suggest a high likelihood of response to chemotherapy.
- Only three provinces were able to report on this indicator. The remaining provinces were unable to report on it because of data limitations.
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[I] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Intensive care use in the last two weeks of life

Key Message

Up to 16% of cancer patients were admitted to an ICU in their last two weeks of life—a setting that is not optimal for addressing the palliative care needs of patients near the end of life.

Indicator Definition

Percentage of cancer patients admitted to an intensive care unit (ICU) in the last 14 days of life and percentage of cancer patients dying in an ICU. The data are for cancer patients who were admitted to an ICU and who died in an ICU at acute-care hospitals from April 2011 to March 2014, and are reported by province.

6–16%

range of provincial results for the percentage of cancer patients who were admitted to an ICU in their last two weeks of life

4–12%

range of provincial results for the percentage of cancer patients who were admitted to an acute-care hospital and died in an ICU

Why measure this?

People dying of cancer deserve care that helps alleviate physical symptoms and addresses emotional and psychosocial needs in a setting that is supportive, comfortable and minimally disruptive. While some cancer patients may have complications that require the life-sustaining therapies offered by critical care units, such units are not always the ideal setting for end-of-life care, which includes palliative care and symptom control.[68]

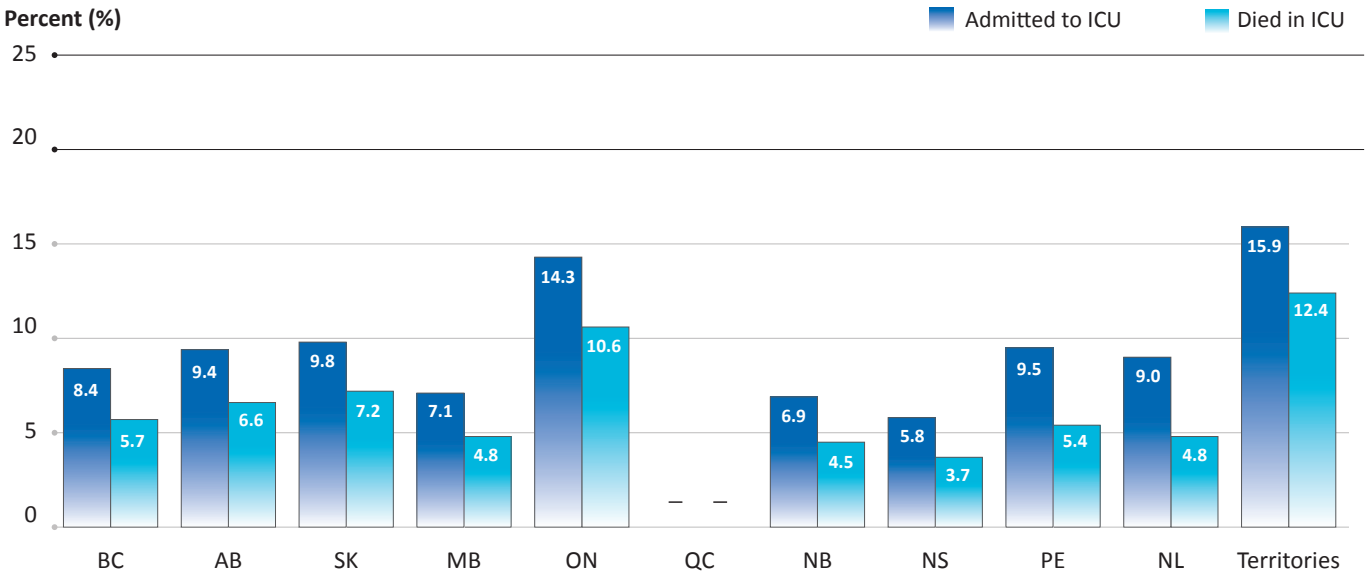
A recent study of patients with terminal cancer revealed that 16% of ICU visits during their last 30 days of life were futile and expensive and often led to patient suffering.[69] This finding suggests that some ICU visits at the end of life provide limited or no health benefit to patients and may even be harmful. It is important that the use of critical care units be reserved for patients who require life-sustaining medical care. Examining interprovincial variations in the use of critical care in the last two weeks of life may point to opportunities for learning from other jurisdictions about strategies for optimizing the appropriate use of the ICU at the end of life for cancer patients (e.g., earlier discussions about goals of care with cancer patients, palliative care consultations, hospices).

What are the key findings?

- From April 2011 to March 2014, between 5.8% (Nova Scotia) and 15.9% (territories) of cancer patients were admitted to an ICU in their last two weeks of life (Figure 12).
- Of cancer patients admitted to an acute-care hospital, between 3.7% (Nova Scotia) and 12.4% (territories) died in an ICU (Figure 12).

FIGURE 12

Percentage of cancer patients admitted to an intensive care unit in the last 14 days of life and percentage dying in an ICU, by province/territories — 2011/12 to 2014/15 fiscal years combined



"—" Data not available.

Territories include Nunavut, Northwest Territories and Yukon.

Data on ICU admissions include only facilities that report ICU data.

Data sources: Canadian Institute for Health Information, Discharge Abstract Database.

Why do these findings matter?

While the use of ICUs at the end of life for cancer patients is relatively low, provincial variations still exist. Given the variation, it is likely that a portion of ICU visits are of limited value and that some patients may benefit more from palliative care. A closer look at trends over time may be useful. Findings from a population-based cohort study examining trends in the aggressiveness of end-of-life care in Ontario showed that ICU admissions within 30 days of death had increased from 3.1% in 1993 to 5.4% in 2004.[64] Despite the difference in the measurement period prior to death, the findings may suggest that ICU use near the end of life is increasing.

Studies have shown that patients who receive palliative care and advanced care planning (i.e., discussions about the goals of and preferences for care) are less likely to be admitted to the ICU, which is associated with a more positive patient experience as well as reduced end-of-life care costs.[70-72] Having alternatives for cancer patients toward the end of life (e.g., hospice care) may also reduce emergency department visits and increase the proportion of people who die at home.

Further work is needed to better understand both the reasons for hospitalization at the end of life and patient preferences for care. This is particularly important given the growing older population and the consequent increasing costs of end-of-life care. Continued measurement of this indicator could potentially identify opportunities for increasing the use of more suitable settings for end-of-life care delivery, and thus improve quality of life for patients and their families. Quality care should be informed by and centred on the needs of dying cancer patients and their families.

What is the impact on patients and the health care system?[m]

The data suggest that depending on the province, 6–16% of individuals with cancer were admitted to ICUs at acute-care hospitals in their last two weeks of life. Extrapolating these findings to the entire country, approximately 9,000 individuals would have been admitted to an acute-care hospital ICU near the end of their lives; it is likely that some of them could have been more appropriately managed in palliative care beds, in hospices or at home. Patients in hospice care have been shown to have fewer hospital visits and invasive procedures and fewer of them die in hospital, which can lead to lower hospital costs. Providing end-of-life care in patients' preferred settings can also improve the quality of life of patients with advanced cancer.

Reducing the number of ICU admissions near the end of life by 15% and instead providing patients with palliative care would translate to approximately 1,500 fewer people each year using ICU services in the hospital at the end of life. This change would free up about 2,000 days in the ICU each year. Additionally, approximately $8.6 million annually could be redirected to providing these patients with symptom relief and palliative care in alternative settings. A 50% reduction could result in 4,500 fewer people using ICU services, save 7,000 ICU days and free up $28.7 million for other health services each year.

9,000

patients with cancer were admitted to ICUs at acute-care hospitals in their last two weeks of life; it is likely that some of them could have been more appropriately managed in palliative care beds, in hospices or at home

15% reduction

could mean 1,500 fewer people being admitted to the ICU near the end of life each year

50% reduction

could mean 4,500 fewer people being admitted to the ICU near the end of life each year

Data and measurement considerations

- Data and analysis for this indicator were provided by CIHI.
- Data on ICU admissions include only patients who were admitted to an acute-care hospital so the results are based on only a portion of hospital admissions (i.e., community hospital admissions are not included).
- Data on ICU deaths include only patients who died in an acute-care hospital so the results are based on only a portion of cancer deaths (i.e., deaths occurring in community hospitals are not included).
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[m] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Mastectomies performed as day surgery

Key Message

There was a 38 percentage point difference between the provinces with the lowest and highest percentages of mastectomies performed as day surgery. However, the percentage of day-surgery mastectomies has increased over time in all provinces.

Indicator Definition

Percentage of mastectomies for breast cancer tumour resection that were done as day surgery. The data are for women with unilateral invasive breast cancer who had surgery between April 2009 and March 2014 and are reported by province.

1–39%

range of provincial results for the percentage of mastectomies performed as day surgery; many patients prefer to recover at home and benefit from the psychological boost of early discharge

8 of 9

the number of provinces in which the percentage of mastectomies performed as day surgery has increased from 2008–10 to 2011–13

Why measure this?

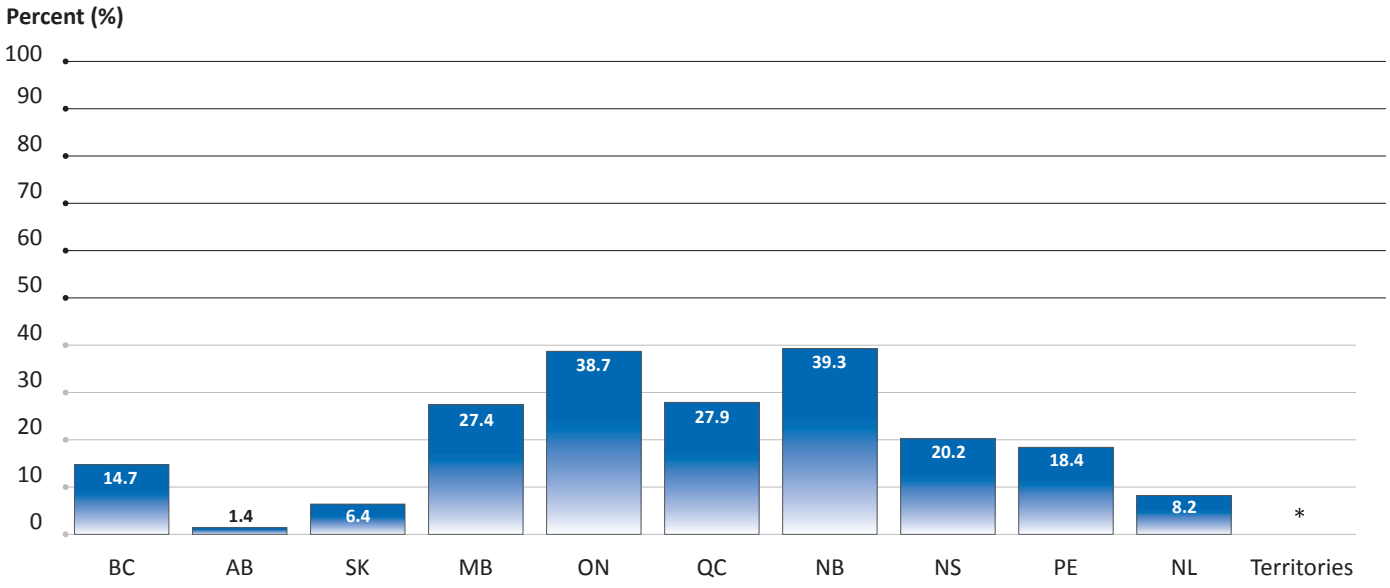
Mastectomy is one of the standard treatments for women with resectable breast cancer. Although this procedure is relatively invasive, mastectomy can now be safely performed as day surgery.[73] As long as patient outcomes are similar or better, shifting from inpatient to day surgery for women undergoing mastectomy would yield a reduction in system costs and free up inpatient capacity. This in turn could facilitate additional capacity for inpatient care, including other cancer surgeries. Measuring the percentage of mastectomies being performed as day surgery across provinces allows detection of variations in practice, which could help identify opportunities for improving patient experience and reducing system costs by avoiding inpatient stays for patients who could safely recover at home.

What are the key findings?

- Between April 2009 and March 2014, between 1.4% (Alberta) and 39.3% (New Brunswick) of mastectomies were performed as day surgery (Figure 13).
- In eight of nine reporting provinces, the percentage of mastectomies performed as day surgery increased from the period 2008/09–2010/11 to 2011/12–2013/14 (Figure 14).
- The percentage of day surgeries for mastectomy increased from 29.6% in 2008/09–2010/11 to 46.9% in 2011/12–2013/14 in New Brunswick—the greatest increase among reporting provinces (Figure 14).

FIGURE 13

Percentage of breast cancer mastectomies done as day surgery, by province/territories — from 2009/10 to 2013/14 fiscal years combined



* Suppressed owing to small numbers.

SK: Data are for 2010/11–2013/14. Data for 2009/10 are suppressed owing to small numbers and could not be used for calculation.

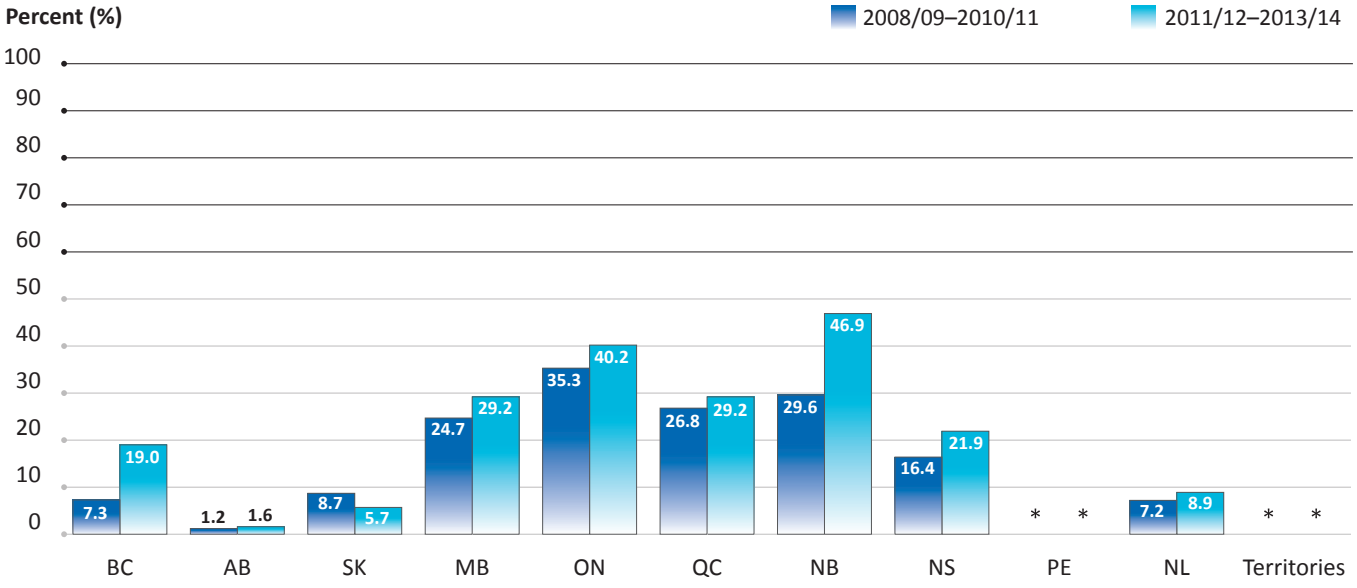
PE: Data are for 2013/14. Data for 2009/10–2012/13 are suppressed owing to small numbers and could not be used for calculation.

Territories include Nunavut, Northwest Territories and Yukon.

Data sources: Canadian Institute for Health Information, Hospital Morbidity Database, National Ambulatory Care Reporting System; Alberta Health and Wellness, Ambulatory Care Reporting System.

FIGURE 14

Percentage of breast cancer mastectomies done as day surgery, by province/territories — 2008/09–2010/11 vs. 2011/12–2013/14 fiscal years combined



* Suppressed due to small numbers.

SK: Data for 2008/09–2010/11 include 2010/11 data only. Data for 2008/09 and 2009/10 are suppressed owing to small numbers and could not be used for the calculation.

Territories include Nunavut, Northwest Territories and Yukon.

Data sources: Canadian Institute for Health Information, Hospital Morbidity Database, National Ambulatory Care Reporting System; Alberta Health and Wellness, Ambulatory Care Reporting System.

Why do these findings matter?

There was substantial interprovincial variation in the percentage of mastectomies done as day surgery — a 38 percentage point difference between the provinces with the lowest and highest percentages of day surgeries. The variation suggests that a portion of inpatient hospitalizations following mastectomy may not be necessary and may reflect a large potential to shift inpatient mastectomies to day surgery in many provinces. The fact that New Brunswick had the highest percentage of mastectomies performed as day surgery suggests that the size of the province may not influence the ability to provide day surgeries. The results from several provinces—Manitoba, Ontario, Quebec and New Brunswick—fall between the reported use of day-surgery mastectomies in the United States and the United Kingdom, at 22% and 42%, respectively.[74,75]

As long as similar or better patient outcomes are obtained, providing day surgeries could open up additional capacity for inpatient care. Recent studies have also shown that women who receive mastectomy as day surgery likely have better psychological outcomes post surgery. This improvement may be because many patients prefer to recover at home and benefit from the psychological boost of early discharge.[76-78] Day surgery for breast cancer has also been linked to better satisfaction with care because of the perceived better continuity of care.[79] There may also be a lower risk of exposure to hospital-acquired infection since the patient spends less time in the hospital.

It is important to note that not all mastectomies can be done as day surgery. The presence of comorbid conditions or lack of support for recovery at home may make mastectomies performed in an inpatient setting more appropriate. Furthermore, outpatient, community and home care resources are necessary to ensure appropriate post-surgical support is available for patients who opt for day surgery. Continued measurement of this indicator and further understanding of the factors contributing to interprovincial variations could lead to more resource-efficient and patient-focused use of day surgery versus inpatient care alternatives.

What is the impact on patients and the health care system?[n]

Of mastectomies performed in fiscal 2013/14, 70% were done as inpatient procedures, which represents approximately 5,000 surgeries. Providing mastectomy as day surgery has been associated with a lower risk of exposure to hospital-acquired infection, better psychological outcomes post surgery and better satisfaction with care.[76-79]

If 15% of inpatient mastectomies were instead performed as day surgery, approximately 700 breast cancer patients could avoid an overnight hospital stay and recover at home each year. This shift could also free up approximately 1,000 days in hospital and $1.3 million annually could be redirected to other health care services. A 50% reduction could lead to approximately 2,500 patients avoiding hospital stays, save 3,500 days in hospital and make $4.4 million available for other health services each year.

5,000

mastectomies were done as inpatient procedures in fiscal 2013/14; the procedure can be safely performed as day surgery as long as adequate system supports are in place

15% reduction

could mean 700 breast cancer patients avoiding an overnight hospital stay and recovering at home each year

50% reduction

could mean 2,500 breast cancer patients avoiding an overnight hospital stay and recovering at home each year

Data and measurement considerations

- Data and analysis for this indicator were provided by CIHI.
- Surgeries for women with newly diagnosed breast cancer were identified by excluding patients with a record of previous cancer treatment.
- Data tables for this indicator (including confidence intervals), along with detailed calculation methodology contained in the full Technical Appendix, are available at systemperformance.ca.

[n] For detailed calculation methodology, please see the Technical Appendix at systemperformance.ca.

Where We Go from Here

What we have learned

This report presents baseline findings for many of the indicators and represents a snapshot of the current state of selected cancer control practices in Canada. It is important to note that these practices are in fact necessary for some patients. Further work is therefore needed to understand what amounts and types of cancer care represent overuse of practices that are not supported by evidence or underuse of practices that are supported by evidence.

Substantial variations exist across the country with respect to the evidence-based use of certain interventions in cancer care. As stewards of a Canadian health care system that places great importance on high-value care, we must understand the reasons behind these variations and develop effective strategies to ensure that all cancer patients receive care that is supported by evidence and is truly necessary.

Some notable findings suggest that a high level of quality, sustainable cancer control practices is already in place. In screening, cervical cancer screening outside the recommended age group is minimal, which means that women are not subjected to unnecessary harm with little benefit. In treatment, use of aggressive care at the end of life—chemotherapy use in the last month of life and intensive care unit admissions in the last two weeks of life—is relatively low in most provinces, which has positive implications for patient experience and quality of life. In addition, there is an increasing trend in the use of day surgery for mastectomies, which could mean that more women are able to recover at home and benefit from the psychological boost of early discharge.

Reductions in the use of low-value cancer control practices have the potential to improve patient outcomes and quality of life while at the same time optimizing the allocation of system resources to match need. In fact, a 15% reduction in the cancer control practices measured in this report could result in approximately 9,000 false positive results being avoided, 3,000 treatments and related side effects being avoided, 4,500 hours of linear accelerator capacity being freed up for other patients and $27 million being redirected to other health care services. A 50% reduction could mean avoiding 29,000 false positive results and 10,000 treatments, freeing up 15,000 hours of linear accelerator time and making $89 million available for other health services.

Ensuring that patients receive only the care that benefits them the most—and not more than they need—can have positive implications for quality of care and the sustainability of Canada's health care system. The Partnership will continue to collaborate with our national, provincial and territorial partners to encourage system changes that will lead to higher-quality care delivered at a better value.

Looking ahead

The consistent delivery of high-value cancer care aligned with patient needs and preferences requires the coordinated efforts of patients, clinicians and health care organizations. Notable progress has already been made nationally with Choosing Wisely Canada, which has advanced a national dialogue about low-value and unnecessary practices that physicians and patients should question. The initiative encourages patients, clinicians—including oncologists and family physicians—and health care organizations to implement quality improvement initiatives to reduce the use of low-value practices.

Choosing Wisely Canada is also making efforts to ingrain the "more is not always better" mentality in medical trainees—the future generation of clinicians. The Students and Trainees Advocating for Resource Stewardship campaign is designed to raise awareness among medical students about Choosing Wisely and several initiatives are underway to improve awareness (e.g., social media campaigns, incorporation of Choosing Wisely Canada material into curriculum). In addition, numerous other organizations (including cancer control partners) have initiatives to raise awareness of the need for high-value care, to change clinical practice to reduce the use of low-value care or to improve the ability to measure and report on the use of low-value practices.

Quality and sustainability have been identified as major themes for future work by national, provincial and territorial partners. This work will help keep the focus on delivering high-value care that is supported by evidence and that has the potential to improve patient outcomes and quality of life while helping to maintain the sustainability of Canada's health care system.

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Valuable contributions to the report in the form of content knowledge and expert input were also provided by Cancer Control portfolios within the Partnership, including **Deb Keen**, **Dr. David Mowat**, **Michelle Halligan**, **Chris Politis** and **Kendall Tisdale** in Prevention; **Pam Tobin**, **Dr. Verna Mai**, **Candice Anderson**, **Anna Crosskill**, **Neetu Shukla** and **Carol Irwin** in Screening and Early Detection; **Dr. Mary Argent-Katwala** and **Dr. Geoff Porter** in Diagnosis and Clinical Care; **Esther Green**, **Dr. Deborah Dudgeon**, and **Dr. Margaret Fitch** in Person-Centred Perspective.

Media and outreach engagement for the report were led by **Kari Kerr**, **Lesley Frey**, **Karen Palmer** and **Kenneth Tong** from the Communications team; knowledge transfer and exchange and digital strategies were led by **Annemarie Edwards**, **Kirsten Jordan**, **Louise Zitzelsberger** and **Mandy Sangha** from the Knowledge Mobilization team; and policy and government relations were led by **Andrea Reed**, **Lalaine Lacuesta Manaois** and **Colin LeFevre** from the Strategy team.

We would also like to acknowledge **Shelly Jamieson**, Chief Executive Officer, and **Nicole Beben**, Vice-President, Strategy, for their review and input throughout the production of the report.

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ISBN 978-1-988000-11-4

ISBN 978-1-988000-10-7

Informing improvements
in cancer control