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# Rates of breast cancer surgery in Canada from 2007/08 to 2009/10: retrospective cohort study

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## Abstract

**Background**: Surgery is a common and important component of breast cancer treatment. We assessed the rates of breast cancer surgery across Canada from 2007/08 to 2009/10.

**Methods:** We used hospital and day surgery data from the Canadian Institute for Health Information to assemble a cohort of women who had undergone breast cancer surgery. We identified the index surgical procedure and subsequent surgical procedures performed within 1 year for each woman included in the analysis. We calculated the crude mastectomy rate for each province, and we calculated the adjusted mastectomy rate for select jurisdictions using a logistic regression model fitted using age, neighbourhood income quintile, and travel time.

**Results:** In total, 57 840 women underwent breast cancer surgery during the study period. Among women with unilateral invasive breast cancer, the crude mastectomy rate was 39%. Adjusted rates for mastectomy varied widely by province (26%–69%). The rate of re-excision within 1 year for women who had breast-conserving surgery as their index procedure was 23% and varied by province in terms of frequency and type (mastectomy or repeat breast-conserving surgery). Among women who underwent mastectomy for unilateral invasive breast cancer, 6% also underwent contralateral prophylactic mastectomy, and 7% had immediate breast reconstruction following surgery. Of mastectomy procedures, 20% were performed as day surgery; for breast-conserving surgery, 70% were performed as day surgery.

**Interpretation:** There is substantial interprovincial variation in surgical care for breast cancer in Canada. Further research is needed to better understand such variation, and continued monitoring should be the focus of quality initiatives.

In Canada in 2012, an estimated 22 700 women received a diagnosis of invasive breast cancer, and 5100 women died from the disease.[1] In the setting of population-based screening programs, early-stage breast cancer is being increasingly diagnosed, and there is a favourable prognosis following treatment. In most cases, treatment involves surgery.[2]

Major improvements in the local management of invasive breast cancer have occurred over the past 3 decades. For early-stage breast cancer, long-term survival following breast-conserving surgery plus radiotherapy is at least equivalent to the rate following mastectomy.[3–8] Although the risk of local recurrence may be slightly higher, breast-conserving surgery is associated with improved quality-of-life outcomes compared with mastectomy.[9] Some women have relative or absolute contraindications to breast-conserving therapy (e.g., poor tumour to breast ratio, multicentric tumours) or to radiation therapy and thus undergo mastectomy. In addition, some women who are candidates for breast-conserving surgery choose to have a mastectomy. Some women who undergo mastectomy may choose to undergo a contralateral prophylactic mastectomy in an effort to reduce the risk of contralateral breast cancer; for an average patient, this risk is estimated to be 6% at 10 years and 12% at 20 years.[10]

There have been few published reports that give a pan-Canadian perspective of the surgical care provided to women with breast cancer, and no strong evidence exists to either support or refute the possibility of important variation in surgical care of breast cancer patients in Canada. Thus, our objective was to examine trends and provincial variations in practice patterns at a population level for breast-conserving surgery, mastectomy, re-excision following breast-conserving surgery, contralateral prophylactic mastectomy and reconstructive surgery after mastectomy; we also sought to describe variations in the site of surgical care (day surgery v. inpatient care). This study was a joint effort by the Canadian Institute for Health Information (CIHI) and the Canadian Partnership Against Cancer.

**Competing interests:** None declared.

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## Methods

We used 3 databases to identify all inpatient and day surgery procedures across Canada (10 provinces and 3 territories): Hospital Morbidity Database, the National Ambulatory Care Reporting System (CIHI) and the Alberta Ambulatory Care Reporting System (Alberta Health and Wellness). The Canadian Institute for Health Information conducts regular data quality evaluations and has shown that the quality of the coding and abstracting of clinical and nonclinical information is high. Surgical treatment for breast cancer was defined as discharge with a most responsible diagnosis of breast cancer and a related surgical intervention indicated anywhere on the abstract (see Appendix 1 for a list of codes; www.cmajopen.ca/content/2/2/E102/suppl/DC1). Inclusion and exclusion criteria are shown in Box 1.

We used record linkage to connect first-known (i.e., index) procedures that occurred from 2007/08 to 2009/10 with subsequent 1-year treatment episodes. All patient records were linked deterministically using a combination of encrypted health card number and birth year. Index procedures were defined as the first discharge to meet the inclusion and exclusion criteria with no record of surgical treatment of breast cancer in the previous year and no recorded history of breast cancer.

Site of the index breast cancer (left, right or bilateral) was identified using the diagnostic code recorded for the index hospital admission. Information on the stage of the cancer was not available from any of the databases used in this study.

Treatment episodes were used to identify the final procedure (mastectomy or breast-conserving surgery), re-excision (either repeat breast-conserving surgery or mastectomy), breast reconstruction, and contralateral prophylactic mastectomy within 1 year of the patient's index procedure (Appendix 1). The coding of the final procedure (breast-conserving surgery v. mastectomy) was hierarchical. For example, a woman who underwent breast-conserving surgery as her index procedure and underwent mastectomy within 365 days was coded as having a mastectomy as the final procedure. Re-excision was defined as surgery for breast cancer (mastectomy or breast-conserving surgery) following index breast-conserving surgery that was performed on the same breast and occurred within 365 days of the index surgery. We calculated the rates of breast reconstruction and contralateral prophylactic mastectomy among women who underwent mastectomy as their index procedure.

**Box 1: Inclusion and exclusion criteria**

Inclusion criteria

- Female
- Age ≥ 18 yr
- Discharged from an acute care or day surgery facility
- Breast cancer surgical intervention coded anywhere in the record and right, left or bilateral location attribute
- Most responsible diagnosis of breast cancer

Exclusion criteria

- Potential duplicate records
- Invalid health card number
- Health card province code = CA
- Invalid postal code
- Procedures coded as abandoned
- Newborns, stillbirths and cadaveric donors
- Invalid episode date

We included age group, neighbourhood income quintile and travel time to the closest cancer centre as covariates. Age was categorized into approximate quartiles: 18–49, 50–59, 60–69, ≥ 70 years. Neighbourhood income quintile was derived from the postal code recorded on the index discharge abstract. We determined neighbourhood income quintile by use of Statistics Canada's Postal Code Conversion Plus File (version 5K); this indicator was based on income quintiles developed by Statistics Canada using the 2006 census; income quintiles range from 1 to 5 (low to high). Travel time from a patient's residence to the closest radiation facility was determined by use of the postal code recorded on the index discharge abstract. Patient residence and cancer centres were geocoded using latitude and longitude derived from the Postal Code Conversion Plus File (version 5G). Travel time by car to the closest available cancer centre was determined using the "closest facility" feature of the Network Analyst extension of ArcGIS 10 software program (ESRI). Travel time was categorized into the following categories: 0–39, 40–89, 90–179 and ≥ 180 minutes. Designation of province was based on patient residence, not location of surgery. We included data from the territories in the overall analyses, but these data are not reported by territory because of small numbers.

### Statistical analyses

We fit a logistic regression model with the following independent variables: age, neighbourhood income quintile and travel time. We did not include residents of Quebec ($n$ = 14 930) in this analysis because Quebec does not submit postal code information; women from the territories ($n$ = 113) were also not included because of small numbers. We excluded women for whom age, neighbourhood income quintile or travel time could not be calculated ($n$ = 972). Coefficients derived from the logistic regression model were used to calculate the probability of mastectomy for each woman. The expected provincial rate of mastectomy is based on the sum of the probabilities of mastectomy for all women living in that province. Adjusted rates of mastectomy were calculated for each province as the follows: (crude mastectomy rate/predicted mastectomy rate) × crude rate for Canada.

All data were collected, held and analyzed by CIHI staff using SAS version 9.2.

## Results

In total, 57 840 women underwent index surgery for breast cancer between 2007/08 and 2009/10. Most women (56 892; 98%) received treatment for unilateral invasive disease. Given the small number of bilateral cases, we report the results only for women with unilateral invasive breast cancer.

### Breast-conserving surgery and mastectomy

Among patients with unilateral invasive breast cancer, 18 375 (32%) underwent mastectomy as the initial surgical procedure. Among the 38 517 patients who initially had breast-conserving surgery, 4078 (11%) subsequently underwent mastectomy within 1 year of their initial procedure, resulting in an overall increase in the rate of mastectomy from 32% (index) to 39% (final). There was significant variation in index ($p < 0.001$) and final ($p < 0.001$) mastectomy rates between provinces (Table 1). For example, the final rate of mastectomy among women with unilateral invasive breast cancer ranged from 26% in Quebec to 69% in Newfoundland and Labrador.

Mastectomy rates according to age, income and travel time to a radiation facility are shown in Table 2. A U-shaped distribution was observed, with the highest rates seen among the youngest and oldest age groups. A modest decrease in the rate of mastectomy was observed among women in higher income quintiles, while increasing distance from a radiation facility was associated with higher rates of mastectomy.

Given the association of age, neighbourhood income and travel time with mastectomy rates, we calculated adjusted mastectomy rates for each province while controlling for these variables (Table 3). The exclusion of women with incomplete data from the logistic regression had almost no influence on crude rates of mastectomy for the provinces included in the analysis (Ontario and Nova Scotia increased by 1%). The adjusted rates were slightly lower than the crude rates (crude: 36%–69%; adjusted: 35%–61%); however, interprovincial variation was still significant after adjustment ($p < 0.001$).

### Re-excision following initial breast-conserving surgery

Surgical re-excision within 1 year of index breast-conserving surgery was performed for 8854 women (23%; Table 4). Overall, 4078 (46%) of re-excisions were mastectomies, and 54% were repeat breast-conserving surgery. There was significant variation in the overall rate of re-excision among provinces ($p < 0.001$), and the type of re-excision procedure (mastectomy or breast-conserving surgery) varied significantly between provinces ($p < 0.001$). For example, the re-excision rate in Newfoundland and Labrador was 56%, and 75% (204 patients) of patients who required a re-excision underwent a mastectomy. In Quebec, the re-excision rate was 17%, and 40% (813 patients) of patients who required re-excision underwent mastectomy.

### Contralateral prophylactic mastectomy, reconstructive surgery after mastectomy and location of surgical care

Among women who underwent mastectomy as their initial procedure for unilateral invasive breast cancer, 1066 (6%) underwent contralateral prophylactic mastectomy within 1 year.

**Table 1: Mastectomy and breast-conserving surgery among women with unilateral invasive breast cancer, index versus final procedure* in Canada ($n$ = 56 892), by province, 2007/08 to 2009/10**

| | No. of women† | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Procedure | BC | AB | SK | MB | ON | QC | NB | NS | PEI | NL | Canada |
| **Index procedure** | | | | | | | | | | | |
| Breast-conserving surgery | 4 877 | 2 490 | 790 | 1 396 | 14 738 | 11 792 | 837 | 928 | 133 | 481 | 38 517 |
| Mastectomy | 2 596 | 2 482 | 896 | 607 | 6 719 | 3 138 | 521 | 843 | 107 | 406 | 18 375 |
| Total | 7 473 | 4 972 | 1 686 | 2 003 | 21 457 | 14 930 | 1 358 | 1 771 | 240 | 887 | 56 892 |
| Index mastectomy rate, % (95% CI) | 35 (33.6–35.8) | 50 (48.5– 51.3) | 53 (50.7–55.5) | 30 (28.2–32.3) | 31 (30.6–31.9) | 21 (20.3–21.6) | 38 (35.7–40.9) | 48 (45.2–49.9) | 45 (38.2–50.8) | 46 (42.4–49.0) | 32 (31.9–32.6) |
| **Final procedure** | | | | | | | | | | | |
| Breast-conserving surgery | 4 040 | 2 204 | 592 | 1 282 | 13 413 | 10 979 | 719 | 794 | 100 | 277 | 34 439 |
| Mastectomy | 3 433 | 2 767 | 1 094 | 721 | 8 045 | 3 951 | 639 | 977 | 141 | 609 | 22 453 |
| Total | 7 473 | 4 971 | 1 686 | 2 003 | 21 458 | 14 930 | 1 358 | 1 771 | 241 | 886 | 56 892 |
| Final mastectomy rate, % (95% CI) | 46 (44.8–47.0) | 56 (54.2–57.0) | 65 (62.6–67.1) | 36 (33.8–38.0) | 37 (36.8–38.1) | 26 (25.7–27.1) | 47 (44.3–49.7) | 55 (52.8–57.4) | 59 (52.2–64.7) | 69 (65.6–71.7) | 39 (39.0–39.8) |

Note: CI = confidence interval.
*Small differences between the totals for the index and final procedures for selected provinces are because of women moving to another province during the treatment period.
†Unless otherwise stated.

Overall, 1571 (9%) women with unilateral invasive breast cancer who underwent mastectomy had reconstruction within 1 year. Among women who underwent reconstruction, 1196 (76%) had immediate reconstruction (7% of all women who underwent index mastectomy). Because contralateral prophylactic mastectomy and reconstruction were rare, we were unable to analyze the data by province. Among women who underwent mastectomy for unilateral invasive breast cancer, only 20% of surgeries were performed as day surgery (Table 5). Most women who underwent breast-conserving surgery (70%) received day surgery. The use of day surgery for women undergoing both index breast-conserving surgery and mastectomy varied significantly by province (both $p < 0.001$).

## Interpretation

This comprehensive examination of breast cancer surgery builds on the findings of a non–peer-reviewed breast cancer surgery report.[11] As well as describing breast cancer surgery rates from a pan-Canadian perspective, we have shown variation in clinical practice related to surgical care of breast cancer. This is an important first step in understanding how care can be improved. The choice of surgical procedure for treating breast cancer may be influenced by access to therapeutic interventions, such as radiotherapy in the setting of breast-conserving surgery. Findings from our study support this hypothesis:[12,13] women with longer travel times to a radiation facility were significantly more likely to undergo mastectomy. Geographic variation in mastectomy rates has been previously reported both within and outside Canada.[14,15]

The finding of relatively high rates of mastectomy among younger women is consistent with the results of population-based studies in the United States, where a recent trend has been toward increased mastectomy use among relatively young women living in socioeconomically advantaged neighbourhoods.[16] Proposed explanations for this include the higher cumulative local recurrence among young women, larger mean tumour size (a relative indication for mastectomy) where screen-detected cancers are far less common, and a higher prevalence of *BRCA*1 and *BRCA*2 mutations.[16,17] In addition to biological factors, age may influence the perception of risk, the value placed on body image, and attitudes toward radiation therapy and breast reconstruction.[18,19]

The re-excision rates reported in this study fall within the range reported in contemporary studies from Canada, the US and the United Kingdom.[20–22] Most re-excisions are performed because of a positive margin during initial breast-conserving surgery,[20] and it is possible that some women may choose mastectomy because of the substantial risk of subsequent surgical procedures following breast-conserving surgery.[23] Unfortunately, there is no pan-Canadian standard for acceptable margins following breast-conserving surgery; provincial differences may account for some of the variation in the observed re-excision rates, as has been reported in the US.[22]

**Table 2: Demographic factors associated with mastectomy rates in Canada* ($n$ = 40 875), 2007/08 to 2009/10**

| Variable | No. (%)† of women | Mastectomy rate, % | Adjusted‡ odds ratio | 95% CI |
|---|---|---|---|---|
| **Travel time, min** | | | | |
| 0–39 | 24 161 (59) | 40 | 1.0 (ref) | – |
| 40–89 | 7 884 (19) | 46 | 1.3 | (1.2–1.4) |
| 90–179 | 5 131 (13) | 52 | 1.6 | (1.5–1.7) |
| ≥ 180 | 3 699 (9) | 57 | 1.9 | (1.8–2.0) |
| **Age, yr** | | | | |
| 18–49 | 8 708 (21) | 48 | 1.0 (ref) | – |
| 50–59 | 10 165 (25) | 40 | 0.7 | (0.66–0.74) |
| 60–69 | 10 346 (25) | 40 | 0.7 | (0.65–0.73) |
| ≥ 70 | 11 656 (29) | 48 | 1.0 | (0.92–1.03) |
| **Neighbourhood income quintile** | | | | |
| 1 (least affluent) | 6 273 (15) | 49 | 1.3 | (1.2–1.4) |
| 2 | 7 620 (19) | 47 | 1.2 | (1.1–1.3) |
| 3 | 8 216 (20) | 45 | 1.1 | (1.1–1.2) |
| 4 | 8 912 (22) | 43 | 1.1 | (1.0–1.20) |
| 5 (most affluent) | 9 854 (24) | 39 | 1.0 (ref) | – |

Note: CI = confidence interval.
*Quebec, Yukon, Northwest Territories and Nunavut were not included in this analysis.
†Women for whom age, neighbourhood income quintile or travel time could not be calculated ($n$ = 972) were excluded.
‡Adjusted for age, neighbourhood income quintile and travel time.

The limited use of contralateral prophylactic mastectomy in Canada observed in this study (6% of all women who underwent mastectomy for unilateral invasive breast cancer) is about half the rate observed in the US,[24] where there has been well-documented increased use of contralateral prophylactic mastectomy over the past 10 years.[24–27] Although the risk of contralateral breast cancer is nearly eliminated with contralateral prophylactic mastectomy, it remains unclear whether this technique improves breast cancer–specific survival.[28–30] Although some subgroups of women at greater risk of contralateral breast cancer (e.g., those with *BRCA* mutations) may be best served by contralateral prophylactic mastectomy, evidence suggests that both patients and surgeons overestimate the risk of contralateral breast cancer and, thus, the potential benefit of contralateral prophylactic mastectomy.[31–33] The modest increase in contralateral prophylactic mastectomy use in Canada (from 5% in 2007/08 to 7% in 2009/10) should be monitored.

Similarly, our findings support those of previous work[34] suggesting that the rate of reconstructive surgery among women with breast cancer in Canada is markedly lower than in other high-income countries. For example, it is estimated that 24% of US women who underwent mastectomy for breast cancer from 1999 to 2003 elected to have ipsilateral breast reconstruction at the same time (immediate reconstruction).[35] Whether these international differences are because of women's preferences or to issues related to access[36] cannot be determined from these analyses. The delayed

**Table 3: Crude and adjusted final mastectomy rates among women in Canada* with unilateral invasive breast cancer (*n* = 40 875), 2007/08 to 2009/10, by province**

| | No. of women†‡ | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Procedure | BC | AB | SK | MB | ON | NB | NS | PEI | NL | Canada |
| Breast-conserving surgery | 3 857 | 2 161 | 574 | 1 247 | 13 180 | 712 | 768 | 98 | 262 | 22 859 |
| Mastectomy | 3 279 | 2 724 | 1 076 | 712 | 7 920 | 626 | 965 | 140 | 574 | 18 016 |
| Total | 7 136 | 4 885 | 1 650 | 1 959 | 21 100 | 1 338 | 1 733 | 238 | 836 | 40 875 |
| Crude§ mastectomy rate, % | 46 | 56 | 65 | 36 | 38 | 47 | 56 | 59 | 69 | 44 |
| Adjusted¶ mastectomy rate, % | 45 | 56 | 60 | 35 | 39 | 41 | 52 | 56 | 61 | NA |

Note: NA = not applicable.
*Quebec, Yukon, Northwest Territories and Nunavut were not included in this analysis.
†Unless otherwise stated.
‡Women for whom age, neighbourhood income quintile or travel time could not be calculated (*n* = 972) were excluded.
§Crude rates in this table differ from those presented in Table 2 because of exclusions from the logistic regression.
¶Adjusted for age, neighbourhood income quintile and travel time.

**Table 4: Rates of re-excision among women who underwent breast-conserving surgery for invasive breast cancer as the index procedure (*n* = 38 517), by province, 2007/08 to 2009/10**

| | No. of women* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Procedure | BC | AB | SK | MB | ON | QC | NB | NS | PEI | NL | Canada |
| Index breast-conserving surgery | 4 877 | 2 490 | 790 | 1 396 | 14 738 | 11 792 | 837 | 928 | 133 | 481 | 38 517 |
| Re-excision | | | | | | | | | | | |
| Breast-conserving surgery | 995 | 229 | 176 | 46 | 1 756 | 1 237 | 137 | 109 | 19 | 67 | 4 776 |
| Mastectomy | 837 | 286 | 114 | 198 | 1 325 | 813 | 118 | 134 | 33 | 204 | 4 078 |
| Total | 1 832 | 515 | 290 | 244 | 3 081 | 2 050 | 255 | 243 | 52 | 271 | 8 854 |
| Re-excision rate, % | 38 | 21 | 37 | 17 | 21 | 17 | 30 | 26 | 39 | 56 | 23 |

*Unless otherwise stated.

**Table 5: Location of index surgical procedure among women with unilateral breast cancer (*n* = 56 992), by province, 2007/08 to 2009/10**

| | No. of women* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Procedure | BC | Alta. | Sask. | Man. | Ont. | Que. | NB | NS | PEI | NL | Canada |
| **Index breast-conserving surgery** | | | | | | | | | | | |
| Day surgery | 3 108 | 1 104 | 462 | 1 026 | 11 973 | 7 715 | 544 | 626 | 55 | 414 | 27 053 |
| Inpatient | 1 769 | 1 386 | 328 | 370 | 2 765 | 4 077 | 293 | 302 | 78 | 67 | 11 464 |
| Total | 4 877 | 2 490 | 790 | 1 396 | 14 738 | 11 792 | 837 | 928 | 133 | 481 | 38 517 |
| **Index mastectomy** | | | | | | | | | | | |
| Day surgery | 169 | 35 | < 5† | 134 | 2 203 | 784 | 135 | 114 | < 5† | 32 | 3 609 |
| Inpatient | 2 427 | 2 447 | 893 | 473 | 4 516 | 2 354 | 386 | 729 | 107 | 374 | 14 766 |
| Total | 2 596 | 2 482 | 896 | 607 | 6 719 | 3 138 | 521 | 843 | 107 | 406 | 18 375 |

*Unless otherwise stated.
†Data suppressed because of small cell size.

reconstruction rates identified in this study were limited to 1 year, which most likely markedly underestimates the true use of delayed reconstruction.

Less invasive surgery (e.g., breast-conserving surgery, adoption of sentinel node biopsy), improved surgical care and cost-containment efforts have led to shorter hospital stays for patients undergoing breast cancer surgery.[37–40] From a historical perspective, in 1981 a woman who underwent breast cancer surgery in Canada was discharged after 15 days; in 2000, the average length of stay was 4.5 days.[41] Current findings reveal a further shortening of hospital stays.

The use of day surgery for patients undergoing breast cancer surgery varied across Canada. Our finding of relatively high rates of day surgery in Ontario is comparable with the findings from a study of the use of day surgery in Ontario, where more than half (52%) of women who underwent surgery for invasive breast cancer in 2003/04 had day surgery.[2]

## Strengths and limitations

Major strengths of this study include its ability to examine Canadian breast cancer surgery in a population-based manner over a contemporary time period. However, the study has some limitations. Clinicopathologic variables such as tumour size, stage or *BRCA* gene mutation status were not available for analysis in this study. Thus, we cannot comment on the proportion of eligible women who received breast-conserving surgery, nor can we control for relative contraindications to breast-conserving surgery. However, it is unlikely that stage distribution alone accounts for the observed mastectomy rate, because recently published analyses have shown generally comparable stage distribution across provinces.[42] In addition, the association of variation in practice pattern with cancer-related outcomes, such as recurrence and survival, was not possible. From a methodologic perspective, it is possible that some of the specific procedure codes related to breast-conserving surgery (Appendix 1) may in fact have represented diagnostic excisional biopsies and not breast-conserving surgery with a therapeutic intent. This issue has been identified previously[43] and has the potential to result in an underestimation of true rate of index mastectomy or an overestimation of true re-excision rates. Thus, provincial variation in the use of excisional biopsy rather than a less invasive core biopsy to diagnose breast cancer may partially account for differences in initial mastectomy rates and subsequent re-excision rates. However, over the time period of this study (2007/08 to 2009/10), open excisional biopsy was not generally recommended as an initial diagnostic procedure for treatment of breast cancer, because core needle biopsy is less invasive, is associated with fewer complications, reduces the need for re-excision and is less costly.[44,45] Indeed, the use of core needle biopsy instead of open excisional biopsy is widely regarded as an indicator of the quality of breast cancer care.[46] Finally, because we reported only on patients with unilateral breast cancer, the findings cannot be generalized to the women with bilateral breast cancer.

## Conclusion

There is significant interprovincial variation in Canada for several aspects of surgical breast cancer care. Further research is needed to better understand these variations and their impact on patient outcomes, as well as to inform potential quality initiatives. Continued pan-Canadian monitoring is important to evaluate the impact of such initiatives and provide a national overview of this common disease and treatment.

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