



Original article

Completeness of breast cancer operative reports in a community care setting



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ABSTRACT

Objectives: The narrative operative report represents the traditional means by which breast cancer surgery has been documented. Previous work has established that omissions occur in narrative operative reports produced in an academic setting. The goal of this study was to determine the completeness of breast cancer narrative operative reports produced in a community care setting and to explore the effect of a surgeon's case volume and years in practice on the completeness of these reports.

Materials and methods: A standardized retrospective review of operative reports produced over a consecutive 2 year period was performed using a set of procedure-specific elements identified through a review of the relevant literature and work done locally.

Results: 772 operative reports were reviewed. 45% of all elements were completely documented. A small positive trend was observed between case volume and completeness while a small negative trend was observed between years in practice and completeness.

Conclusion: The dictated narrative report inadequately documents breast cancer surgery irrespective of the recording surgeon's volume or experience. An intervention, such as the implementation of synoptic reporting, should be considered in an effort to maximize the utility of the breast cancer operative report.

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1. Introduction

Breast cancer is the most common malignancy, and second most common cause of cancer death for Canadian women [1]. In an effort to improve patient outcomes, multidisciplinary care has become the standard of care for breast cancer patients in developed health systems [2]. Optimization of this multidisciplinary care is predicated upon effective communication between health care providers.

Surgeons predominantly communicate intraoperative information relevant to patient care via dictated narrative reports. These reports represent the essential record of a surgical procedure and contain information which can be used to inform decisions made by future health care providers. Operative reports may also be used as medicolegal documents [3], in billing [4], research [5], and as a

surrogate for surgical quality [6,7]. Despite their importance, there is evidence that dictated breast cancer operative reports are failing to document the information necessary to maximize their utility [8].

Our goal was to determine the completeness of dictated narrative reports for breast cancer surgeries taking place in our region. This differs from previous work done on this topic in two respects. First, we examined the completeness of dictated operative reports from breast cancer surgeons in a community care setting (which is likely more representative of the setting in which the majority of breast cancer surgery occurs in Canada) as opposed to an academic setting. Secondly, we examined the effect of surgeon case volume and years of practice on the completeness of dictated narrative reports.

2. Materials and methods

A previously identified set of procedure-specific elements was

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selected and modified for use in our study after a review of the relevant literature. These elements were selected based on a pan-Canadian consensus established through the Canadian Partnership Against Cancer (CPAC) initiative beginning in 2008 [9]. Six elements (drains, use of a surgical timeout, specimen orientation, pectoral fascia removal, marking of biopsy cavity, and follow up) were added to this set to incorporate work done provincially by the BC Surgical Oncology Network (SON) [10] which functions in part, as a quality improvement leader for British Columbia, through the British Columbia Cancer Agency (BCCA).

Previous work has categorized operative report elements as either technical or non-technical. Further categorization of technical elements (important versus less important) was done in this study to reflect the fact that not all elements are of equal importance in determining an operative report's utility. This distinction, between important and less important, was based on several factors including the ability to obtain the information elsewhere in the patient's chart, the potential importance of the element to the patient's future care providers, and the element's potential utility for secondary data usage (eg. Quality assurance initiatives). Table 1 details the elements included in our standardized analysis of the dictated narrative reports. Each element's classification (eg. Technical vs. Non-technical) is also noted in Table 1.

We retained the evaluation system established in previous work [8] done on this topic and classified elements as complete, partially complete, or absent. The data dictionary used in our standardized analysis is available in the [supplemental methods](#).

A retrospective chart review was performed on all narrative surgical breast cancer operative reports produced for BC Cancer Agency (SAH-CSI) referred patients between January 1, 2011 and December 31, 2012 inclusive. All operative reports were produced within the Interior Health Authority (IHA), which provides the surgical services for those patients referred to the SAH-CSI. These reports were produced in 10 community hospitals by 37 attending physicians. Reports produced by surgical residents and those attending physicians for whom demographic data was unavailable were excluded. Operative reports produced for surgeries that were diagnostic biopsies, non-curative in intent, re-excision of margins, or performed on males were also excluded from further study. In addition, breast cancer operative reports that did not document a breast surgical procedure (ie. Stand alone sentinel node biopsies or axillary node dissections) were excluded.

Surgeons were categorized by both breast cancer surgical case volume and number of years of clinical practice (taken as the number of years from completion of residency). The three volume subgroups were defined as follows: high (20 or more studied breast cancer surgeries per year), moderate (10–19 studied surgeries per year), and low (0–9 studied surgeries per year). The experience subgroups were also divided into three subgroups, defined as 20 or more years, 10–19 years, and 0–9 years of practice.

All data was collected by a single individual (JE). Logistic regression was used to assess the relationship between the completeness of the operative reports and the physicians who recorded them. Statistical analysis was done using SAS Version 9.3. This study had full approval from the British Columbia Cancer Agency Research Ethics Board and the University of British Columbia Research Ethics Board.

3. Results

A total of 772 dictated narrative operative reports were reviewed from 37 attending physicians working in 10 community hospitals. 393 (51%) of these reports documented partial mastectomies as the breast component of the surgery, while the remaining 379 (49%) were produced for total mastectomies. 681 (88%)

narrative reports included an axillary procedure in the form of either sentinel node biopsy or axillary lymph node dissection (Table 2).

37 staff surgeons contributed at least one operative report to this study. When categorized by case volume, most surgeons were in the low volume group, however, the subgroup of surgeons performing 20 or more surgeries per year contributed the most reports. Surgeons in this study were approximately uniformly distributed across the experience subgroups with the highest experience subgroup contributing the most operative reports (Table 3).

Overall, an average of 45% of all elements were completely documented. High volume surgeons and surgeons with 0–9 years of practice completed the highest percentage of elements (47% and 50% respectively) (Table 4).

Technical elements were more completely documented than non-technical elements (57% vs. 29%). Important and less important technical elements were reported with similar frequencies (58% vs. 55%). Modest variation in completion percentages was observed between surgeon subgroups for important technical elements with high volume surgeons, and surgeons with 0–9 years of experience, completing the highest percentage of important technical elements (61% and 66% respectively). Table 5 shows technical element completion by surgeon subgroup. 29% of all non-technical elements were documented completely, with minimal variation observed between surgeon subgroups (Table 6).

A wide variation in the reporting frequency of individual elements was observed for both important and less important technical elements (Table 7). Amongst the technical elements deemed important, localization technique in the context of sentinel node biopsy, and pectoral muscle resection in the context of total mastectomy, were completely described in 99% and 85% of the reports respectively. Conversely, the anatomic margins of dissection were described completely in only 12% of the reports that documented an axillary dissection. Within the subgroup of less important technical elements, incision closure was documented in 99.5% of reports compared to use of surgical timeout which was documented in 6% of reports. A similarly wide variation in reporting frequency was observed for the non-technical elements (Table 8). Elements such as choice of surgery and current diagnosis were completely reported in more than 95% of reports, while other elements such as tumour size and past medical history were completely described in less than 10% of reports.

4. Discussion

Multidisciplinary care for breast cancer patients has become the standard of care. Effectiveness of this multidisciplinary care is predicated upon complete, yet succinct communication between members of the care team. The operative report represents the primary means by which the surgeon communicates intra-operative information with other members of the team. While there may be some variability in terms of what information is required by each health care provider, recent work suggests that the ideal operative report may be more inclusive than minimalistic [9].

Similar to previous work on narrative reporting [6,8,11], our work has shown that omissions often occur in dictated narrative reports, and that there is significant variability in how thoroughly both individual elements and reports were completed. While technical elements were observed to be better completed than non-technical elements, only 57% of technical elements were completely reported. The similar completion of the important and less important technical elements (58% vs 55%) suggests that the observed suboptimal technical element completion is not purely

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