Curr Oncol, Vol. 21, pp. 144-146; doi: http://dx.doi.org/10.3747/co.21.2022

Two indicators of hospital resource efficiency in cancer care

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INTRODUCTION

Acute inpatient hospital stays represent a major portion of cancer care costs. All complex surgery and a significant portion of palliative care are delivered in the inpatient setting. Although a vast proportion of those services can be appropriate, ongoing cost pressures threatening the sustainability of the cancer care system warrant an examination of cases in which expensive inpatient care might not be the most cost-effective option. Here, we present two indicators that might help point to such cases: the percentage of day-surgery mastectomies for breast cancer and the use of the intensive care unit (ICU) for cancer patients in the last 14 days of life.

Although relatively invasive in nature, mastectomies can be safely performed as day surgery[1]. Day surgeries can be preferable to inpatient surgeries (in which a patient is admitted to a hospital bed after the operation to recover) when they consume fewer hospital resources, without at the same time compromising patient outcomes.

Hospital ICUs are among the most resource-intensive patient care areas. Excessive use of critical care near end of life might indicate inappropriate utilization of resource-intensive acute care in situations in which palliative and supportive care in a non-acute setting might be more appropriate for the patient's quality of life and constitute a better use of system resources[2].

METHODS

Rates of mastectomy day surgery and ICU use in the last 2 weeks of life were calculated using data from the discharge abstract data maintained by the Canadian Institute for Health Information. The mastectomy rates were based on 3 years of pooled data from 2007–2008 to 2011–2012. Breast-conserving surgeries and prophylactic mastectomies were excluded. Surgeries for new breast cancer cases were identified by excluding patients with a record of previous cancer treatment in the historical data. Rates are compared by province of the hospitals performing the surgeries.

The ICU indicator was calculated using pooled data from 2011–2012 to 2012–2013. Only cancer patients who died in an acute-care hospital are included in the analysis, and so the results are based on only a proportion of cancer deaths. Cancer patients were identified by an ICD-10 diagnosis code (either a main diagnosis of malignant neoplasm or neoplasms of uncertain or unknown behaviour, or a most-responsible diagnosis of palliative care, with a secondary diagnosis of malignant neoplasm).

RESULTS

Rates of Mastectomy Day Surgery

The percentage of mastectomies performed as day surgery ranged from 0% in Prince Edward Island to more than 35% in Ontario (Figure 1). Five of the provinces had rates of less than 10% (Prince Edward Island, British Columbia, Newfoundland and Labrador, Saskatchewan, and Alberta).

ICU Use at End of Life

The percentage of patients dying of cancer and receiving ICU care in the last 2 weeks of life ranged from a low of 5.6% in Nova Scotia to a high of 13.7% in Ontario (Figure 2). Results for small and large provinces featured at both ends of the spectrum. The percentage of patients admitted to ICU who died in the ICU was highest in Ontario (83%) and lowest in Prince Edward Island (40%).

DISCUSSION

Shifting mastectomies from inpatient to day surgery would lead to a reduction in system costs and an

increase in inpatient capacity. In Ontario, 35% of mastectomies were performed as day surgery, suggesting that other provinces can move closer to that benchmark if the necessary system supports are in place. The combined percentage for all provinces except Ontario was 13%, and so if all provinces were to perform 35% of mastectomies as day surgery, almost 2700 inpatient cases would be converted.

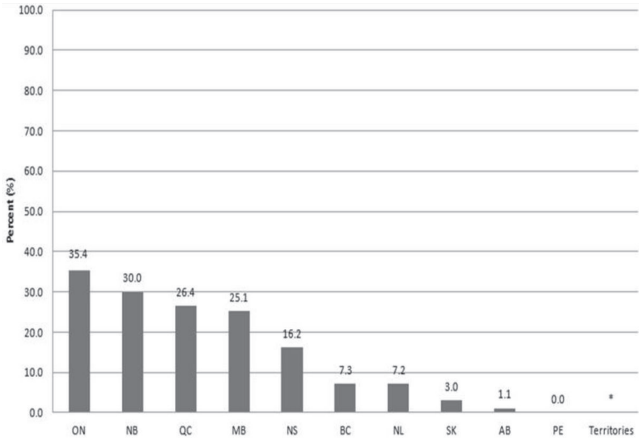

*FIGURE 1 Percentage of breast cancer mastectomies performed as day surgeries, by province and territory, fiscal years 2007–2008 to 2011–2012 combined. * Data suppressed because of statistical unreliability related to small numbers. Data sources: Hospital Morbidity Database, National Ambulatory Care Reporting System, Canadian Institute for Health Information; Alberta Ambulatory Care Reporting System, Alberta Health and Wellness.*

The percentage of patients who die of cancer and are admitted to the ICU in the last 2 weeks of life is small in Canada compared with international jurisdictions. When Ontario data were compared with data from the U.S. Surveillance, Epidemiology and End Results database for 1999–2003, the rate of ICU use in the last 30 days of life in the United States was double the rate in Ontario[3], and Ontario has the highest rate in Canada based on the results presented here. Nonetheless, the objective of presenting interprovincial comparisons of these types of indicators is to keep the spotlight on opportunities to increase the efficient use of system resources.

More information about this study can be found at http://www.cancerview.ca/systemperformance report.

Downloadable slides of figures in this communication can be found at http://www.cancerview.ca/downloadableslides.

ACKNOWLEDGMENTS

The authors acknowledge the Canadian Institute for Health Information, and particularly Brandon Wagar and Josh Fagbemi, for producing the data used to study these indicators.

CONFLICT OF INTEREST DISCLOSURES

The authors have no financial conflicts of interest to declare.

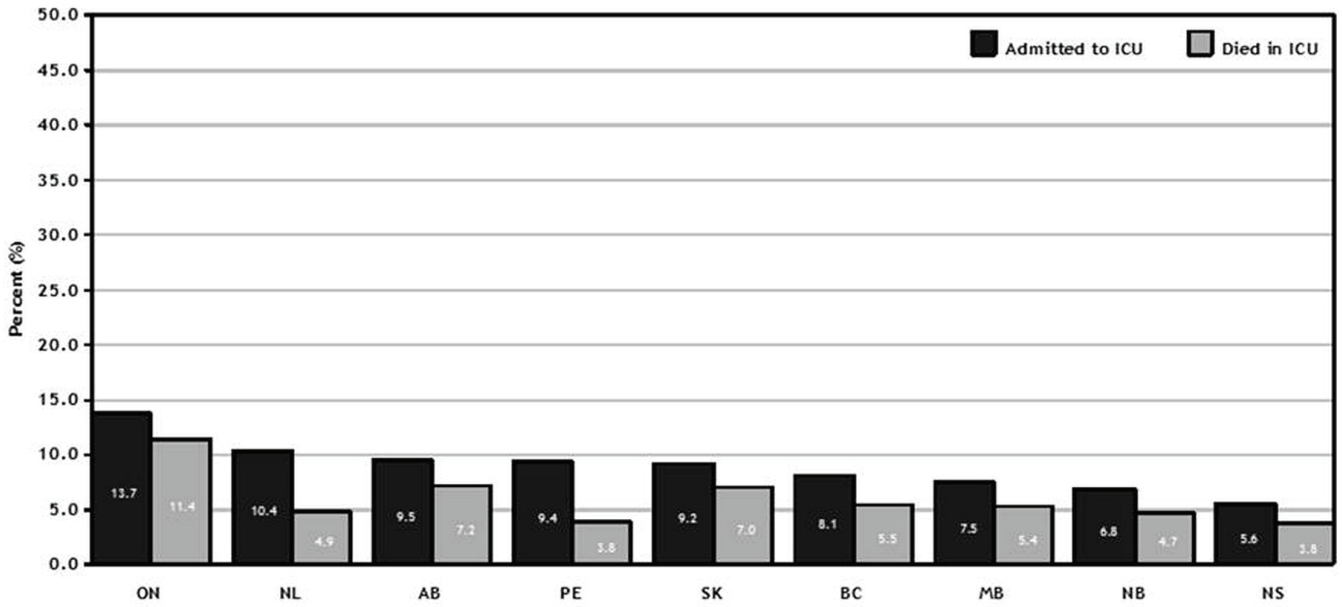

FIGURE 2 Percentage of cancer patients admitted to an intensive care unit (ICU) in the last 14 days of life, fiscal years 2011–2012 to 2012–2013 combined. The percentages of patients who died in the ICU are also shown for comparison. The data represent all provinces except Quebec and include only cancer patients who died in a hospital with an ICU. Data source: Discharge Abstract Database, Canadian Institute for Health Information.

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