

## Evaluating Quality of Cancer Care in Delaware using Commission on Cancer (CoC) Quality Measures, 2018-2019

Wilhelmina Ross, PA, MPH;<sup>1</sup> Diane Ng, MPH;<sup>2</sup> Hayley Little, MPH;<sup>3</sup> Sumitha Nagarajan, MPH;<sup>4</sup> Paulette Robinson-Wilkerson, MS;<sup>5</sup> Dawn Hollinger, MS, MA<sup>6</sup>

1. Delaware Cancer Registry Director, Westat

2. Research Associate, Westat

3. Research Associate, Westat

4. Cancer Epidemiologist, Cancer Prevention and Control Bureau, Health Promotion and Disease Prevention Section, Division of Public Health, Delaware Department of Health and Social Services

5. Public Health Treatment Program Administrator, Cancer Prevention and Control Bureau, Health Promotion and Disease Prevention Section, Division of Public Health, Delaware Department of Health and Social Services

6. Bureau Chief, Cancer Prevention and Control Bureau, Health Promotion and Disease Prevention Section, Division of Public Health, Delaware Department of Health and Social Services

### Abstract

**Introduction.** American College of Surgeons Commission on Cancer (CoC) quality measures are used to monitor and evaluate metrics among their CoC-accredited programs, which include seven of Delaware's hospitals. The Delaware Department of Health and Social Services, Division of Public Health (DPH) also utilizes these metrics to monitor and evaluate Delaware's overall performance on these standards of care as it relates to the health care provided to cancer patients. **Methods.** Delaware Cancer Registry (DCR) cases diagnosed in 2018 and 2019 were selected and were analyzed separately to calculate results for each selected measure by year: HT, nBX, LNoSurg, and RECRTCT. **Results.** Results of the analysis showed that three out of the four CoC quality measures evaluated met the CoC standard of care for both 2018 and 2019 data. The three measures that met the CoC standards for 2018 were HT (90.4%), nBX (87.6%), and LNoSurg (93.3%). The RECRTCT measure did not meet the CoC standard for 2018 data with 71.4%. All four measures evaluated met the CoC standards for 2019 (HT – 91.6%; nBX – 85.2%; LNoSurg – 92.7%; RECRTCT – 92.3%). **Discussion.** A majority of cases assessed met the CoC quality measure standards, meeting standards of cancer care and treatment. More discovery work needs to be done to assess the RECRTCT metric to explore reasons why cases did not meet the CoC quality measure standards. There was notable improvement seen for the HT measure over time, where cases had not met the CoC standard in previous years. **Public Health Implications.** When CoC quality measures are met, medical providers can ensure patients receive effective and targeted cancer care. This practice ultimately saves resources, reduces cancer burden, impacts survival, and improves public health outcomes.

## Introduction

The Delaware Cancer Registry (DCR) collects, stores, manages, and analyzes data related to individuals with cancer in Delaware. Delaware legislation requires that all health care facilities within the state must report all newly diagnosed or treated cancer cases.<sup>1</sup> Information reported to the registry includes patient demographics, cancer diagnosis, and staging, treatment, and mortality.

The DCR, in coordination with the Delaware Department of Health and Social Services, Division of Public Health (DPH), utilizes cancer data to analyze and monitor quality indicators and trends, identify potential research areas, share information with stakeholders, and guide policy makers.<sup>2</sup> In addition, the DCR participates in the Delaware Cancer Consortium (DCC), which was formed in 2001 to advise the governor and legislature on areas such as underlying contributors to cancer burden and cancer risk reduction strategies.<sup>3</sup> Several committees are associated with the DCC, including the Delaware Cancer Registry Advisory Committee (DCRAC), which advises and supports the DCR with the end goal of improving cancer data quality, supporting cancer surveillance and control initiatives, promoting the use and dissemination of data for research or public use, and advising on new innovative applications of data.

DCRAC has been interested in examining how the state performs on cancer quality care measures, such as the measures defined by the American College of Surgeons Commission on Cancer (CoC). The CoC is an accrediting body of multidisciplinary professional organizations that aim to advance both the quality of life and survival for cancer patients. The CoC determines quality standards to ensure a high level of cancer care delivery in health care settings. The measures are categorized into the areas of accountability, quality improvement, and surveillance. Accountability measures can be used for various purposes, including public reporting, payment incentive programs, and the selection of providers by consumers, health plans, or purchasers. Quality improvement measures are intended to monitor internal performance within an organization. Surveillance measures can be used to identify the status quo and monitor patterns and trends of care to guide decision-making and resource allocation. Finally, the CoC utilizes the data to develop interventions to improve cancer prevention, early detection, cancer care delivery, and patient outcomes.<sup>4</sup>

The CoC accreditation process for cancer hospital-based programs includes a site visit every three years and an evaluation performed by a CoC reviewer. CoC quality measures are used to monitor and evaluate metrics among their CoC-accredited programs, including all of Delaware's seven CoC-accredited hospital programs. However, DCRAC wanted to adapt these measures to evaluate selected metrics among all DCR cases.

A previous analysis was conducted using 2016 and 2017 DCR data to measure performance on selected CoC quality measures.<sup>5</sup> DCRAC evaluates selected CoC quality measures at different time points as a means to assess whether Delaware cancer patients are receiving standard of care. This analysis was valuable to identify areas of improvement with actionable recommendations aligned with CoC guidelines for healthcare facilities and providers in the state. Thus, DCRAC, DPH, and DCR elected to conduct a similar analysis utilizing 2018-2019 DCR data for the same quality measures evaluated in the previous analysis to assess whether there have been improvements or differences in DCR cases meeting the CoC standards. The four quality

measures included are the HT and nBX measures for breast cancer, the LNoSurg measure for lung cancer, and the RECRTCT measure for rectum cancer (Table 1).

## Methods

DCR cases diagnosed in 2018 and 2019 were selected and analyzed separately to calculate results for each measure by year. DCR cases included cases where cancer was diagnosed in Delaware regardless of CoC-accreditation status of the facility. Specific selection criteria were applied to create subsets of cases for each measure based on the CoC quality measure specifications.<sup>6</sup> The measure types included in this study were accountability (HT) and quality improvement (nBX, LNoSurg, and RECRTCT) (see Table 1 for definitions of each standard). No surveillance measures were included in this study. Each measure specification is defined to calculate a proportion of cases meeting the standard with a numerator and denominator for each measure. Flag variables were created to define whether cases met different parameters for selection, inclusion in the numerator, and/or inclusion in the denominator. For each measure, there are several specifications using various data items from the case records that include diagnostic information, staging and prognostic factors, treatment, and patient demographic information (e.g., sex, age) to define the selection criteria and to calculate the metric. The data items are defined according to the North American Association of Central Cancer Registries (NAACCR) data standards and data dictionary, the standard for central cancer registry and hospital-based cancer registry data collection in the U.S. All analyses were performed using SAS version 9.4 (see Table 1 for the expected percent of cases that served as a benchmark for each standard).

Following the calculation of the percentage of cases that met each standard by year, the DCR performed an additional review of cases for measures where the CoC standard was not met by obtaining additional information through the Delaware Health Information Network (DHIN).<sup>7</sup> DHIN is a statewide health information exchange that the DCR can access to search for a patient's clinical history. Though all Delaware facilities involved in the diagnosis or treatment of a cancer case are required to report directly to the DCR, sometimes information may not have been reported by every facility or an abstract may have been submitted prior to the completion of the cancer treatment and care. Therefore, DHIN is an additional source that the DCR may use to obtain additional information related to a case. If additional information was found for the case, such as information about treatment received that was not provided and available to the DCR, this data was incorporated into the analysis for the applicable measure.

## Results

Counts of eligible cases (denominators) and cases that met each CoC standard (numerators) are included in Table 1, along with the percentages of cases meeting each standard by year. Results of the analysis showed that three out of the four measures evaluated met the CoC standard for both 2018 and 2019 data. The three measures that met the CoC standards for 2018 were HT (90.4%), nBX (87.6%), and LNoSurg (93.3%). The RECRTCT measure did not meet the CoC standard for 2018 data, with 64.3% of cases originally meeting the standard and only improving to 71.4% after the DHIN review. It is important to note that few cases met the selection criteria for the RECRTCT measure. All four measures evaluated met the CoC standards for 2019 (HT – 91.6%; nBX – 85.2%; LNoSurg – 92.7%; RECRTCT – 92.3%).

Table 1. Proportion of Delaware Cancer Registry (DCR) cases that met selected Commission on Cancer (CoC) quality measures, Delaware, 2018-2019.

Site	Measure	Measure Type	CoC Standard %	DCR 2018 Cases Meeting CoC Standard % (n/N)	DCR 2019 Cases Meeting CoC Standard % (n/N)
Breast	HT - Tamoxifen or third generation aromatase inhibitor is recommended or administered within 1 year (365 days) of diagnosis for women with AJCC T1cN0M0, or stage IB-III hormone receptor-positive breast cancer	Accountability	90%	90.4% (235/260)	91.6% (282/308)
Breast	nBX - Image or palpation-guided needle biopsy to the primary site is performed to establish diagnosis of breast cancer	Quality Improvement	80%	87.6% (767/876)	85.2% (629/738)
Lung	LNoSurg - Surgery is not the first course of treatment for cN2, M0 lung cases	Quality Improvement	85%	93.3% (42/45)	92.7% (38/41)
Rectum	RECRTCT - Preoperative chemo and radiation are administered for clinical AJCC T3N0, T4N0, or Stage III; or postoperative chemo and radiation are administered within 180 days of diagnosis for clinical AJCC T1-2N0 with pathologic AJCC T3N0, T4N0, or Stage III; or treatment is recommended for patients under the age of 80 receiving resection for rectal cancer.	Quality Improvement	85%	71.4%* (n/N)**	92.3% (n/N)**

\*Original percentage before further DHIN review was 64.3%. The final percentage is shown in the table. \*\*Sample size not shown due to threshold requirements. Cell size less than 16 count are suppressed.

## Discussion

Almost all the evaluated CoC quality measures for 2018 and 2019 were met based on an analysis of DCR cases. The only measure where DCR cases did not meet the CoC standard was for the RECRTCT measure in 2018, though the measure was met for 2019 cases. In the previous analysis of this measure, DCR cases met the CoC standard for 100% of cases in 2016 and 92.9% in 2017. In reviewing the cases that did not meet the standard for 2018, both chemotherapy and

radiation were often given but were not given relative to surgery as suggested by the standard (i.e., was given prior to surgery when recommendation is to follow surgery, or vice versa). It is unclear why the 2018 cases did not meet the standard. However, it is important to note that there were small sample sizes for the RECRTCT measure from both 2018 and 2019, which means a small number of cases that did not meet the measure guidelines resulted in a percentage below the standard. Small sample size can compromise the comparability of this measure with other measures. Also, it may hinder the reliability of conclusions made in this study.

Particularly for the HT measure, there was improvement over time. Based on the previous analysis, 88.0% of DCR cases met the CoC standard in 2016 and 80.5% of cases in 2017, both values below the CoC standard of 90%. Based on the 2018 and 2019 cases, both years met the CoC standard, with a higher proportion of cases meeting the standard in 2019 compared to in 2018. For the nBX and LNoSurg measures, all years included in the previous and current analysis met the CoC standard and had similar proportions.

The DCRAC plans to continue assessing the CoC quality measures at the state level to improve quality of cancer data and care. Feedback will be shared with Delaware leadership and next steps will be discussed.

## Public Health Implications

The CoC's quality measures play a significant role in promoting health by encouraging health care providers to prioritize the most appropriate treatment options for cancer patients.<sup>8</sup> These measures drive cancer treatment standards for major cancers. They also assist providers and health care facilities' staff as they assess their adherence to standard-of-care therapies. Targeted treatment that meets quality measure standards can lead to reduced unnecessary treatment and improved quality of life for patients.

Multiple studies have demonstrated that adherence to these standards can influence patient outcomes, even in terms of improving survival. A 2023 analysis of the Surveillance, Epidemiology, and End Results (SEER) database showed that CoC accreditation was a statistically significant variable and that non-accredited facilities had statistically significant reductions in survival.<sup>9-11</sup> By meeting these measures consistently, hospital-based cancer programs can ensure that they are rendering the best care. Medical providers can ensure patients receive effective and targeted cancer care, ultimately saving resources, reducing cancer burden, impacting survival, and improving public health outcomes.

Ms. Ross may be contacted at [wilhelmnaross@westat.com](mailto:wilhelmnaross@westat.com).

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