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Commission on Cancer (CoC) CP3R Measures for Colon Cancer Evaluation of Delaware Cancer Registry Data

Betsy Cromartie, MA, CTR,[1] Bob Hall-McBride, CTR,[2] Zeinab Baba, DrPH, MS[3]

1. Project manager, Delaware Cancer Registry, Division of Public Health, Delaware Health and Social Services

2. Manager, Oncology Data Center, Christiana Care Health Services

3. Epidemiologist, Comprehensive Cancer Control Program, Division of Public Health, Delaware Health and Social Services

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Correspondence concerning this article should be addressed to Betsy Cromartie, Delaware Cancer Registry, Division of Public Health, Thomas Collins Building, Suite 11, 540 S. DuPont Highway, Dover, DE 19901; betsy.cromartie@state.de.us; 302-744-1058.

Abstract

This study evaluates the Delaware Cancer Registry's 2010-2014 colon cancer data using Cancer Program Practice Profile Reports (CP3R) quality of care measures developed by the American College of Surgeons Commission on Cancer. The CP3R measures assess: 1) the number of regional lymph nodes removed and pathologically examined for resected colon cancer (12RLN); and 2) the provision of adjuvant chemotherapy for Stage III patients (ACT). Research was conducted in the Delaware Health Information Network and with hospital cancer registries for cases missing values for provision of chemotherapy. Percentages of cases meeting the standard of care were calculated after stratification by sex and race.

Introduction

The Delaware Cancer Registry (DCR) is a state central population-based cancer registry, providing data for cancer surveillance and control initiatives of the Division of Public Health as well as statewide, national and international partners. DCR data meet the standards for data quality, timeliness, and completeness of the Centers for Disease Control's National Program of Cancer Registries (CDC-NPCR) and the North American Association of Central Cancer Registries (NAACCR). An assessment of quality of cancer care using DCR data was undertaken to determine: a) whether the data could be used to evaluate the statewide level of adherence to standard of care measures currently used by Delaware hospitals accredited by the Commission on Cancer and, if so, b) to what extent are the cases in the DCR compliant with the current standard of colon cancer care measures.

Background on RQRS and CP3R - Quality Cancer Tools of the Commission on Cancer

Currently, seven Delaware hospitals have Commission on Cancer (CoC)-accredited cancer programs. The National Cancer Database of the CoC provides a number of tools for use by CoC-

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accredited cancer programs to evaluate and compare cancer care at their facility with that provided at the state, regional, and national levels. One of these tools, the Rapid Quality Reporting System (RQRS), is designed to be a "close- to-real-time" reporting and alert tool to promote national evidence-based cancer care at the local community level.[1] The RQRS utilizes a web-based, systematic data collection and reporting system to promote evidence-based therapy through a web-based prospective alert system for anticipated care. Utilizing the RQRS enables CoC-accredited cancer programs to evaluate data on patients concurrently, notifying hospitals of treatment expectations, and showing a hospital its year-to-date concordance rate relative to the state, other similar hospitals, and hospitals at the national level. RQRS currently evaluates four breast measures and two colon measures. While RQRS participation has been voluntary, beginning in January 2017, all CoC-accredited cancer programs are required to participate.[2]

Another tool to promote evaluation and improvement of quality of cancer care is the CoC's Cancer Program Practice Profile Reports (CP3R). CP3R displays a hospital's record of care, which is used to promote continuous improvement of patient care and enables hospitals to compare adherence to quality of care standards with those of other providers.[3] The CP3R currently reports twenty-three quality measures covering ten primary cancer sites. The two CP3R measures for quality of colon cancer care are the focus of this study using statewide cancer registry data.

Evaluation of Delaware's Cancer Data – CP3R Colon Cancer Measures

One objective of the Delaware Cancer Registry Advisory Committee (DCRAC) is to improve the quality of Delaware's cancer data to enable evaluation of treatment practices against patient outcomes. Toward this objective, the DCRAC promoted usage of the RQRS in Delaware hospitals over the past several years. To assess the feasibility of reporting on quality of care measures for Delaware cancer data as a whole, the Commission on Cancer's CP3R 12 Regional Lymph Nodes (12RLN) and Adjuvant Chemotherapy (ACT) measures were evaluated for the Delaware Cancer Registry's colon cancer case data regarding adherence to the standard of care.

The CoC's case eligibility criteria for these measures were used to select subsets of analytic colon cancer cases diagnosed during the period 2010-2014 from the Delaware Cancer Registry (DCR) database.

Discussion

The CoC defines the first CP3R Measure, 12RLN, as "at least 12 regional lymph nodes are removed and pathologically examined for resected colon cancer."[4] A clinical rationale for this measure, as noted in the American Joint Committee on Cancer's Cancer Staging Manual, 7th edition, is that the number of lymph nodes examined "has been reported to be associated with improved survival, possibly because of increased accuracy of staging."[5] The CoC's 2016 expected EPR (estimated performance rate) for this measure is 85%.

An in-depth review of the cases showed that 89.77% had twelve or more lymph nodes removed during colon surgery. This is 4.77% higher than the national standard. There was nearly no difference between males and females. There was a difference when comparing cases by race. The white cohort was 4% higher than all other races. None of these differences were found to be statistically significant. These are presented in Table 1.

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Table 1. DCR Colon Cancer Cases Treated with Surgery (Diagnosed 2010-2014) – CP3R 12RLN Evaluation

VARIABLE	BY SEX N (%)		BY RACE N (%)		TOTAL N (%)
	Male (N=538)	Female (N=518)	White (N=864)	Other (N=192)	N=1,056
Age (mean ± sd)	68.1 ± 12.9	70.4 ± 13.2	70.5 ± 12.7	63.6 ± 13.3	69.2 ± 13.1
Number of lymph nodes examined (mean ± sd)*	20.8 ± 11.0	22.1 ± 11.1	21.6 ± 10.8	20.7 ± 12.1	21.5 ± 11.1
Lymph nodes examined					
Yes	532(98.9)	509 (98.3)	854 (98.8)	187 (97.4)	1,041 (98.6)
No	5 (0.9)	9 (1.7)	9 (1.0)	5 (2.6)	14 (1.3)
Other/Unknown	1 (0.2)	0 (0.0)	1 (0.1)	0 (0.0)	1 (0.1)
Had at least 12 lymph nodes examined					
Yes	532(98.9)	509 (98.3)	854 (98.8)	187 (97.4)	1,041 (98.6)
No	5 (0.9)	9 (1.7)	9 (1.0)	5 (2.6)	14 (1.3)
Unknown	1 (0.2)	0 (0.0)	1 (0.1)	0 (0.0)	1 (0.1)
Vital Status					
Alive	386 (71.8)	384 (74.1)	617 (71.4)	153 (79.7)	770 (72.9)
Dead	152 (28.2)	134 (25.9)	247 (28.6)	39 (20.3)	286 (7.1)

*Only for those who had lymph nodes examined

The CoC defines the second CP3R Measure, Adjuvant Chemotherapy (ACT), as: "Adjuvant chemotherapy is recommended or administered within four months (120 days) of diagnosis for patients under the age of eighty with American Joint Committee on Cancer (AJCC) Stage III (lymph node positive) colon cancer."[4] The CoC's clinical rationale is that "there are substantial data that there is underuse and wide variation in the use of chemotherapy with Stage III colon cancer."[3] There is currently no expected EPR for this measure.

Research using the Delaware Health Information Network (DHIN) and with Delaware hospital cancer registries was conducted to investigate cases with missing chemotherapy data (approximately 15% of the total), and the DCR database was updated as necessary.

The review of stage III colon cancer cases having adjuvant chemotherapy administered or recommended within four months of diagnosis showed 95% compliance. There were differences in the percentages between the genders and racial groups on this measure, as shown in Table 2. The percentage of males was approximately 3% lower than females, and the percentage of whites was approximately 4% lower than all other races. None of these differences were found to be statistically significant. There can be many factors that influence whether patients receive adjuvant chemotherapy such as co-morbid conditions, age, and patient willingness to undergo chemotherapy. These are presented in Table 3.

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Table 2. DCR Stage III Colon Cancer Cases Diagnosed in Patients less than 80 Years of Age (2010-2014) - ACT Measure Evaluation

VARIABLE	BY SEX N (%)		BY RACE N (%)		TOTAL N (%)
	Male (N=134)	Female (N=108)	White (N=190)	Other (N=52)	N=242
Age (mean ± sd)	61.7 ± 11.2	61.6 ± 10.9	63.0 ± 10.9	56.7 ± 10.2	61.7 ± 11.0
Time to chemo day (mean ± sd)**	69.4 ± 35.5	67.9 ± 25.6	69.3 ± 32.3	66.9 ± 28.6	68.8 ± 31.5
Received Chemo					
Yes	112 (83.6)	88 (81.5)	154 (81.0)	46 (88.5)	200 (82.6)
No	18 (13.4)	16 (14.8)	30 (15.8)	4 (7.7)	34 (14.0)
Missing	4 (3.0)	4 (3.7)	6 (3.2)	2 (3.8)	8 (3.3)
Received Chemo within 120 Days (N=200)					
Yes	105 (93.7)	85 (96.6)	145 (94.2)	45 (97.8)	190 (95.0)
No	7 (6.2)	3 (3.4)	9 (5.8)	1 (2.2)	10 (5.0)
Vital Status					
Alive	91 (67.9)	91 (67.9)	137 (72.1)	38 (73.1)	175 (72.3)
Dead	43 (23.1)	43 (23.1)	53 (27.9)	14 (26.9)	67 (27.7)

**Patients receiving chemotherapy, but not within 120 days of diagnosis was due to patient comorbidities (n=7) and unknown reasons (n=3)

Table 3 presents reasons why patients did not receive adjuvant chemotherapy.

Table 3. Reasons for those who did not Receive Chemotherapy

VARIABLE	NUMBER	
Age (mean ± sd)	69.7 ± 7.1	
Chemo Summary	**Alive**	**Dead**
Chemotherapy was not recommended/administered because it was contraindicated due to patient risk factors	5	8
Chemo was not administered because the patient died prior to planned or recommended therapy	0	5
Chemo not administered; recommended by physician but not administered as first course of therapy	1	0
Chemo was not administered – patient/family refused	10	5
Total	**16**	**18**

Limitations of the Study

DCR data submitted annually to the CDC-NPCR and to NAACCR meet all quality criteria established by these standard setting organizations; however, remaining limitations of this study are possible data field coding errors and data missing from the DCR database. A potential

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solution is to conduct a data quality review of a random sample of cases from the subset under evaluation to assess level of accuracy.

Conclusion and Future Study

In this pilot project, Delaware Cancer Registry data were evaluated using the CP3R measures for quality of colon cancer treatment, 12RLN and ACT. With additional research in the Delaware Health Information Network and with hospital cancer registries for data on chemotherapy provision, it was possible to prepare a complete CP3R ACT measure summary for Delaware. The DCR data were used "as is" without additional data collection to prepare the 12RLN report. From these results, the Delaware Cancer Registry Advisory Committee concluded that it is feasible to examine these measures using DCR data. The DCRAC plans to continue to encourage the use of the RQRS and the CP3R measures at the facility and state levels to improve quality of cancer data and most importantly, to improve quality of cancer care.

References

1. American College of Surgeons. (2016). Rapid Quality Report System User Guide. https://www.facs.org/~/media/files/quality%20programs/cancer/ncdb/rqrs_userguide_2016.ashx. Accessed December 1, 2016.
2. American College of Surgeons. (2016). Rapid Quality Report System. https://www.facs.org/quality-programs/cancer/ncdb/qualitytools/rqrs. Accessed December 1, 2016.
3. American College of Surgeons. (2016). Cancer Program Practice Profile Reports (CP3R). https://www.facs.org/quality-programs/cancer/ncdb/qualitytools/cp3r. Accessed December 1, 2016.
4. American College of Surgeons. (2016). CoC Quality of Care Measures. https://www.facs.org/quality-programs/cancer/ncdb/qualitymeasures. Accessed December 1, 2016.
5. American Joint Committee on Cancer. (2010). Cancer Staging Manual (7th edition), p. 145.