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Evaluating disparities in inpatient surgical cancer care among American Indian/Alaska Native patients

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Abstract

BACKGROUND: American Indian/Alaska Native (AI/AN) patients with cancer have the lowest survival rates of all racial and ethnic groups, possibly because they are less likely to receive "best practice" surgical care than patients of other races.

METHODS: Prospective cohort study comparing adherence with generic and cancer-specific guidelines on processes of surgical care between AI/AN and non-Hispanic white (NHW) patients in Washington State (2010 to 2014) was conducted.

RESULTS: A total of 156 AI/AN and 6,030 NHW patients underwent operations for 10 different cancers, and had similar mean adherence to generic surgical guidelines (91.5% vs 91.9%, $P = .57$). AI/AN patients with breast cancer less frequently received preoperative diagnostic core needle biopsy (81% vs 94%, $P = .004$). AI/AN patients also less frequently received care adherent to prostate cancer-specific guidelines (74% vs 92%, $P = .001$).

CONCLUSION: Although AI/ANs undergoing cancer operations in Washington receive similar overall best practice surgical cancer care to NHW patients, there remain important, modifiable disparities that may contribute to their lower survival.

Cancer is the second leading cause of death in the American Indian and Alaska Native (AI/AN) population,[1,2] just as it is in the US population overall.[3,4] Among all US racial and ethnic groups, AI/ANs have the poorest 5-year survival rate for all cancers combined.[2,3] The 4 leading causes of cancer mortality among AI/ANs are breast, colorectal, lung, and prostate cancer, again mirroring the US all-races population.[4] However, although other racial and ethnic groups have seen consistent declines in mortality from these cancers since 1975, AI/ANs have not.[2,3,5]

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Research on cancer survival rates among AI/ANs is scarce for several reasons. First, although the AI/AN population increased from 2.1 million in 2000 to 5.2 million in 2010, AI/ANs still comprise only 1.7% of the US population.[6] Second, although race classification in national clinical databases such as the Surveillance Epidemiology and End Results (SEER) database is fairly robust, AI/ANs are often misclassified as other racial/ethnic groups.[7–9] Third, studies that collect primary data have historically been hampered by perceived cultural insensitivity, resulting in low rates of participation by AI/ANs.[10] All these factors lead to very small numbers of AI/AN patients in any circumscribed dataset, so that AI/ANs are often evaluated only as part of a broader minority cohort.[11,12]

Within these constraints, our previous research has shown that AI/ANs at the national level are less likely to receive guideline-concordant cancer care, including any surgery, appropriate surgery, adjuvant therapies, and surveillance,[13,14] all of which have been linked to cancer survival. Although our national dataset enabled an assessment of population-based disparities, it did not permit a more granular analysis of potential lapses in delivery of optimal surgical care processes at the hospital level.

To accomplish this, this study focused on surgical intervention—the only curative treatment for most solid cancers—and examined both generic and cancer-specific measures of care processes. This approach can yield novel insights into disparities in cancer care[15,16] and might offer advantages over more traditional outcome-oriented measures. Certain traditional outcome measures are unique to specific cancers or surgical procedures, or require adjustment in analyses, leading to reductions in sample sizes that are already small. Furthermore, adverse outcomes for most surgical procedures are infrequent, so that large samples of surgical patients are needed to detect statistically significant results. Best practice guidelines, on the other hand, are intended for universal application, so patient samples of sufficient size to assess their implementation should be readily available.

Accordingly, the objective of this study was to compare receipt of surgical care consistent with best practice guidelines between AI/AN and NHW patients at hospitals participating in the Surgical Care Outcomes Assessment Program (SCOAP) in Washington State, which is home to a sizeable population of AI/AN individuals. Eleven SCOAP hospitals collect data on cancer-specific surgeries for 10 cancer types, including breast, colorectal, lung, and prostate cancers. Given the disparities in receipt of guideline-concordant cancer care we observed among AI/AN patients at a macrolevel using the SEER/Medicare dataset, we hypothesized that AI/ANs with cancer would also less frequently receive surgical care that adhered to generic and cancer-specific best practice guidelines in Washington.

Methods

This study was exempted from human subjects review by the University of Washington's Institutional Review Board.

Study design, data sources, and population

Our prospectively gathered cohort was defined by adult patients (≥18 years old) who underwent inpatient operations indicated for 10 different cancer types between January 1, 2010 and December 31, 2014 in Washington State hospitals participating in SCOAP (Table 1). To

Table 1 Patients having inpatient operations for 10 cancer types captured by SCOAP from 2010 to 2014

	NHW		AI/AN		Other*		Total	
	No.	%	No.	%	No.	%	No.	%
Cancer type[†,‡]	6,030	80.7	156	2.1	1,282	17.2	7,468	100
Breast[§]	804	78.0	50	4.8	177	17.2	1,031	100
Colon[§,‖]	3,041	80.3	46	1.2	698	18.4	3,785	100
Esophageal	21	95.5	1	4.5	0	.0	22	100
Kidney	48	64.9	7	9.5	19	25.7	74	100
Liver	10	45.5	8	36.4	4	18.2	22	100
Lung[§]	489	82.6	11	1.9	92	15.5	592	100
Pancreas	23	76.7	3	10.0	4	13.3	30	100
Prostate[§]	593	87.1	14	2.1	74	10.9	681	100
Rectal[‖]	920	82.6	7	.6	187	16.8	1,114	100
Uterine	81	69.2	9	7.7	27	23.1	117	100

AI/AN = American Indian/Alaska Native; NHW = non-Hispanic White.

*"Other" includes patients self-identified as Black or African American, Asian, Native Hawaiian or Other Pacific Islander, and White with Hispanic ethnicity.

†Percentage calculated from the total number of patients with each cancer type.

‡Only about 10% of cases of esophageal, kidney, liver, pancreatic, and uterine cancers were sampled between 2010 and 2014.

§Breast, colon, lung, and prostate are the most prevalent cancers in the United States,[4] and cancer-specific process of care metrics are reported for these 4 cancers.

‖Data on colon and rectal cancer were captured across 48 hospitals; other cancer modules were in place at 11 hospitals between 2010 and 2014.