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Improving cancer care for American Indians with cervical cancer in the Indian Health Service (IHS) system — Navigation may not be enough

Lauren E. Dockery [a,*], Anita Motwani [a], Kai Ding [b], Mark Doescher [c], Justin D. Dvorak [b], Kathleen N. Moore [a], Laura L. Holman [a]

[a] *Section of Gynecologic Oncology, Stephenson Cancer Center, The University of Oklahoma Health Sciences Center, Oklahoma City, OK, United States*
[b] *Department of Biostatistics and Epidemiology, The University of Oklahoma Health Sciences Center, Oklahoma City, OK, United States*
[c] *Department of Family Medicine, The University of Oklahoma Health Sciences Center, Oklahoma City, OK, United States*

HIGHLIGHTS

- Navigation did not alter time treatment initiation in American Indian patients.
- For those with IHS funding, navigation did not alter time to treatment initiation.
- Navigation did not change rates of completion of therapy.

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ABSTRACT

Objectives. Patient navigation programs have been shown to positively impact cancer outcomes for minority populations. Little is known regarding the effects of these programs on American Indian (AI) populations. The purpose of this study is to characterize the impact of a patient navigation program on AI cervical cancer patients at a tertiary care center.

Methods. A retrospective review of all AI cervical cancer patients receiving navigation services and a cohort of AI patients treated prior to navigation services was performed. Additional comparisons were made between those with and without Indian Health Service (IHS) funding. Summary statistics were used to describe demographic, clinical characteristics, treatment, and survivorship across groups.

Results. Of 55 patients identified, 34 received navigation and 21 did not. In navigated patients, median age was 46 years (27–80 years) compared with 42 years (17–68 years) in pre-navigation patients ($p = 0.53$). There was no difference between stage at diagnosis ($p = 0.73$). No difference was noted in treatment received between groups ($p = 0.48$). Distance traveled for treatment between groups did not differ ($p = 0.46$). Median time to initiation of treatment was not different between groups, 30.5 days vs. 27.5 days ($p = 0.18$). Among patients with IHS funding, navigation services did not alter time to initiation of treatment ($p = 0.57$), and there was no difference in completion of prescribed therapy between groups (92% navigated vs 100% pre-navigation).

Conclusions. Navigation services for AI cervical cancer patients did not alter initiation or completion of treatment. Navigation programs may provide less tangible benefits to AI cervical cancer patients and further study is warranted.

1. Introduction

In the United States, cancer incidence and deaths are slowly declining among all racial and ethnic groups other than American Indians [1]. Among these groups, American Indian (AI)/Alaska Native (AN) individuals have consistently demonstrated the worst 5-year overall survival [2]. The Centers for Disease Control and Prevention has reported declining cancer death rates from 1975 to 2004 for all ethnic groups other than AI/AN [3].

Data regarding specific mortality, survival, or recurrence rates among AI women with cervical cancer is limited. A study of AI/AN women living in IHS Contract Health Service Delivery Areas (CHSDA) diagnosed with cervical cancer from 1999 to 2009 demonstrated a death rate from cervical cancer of 4.2. This rate was nearly twice the rate of non-Hispanic White women (2.0, rate ratio 2.11) [4].

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[*] Corresponding author at: Section of Gynecologic Oncology, Stephenson Cancer Center, The University of Oklahoma Health Sciences Center, 800 NE 10th Street, Suite 5050, Oklahoma City, OK 73104, United States.
E-mail address: lauren-dockery@ouhsc.edu (L.E. Dockery).

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Although data is limited regarding outcomes for AI patients with cervical cancer, there is additional data available regarding other cancer types in this population. In a retrospective study using Surveillance, Epidemiology, and End Results-Medicare data, outcomes were evaluated regarding the receipt of guideline-concordance care and survival in AI/AN patients as compared to Non-Hispanic White patients diagnosed with breast, colon, lung, or prostate cancer. Across all cancer types AI/AN individuals were less likely to receive guideline-concordant care and were less likely to undergo surgery ($p < 0.025$ for all cancer types). Additionally, receipt of non-optimal care was associated with significantly worse survival [2]. Several factors likely contribute to the poor outcomes seen among AI individuals including cultural beliefs, poverty and/or low socioeconomic status, lower levels of education, increased rates of comorbid disease, and decreased access and proximity to health care [5]. Additionally, Indian Health Service (IHS) provides federal health care services for approximately 2.2 million AI and AN individuals belonging to 567 federally recognized tribes in the United States [6]. Specialty cancer care for patients eligible for IHS is limited as IHS does not employ oncologists [7] and any referrals through Contract Health Services are dependent upon sufficient congressional funding approved annually leading to potential delays or barriers to receipt of care. Lack of funding or overburdened IHS clinics often lead to delayed referrals and AI patient dissatisfaction with cancer care [8].

Patient navigation programs are patient-centered services with a focus on assisting medically underserved patients overcome barriers to care among patients receiving cancer treatment and surveillance [9]. Specifically, navigation services aim to address obstacles to timely care, such as procuring transportation, obtaining financial assistance and insurance, and providing social support [10]. Patient navigation programs have demonstrated the greatest impact among those with the highest healthcare disparities, such as the Black population [10]. However, little is known regarding the influence of AI-specific navigation programs on decreasing cancer treatment and outcome disparities.

Oklahoma has the second largest percentage of individuals identifying as AI or AN in the United States [5]. The AI navigation services program at the Stephenson Cancer Center at the University of Oklahoma is dedicated to serving the unique needs of the AI population. The AI navigators serve as a bridge between tribal clinics, IHS facilities, and the Stephenson Cancer Center by assisting with referrals and authorizations, communicating with tribal clinics, and aiding patients with access to alternate tribal resources. Navigation programs have been best studied in the setting of screening and treatment of pre-invasive disease [9]. Due to the organization of the cancer center, patients with pre-invasive disease do not commonly utilize navigational services. This study aimed to characterize the impact of a navigational program in those patients with invasive disease only; an area for which little data exists.

In the United States, cervical cancer is a disparities-associated malignancy. Preventative screening is essential in the reduction of mortality for cervical cancer and differences in mortality rates across socioeconomic and racial/ethnic groups have been connected to utilization of preventative or screening services [11]. Patients with cervical cancer frequently have poor access to healthcare or limited resources and are therefore likely to benefit from a patient navigation program. The aim of the present study was to retrospectively assess the impact of an AI-specific navigation program on cancer outcomes among patients with cervical cancer.

2. Materials and methods

A retrospective review was performed of all AI patients with cervical cancer treated at the Stephenson Cancer Center between 1997 and 2016. This study was approved by the Institutional Review Board (IRB) of the University of Oklahoma Health Sciences Center. As no data were collected prospectively, a waiver of informed consent was granted by the IRB.

The AI navigation program at the Stephenson Cancer Center was initiated in 2005. The cohort of patients who were treated prior to 2005 did not receive navigation services as the program was not yet implemented. All patients who were treated after 2005 received navigation services. To be included in the study, women must have had a pathologic diagnosis of cervical cancer and be identified in the medical record as AI. Women with inadequate data in the medical record were excluded. Demographic information and medical history was abstracted from the medical record.

Summary statistics were utilized to describe demographic and clinical characteristics. Chi-square tests, two-sample *t*-tests and Fisher exact tests were used for comparisons of demographic and clinical characteristics, treatment, and survivorship across groups.

3. Results

During the study period, 55 patients were identified who met inclusion criteria. Table 1 details the characteristics of the entire cohort. The median age of patients was 45 years, and the majority were stage IB1.

The 34 patients who received navigation services were then compared to the 21 women who were treated prior to the implementation of the navigation program (Table 2). Among navigated patients, the median age was 46 years (range 27–80 years) compared with 42 years (range 17–68 years) in pre-navigation patients ($p = 0.53$). There was also no difference between groups in stage at diagnosis ($p = 0.73$). The majority of patients in both groups received chemotherapy plus radiation for their primary treatment, and there was no difference between those who received navigation and those who did not ($p = 0.48$).

As distance to travel from home to the cancer center may affect a patient's ability to comply with recommended treatment, this was evaluated in both groups. Navigated patients traveled an average of 80.2 miles, which was not significantly different from patients in the pre-navigated group, who averaged 93.4 miles ($p = 0.46$). (Table 2).

It was hypothesized that patients who received navigation services would initiate treatment more quickly than patients who were treated prior to the implementation of navigation. However, the median time to initiation of treatment was evaluated, and there was no significant difference between navigation and pre-navigation patients (30.5 days vs. 27.5 days, $p = 0.18$) (Table 2).

Given the recognized limitations associated with IHS funding, it was suspected that IHS status may be driving some of the study results. Therefore a post-hoc analysis of patients with IHS funding was performed. Of the 55 patients included in the study, 37 had documented IHS funding. Navigated patients were more likely to have documented IHS funding than patients in the pre-navigated group (43% pre-navigation vs. 82% navigated, $p = 0.0024$). Among the 37 patients with IHS funding, navigation services did not alter the mean time to

Table 1
Participant characteristics**.** Demographics and tumor characteristics for the entire cohort.

	All patients ($n = 55$)
Median age at diagnosis (years)	45
Stage, *n* (%)	
In situ	3 (6)
I	31 (56)
II	9 (16)
III	4 (7)
IV	7 (13)
Missing	1 (2)
Treatment received, *n* (%)	
Surgery	17 (31)
Surgery + RT	2 (4)
Surgery + chemo/RT	10 (18)
Chemo/RT	22 (40)
Surgery + chemo	2 (4)
RT	1 (2)
Missing	1 (2)