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Survey article

Geographic disparities in the distribution of the U.S. gynecologic oncology workforce: A Society of Gynecologic Oncology study

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ABSTRACT

A recent ASCO workforce study projects a significant shortage of oncologists in the U.S. by 2020, especially in rural/underserved (R/US) areas. The current study aim was to determine the patterns of distribution of U.S. gynecologic oncologists (GO) and to identify provider-based attitudes and barriers that may prevent GOs from practicing in R/US regions. U.S. GOs (n = 743) were electronically solicited to participate in an on-line survey regarding geographic distribution and participation in outreach care. A total of 320 GOs (43%) responded; median age range was 35–45 years and 57% were male. Most practiced in an urban setting (72%) at a university hospital (43%). Only 13% of GOs practiced in an area with a population < 50,000. A desire to remain in academics and exposure to senior-level mentorship were the factors most influencing initial practice location. Approximately 50% believed geographic disparities exist in GO workforce distribution that pose access barriers to care; however, 39% "strongly agreed" that cancer patients who live in R/US regions should travel to urban cancer centers to receive care within a center of excellence model. GOs who practice within 50 miles of only 0–5 other GOs were more likely to provide R/US care compared to those practicing within 50 miles of ≥ 10 GOs ($p < 0.0001$). Most (39%) believed the major barriers to providing cancer care in R/US areas were volume and systems-based. Most also believed the best solution was a hybrid approach, with coordination of local and centralized cancer care services. Among GOs, a self-reported rural-urban disparity exists in the density of gynecologic oncologists. These study findings may help address barriers to providing cancer care in R/US practice environments.

1. Introduction

Multiple studies document a survival advantage for women with gynecologic malignancies when treated by a gynecologic oncologist (Earle et al., 2006; Chan et al., 2007, 2011). However, gynecologic cancer patients require highly specialized care throughout the spectrum of their lives, and this is not always available at suburban community hospitals or rural medical centers. Prior reports suggest that distance from residence to a gynecologic cancer treatment facility is a significant barrier to care and may have a substantial impact on cancer outcomes (Birkmeyer et al., 2004).

Although progress has occurred in the treatment and survival of women with gynecologic malignancies, significant health care disparities remain that prevent equal access to care. An unequal cancer burden is borne by blacks, by individuals of lower socioeconomic status, by the elderly and by those who are geographically remote from a high volume cancer center with specialists (Mullee et al., 2004; Karjalainen, 1990; Erikson et al., 2007; Braun and Clarke, 2006).

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Reports on survival disparities in other cancers, such as breast and colorectal cancer, are attributed to differences in regionally-based socioeconomic factors and to differences in access to and receipt of quality treatment and post treatment follow-up (Karjalainen, 1990).

Geographic disparities in cancer survival are observed in several studies (Karjalainen, 1990; Erikson et al., 2007; Gunderson et al., 2013; Ward et al., 2004). Knowing whether cancer incidence and survival vary geographically is important because health care is most often delivered locally (Erikson et al., 2007). Therefore, identification of areas with better or worse survival may reflect access to, and quality of, care. Accordingly, understanding how location of cancer specialists influences survival outcomes for those with cancer is critical. Yet, little is known with respect to census data or distance-to-provider statistics of the gynecologic oncology work force in particular. Therefore, the primary study aim was to define how the U.S. gynecologic oncology work force is distributed geographically as well as to understand provider practice patterns and attitudes with respect to outreach and providing cancer care in rural settings. A secondary aim was determining survey respondent opinions regarding potential solutions to cancer care access issues, including adoption of dispersive care models compared with centralized cancer care in urban "centers of excellence".

2. Materials and methods

The study was conducted on behalf of the Society of Gynecologic Oncology's Gynecologic Oncology (SGO) Fellows Research Network. Institutional review board approval to conduct this study was obtained through Johns Hopkins Hospital and Greater Baltimore Medical Center, Baltimore, MD. An electronic survey study was performed and U.S. gynecologic oncologists were invited to participate. After submitting an application to the SGO, a list of SGO members' email addresses was obtained. An email invitation to participate was sent out to all actively-practicing, U.S. SGO members who are gynecologic oncologists (n = 743). Those members who did not immediately complete the survey were sent two additional email invitations to participate. Participation was voluntary and was incentivized with a $15 Amazon gift card, offered to each survey respondent upon completion of the questionnaire.

The online, 40-item survey assessed provider demographics and education, practice characteristics and geographic location and opinions and practices regarding outreach. Most questions were designed in multiple-choice or Likert formats; however respondents were also given the opportunity to provide open-ended feedback on select questions. The responses of those who elected to provide written feedback were subjected to qualitative analysis as described below. Descriptive statistics were calculated with the number of responses as the denominator. Fisher's exact test and the Chi-square test were used to detect differences in responses among groups using Stata 11.1 statistical software (StataCorp, College Town, TX).

2.1. Qualitative analysis

We conducted a thematic analysis aimed at identifying a set of main themes in the views expressed (Silverman, 2000; Kumpulainen et al., 2002). Using the open-ended responses provided by survey respondents (n = 44), investigators SR and KLR read and discussed the content and identified the main themes, which formed the basis of a draft-coding framework. Both investigators then independently reviewed responses applying the draft coding framework and making modifications to it through an inductive and iterative process. The two investigators then discussed the coding framework and coding choices in detail. Differences were resolved by consensus. All coding was reviewed in light of these inter-reviewer discussions and decisions about the final framework.

Table 1
Provider-respondent demographics.

Characteristic	N	%
Age		
≤ 45	140	47.78
46–65	132	45.05
> 65	21	7.17
Gender		
Female	125	42.96
Male	166	57.04
Race		
White	235	83.93
Black	6	1.81
Hispanic	10	3.57
Asian	36	12.86
Other	5	1.79
Region		
New England	26	8.15
Mid Atlantic	64	20.06
Midwest	59	18.50
Southeast	77	24.14
Southwest	35	10.97
West	58	18.18
Practice setting		
Urban	232	73.19
Suburban	24	7.57
Rural	5	1.58
Both Urban and Suburban	28	8.83
Both Urban and Rural	21	6.62
Both Suburban and Rural	7	2.21
Practice type		
Federal government	8	2.61
University Hospital	133	43.46
Community Hospital	83	27.12
Hybrid	56	18.30
Solo private practice	3	0.98
Group private practice	37	12.09
Years in practice		
3 years or less	59	18.59
4–9 years	79	24.92
10–20 years	90	28.39
> 20 years	89	28.08

3. Results

A total of 320 (43%) gynecologic oncologists responded to the survey. Compared to those who responded, non-respondents were more likely to be older (> 65; p = 0.01) and more likely to practice in New England (p = 0.02) or the West (p = 0.05). Provider demographics are listed in Table 1. The median age range of respondents was 35–45 years (42.7%), 57.0% were male, 83.9% were Caucasian and 85.7% were married. Most respondents reported working > 20 years (28.1%) and the majority practiced in an urban setting (73.2%), and at a university hospital (40.5%). Most gynecologic oncologists reported practicing at 2–3 hospitals (48.0%) and practiced in multiple hospital systems (67.2%). Services provided by gynecologic oncologists at ancillary hospitals included surgery (93.6%), inpatient consultation (86.7%) and outpatient clinical services (58.5%). Travel distance to ancillary hospitals was estimated to be < 50 miles in most cases (86.4%), with only 13.6% of gynecologist oncologists traveling > 50 miles. Physicians in academic practices were the least likely to serve in rural areas (6.5%), while those at community hospitals were the most likely to serve rural populations (22.1%; p = 0.006). Gynecologic oncologists who practiced at more than one hospital were not more likely to work in rural areas (p = 0.19). Respondents estimated that approximately 1/3 of patients live beyond 50 miles of their practice location and that 20–30% of their patients had Medicaid or no insurance coverage.

The majority of respondents reported not performing outreach (59.0%) because it was not an option in their current practice (52.8%) or because their clinical workloads did not allow them to do so (53.2%). Additional reasons for not performing outreach cancer care are listed in