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National Radiation Oncology Medical Student Clerkship Trends From 2013-2018

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Abstract

Purpose/Objectives: Over the past six years, the Radiation Oncology Education Collaborative Study Group (ROECSG) implemented and expanded upon a national standardized curriculum for the fourth-year medical student radiation oncology clerkship. This study hypothesized that this would lead to increased use of structured clerkship educational methods on a national level.

Materials/Methods: From 2013 to 2018, all applicants to a single United States radiation oncology residency program were sent an anonymous clerkship experience survey. The Chi-squared test was used for statistical analysis.

Results: 488/1,183 students completed the survey (41.3% response rate). 1,303 total clerkship experiences were described. From 2013 to 2018, there has been a significant increase in clerkships with lectures designed for medical students, from 28.3% of clerkships in 2013 to 43.2% in 2018 ($p = 0.02$). Students who received 1 formal lecture perceived greater post-clerkship confidence in radiation oncology-related knowledge ($p < 0.01$) and overall confidence in their ability to function as a PGY-2 resident ($p = 0.02$).

Conclusions: These results demonstrate a national trend toward inclusion of structured didactics in radiation oncology clerkships coinciding with the expansion of the ROECSG curriculum and support the addition of structured didactics to the clerkship experience to provide medical students with foundational radiation oncology knowledge to function as residents.

Summary

The purpose of this study was to assess national trends in medical student radiation oncology clerkships over the past six years. Results demonstrate a national trend toward inclusion of structured didactics in radiation oncology clerkships coinciding with the implementation and expansion of the Radiation Oncology Education Collaborative Study Group curriculum.

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Introduction

Over the past six academic years, the Radiation Oncology Education Collaborative Study Group (ROECSG) developed, piloted, and expanded upon a national standardized curriculum for the fourth-year medical student radiation oncology clerkship (1–6). There are now 35 institutions formally using the ROECSG curriculum with additional institutions informally using curriculum materials. This study hypothesized that implementation of the ROECSG curriculum would correlate with increased use of structured didactics on a national level.

Methods and Materials

The development of the radiation oncology clerkship curriculum based off of the six-step approach to medical education curriculum development is described previously (1–3,5,7). An anonymous, internet-based clerkship experience survey was developed and distributed annually from 2013–2018 as described previously to applicants to a single radiation oncology residency program (1,5,8,9). Survey invitations were e-mailed to all applicants to a single United States radiation oncology residency program after the National Residency Matching Program rank-list deadline. A \$5 coffee card was offered via e-mail to respondents who completed the survey.

The survey consisted of Likert-type questions, yes/no, and free-response questions. The Chi-squared test was used for statistical analysis. The Institutional Review Board approved the annual surveys as exempt.

Results

A survey response rate of 41.3% (488/1,183) was obtained. Overall, 488 respondents reported on 1,303 unique clerkship experiences from 2013–2018. The median number of clerkships completed was 3 (range, 0–5), with a median clerkship length of 4 weeks (range, 1–5). Respondents were 398 (81.6%) MD, 60 (16.4%) MD/PhD, 6 (1.2%) DO, and 4 (0.8%) other. The median age was 27 years (range, 22–42). 317 (65.5%) were male, and 167 (34.5%) were female. From 2013 to 2018, there was a significant increase in female respondents, from 22.9% (16 of 70) in 2013 to 43.7% (31 of 71) in 2018 ($p = 0.02$). There were no other significant differences in demographic and survey characteristics of respondents.

746 (57.3%) of clerkships were reported to include any formal educational curriculum specifically for medical students. 427 (32.8%) clerkships included lectures as a component of the formal curriculum, while 405 (31.1%) included case discussions, 374 (28.7%) hands-on didactic sessions, and 27 (2.1%) other. Completing clerkships at ROECSG sites was associated with increased number of lectures for medical students ($p < 0.01$). From 2015 on, respondents were asked to identify who delivered the medical student lectures with a total of 912 rotations. Lectures were delivered by residents ($n=258$, 28.3%), clinical faculty ($n=141$, 15.5%), basic science faculty ($n=25$, 2.7%), physicists ($n=34$, 3.7%), dosimetrists ($n=13$, 1.4%), and other ($n=2$, 0.2%).

Consistent with results from 2013 (1), analysis of all survey years continued to demonstrate that students who received 1 formal lecture perceived greater post-clerkship confidence in knowledge of radiation biology, radiation physics, treatment setup and positioning, treatment planning, and ability to integrate evidence-based medicine into treatment (all Wilcoxon rank-sum $p < 0.01$), and greater overall confidence in their ability to function as a PGY-2 resident in radiation oncology ($p = 0.02$).

Analysis of clerkship educational trends from 2013-2018 demonstrated a significant increase in clerkships with any number of lectures designed specifically for medical students, from 26.2% (50/191) in 2013 to 41.3% (85/206) in 2018 (Figure 1). There were no significant differences in the types of lecturers from 2013 to 2018.

Discussion

This study analyzed data from 2013-2018 and demonstrates a significant national trend toward inclusion of structured didactics for medical students during radiation oncology clerkships coinciding with the implementation and expansion of the ROECSSG curriculum. It has been shown that the inclusion of formal didactic curricula increases students' confidence, whereas increasing number of clerkships does not (1).

Although there has been an increase in structured curriculum in clerkships, it is important to note that rotating students still report that the majority of their clerkships did not include formal didactics geared toward their training level. Even at institutions that have incorporated didactics for medical students, these didactic components should be re-evaluated and improved based on feedback from stakeholders including students and faculty (6). With continued development of structured didactics, the knowledge and experience of medical students pursuing radiation oncology will improve, translating into better-prepared PGY-2 residents.

Conclusions

These results demonstrate a national trend toward inclusion of structured didactics in radiation oncology clerkships coinciding with the implementation and expansion of the ROECSSG curriculum. These data demonstrate that multi-institutional collaborative curriculum development can have a significant effect on the national educational landscape.

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Figure 1.
Proportion of clerkships by year with 1 lectures designed specifically for medical students.
($p = 0.02$).