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Enhancing medical student interest in the oncologic fields via a novel third year elective

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Background: Medical student exposure to oncology specialties during medical training is limited. Radiation Oncology specifically is a field that lacks its own third year clerkship and is oftentimes only offered as an optional elective rotation during medical school. At our institution, we piloted a multidisciplinary oncology elective rotation that is available to third year medical students to expose them to the paradigms of oncologic treatment.

Methods: We developed a two-week rotation consisting of three days of Radiation Oncology clinic, two days of Radiation Oncology didactics, and the remaining five days of Medical Oncology and Surgical Oncology clinic. A pre- and post-survey graded on a 5-point Likert scale was given to all participating medical students prior to starting the rotation and then again at the end of the rotation respectively. The rotation focused on diagnosis, patient interaction, treatment planning, and the multidisciplinary collaboration between the oncology specialties with an emphasis on Radiation Oncology.

Results: Seven students chose to enroll in our multidisciplinary oncology elective rotation from July 2021 through December 2021. All students who enrolled successfully completed the rotation. Survey response rate was 100%. Average scores on the 5-point Likert scale increased from 1.57 to 2.43 (p=0.0001) for ability to perform a patient workup, 2.43 to 3.07 (p=0.0445) for comfort level with communication with oncology patients, 1.45 to 3.21 (p=0.0001) for level of understanding of radiation therapy, and 1.14 to 2.31 (p=0.001) for comprehension of the role of multidisciplinary collaboration. Each student was also asked to grade their level of interest in oncology as a future career. Initially, three students (43%) expressed interest in oncology. Following completion of the rotation, this increased to four students (57%). Of the three students who originally expressed interest in oncology, one student became undecided by the end of the rotation.

Discussion: It is important to expose medical students to oncology specialties during their third year of medical school to foster interest and growth in our field and to recruit passionate future oncologists. A multidisciplinary rotation encompassing Medical Oncology, Surgical Oncology, and Radiation Oncology allows students to increase their understanding of the collaboration necessary in treating cancer patients. Our goal in the future is to standardize this rotation to allow widespread reach to medical students nationwide.

Disclosures: None

Measuring resident/faculty contour concordance as a potential tool for quantitative assessment of residents' performance in target volume delineation: a feasibility study

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Background: Accurate target delineation/contouring is essential for radiation treatment planning and the clinical efficacy of radiation therapy. Clinical trial data has demonstrated the importance of quality contouring and treatment planning for optimal survival outcomes. As a result, improving the quality of target delineation is an important goal in the education of radiation oncology residents. However, there is limited quantitative data on the quality of residents’ contours. Therefore, it would be beneficial to track performance and improvement in resident target delineation during residency. The purpose of this study was to determine if it was feasible to track the concordance of radiation oncology residents’ contours with faculty physicians’ contours.

Methods: Residents were asked to contour target volumes (GTV, CTV, ITV, PTV, etc.) based on patient history, physical exam, clinical stage and fused diagnostic imaging and were allowed to use any available outside resources, including textbooks, review articles, consensus guidelines, and online atlases. Resident contours were saved as separate structures. Finalized, faculty physician-approved contours were also saved. Saved contour structures and data from October 2019 through June 2020 were reviewed for feasibility.

Results: In total, 209 structures had both resident and faculty versions saved within Eclipse and were available for analysis. The Boolean Operations Tool in Eclipse (Varian Medical Systems, Palo Alto, CA, USA) was used to create an intersection volume of the resident/faculty contours. Separately, the Boolean Operations Tool was used to create a union volume of the resident/faculty contours. Based on these two volumes, the Jaccard Concordance Index (JCI) was calculated by dividing the intersection volume (in cubic centimeters [cc]) by the union volume (cc). The JCI could be successfully calculated for 205 (97.1%) of the 209 structures. For 6 structures (2.9%), both the intersection and union volumes could not be calculated because the volumes were too small for Eclipse to determine. All 6 of these structures were small brain metastases.

Discussion: Tracking and comparing the concordance of resident contours and faculty physician contours is feasible using available tools in Eclipse. Additional data collection and assessment is necessary before this technique can be more widely utilized.

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Introductory Curriculum to Health Disparities for Medical Physics Trainees: A Pilot Experience

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Purpose: The COVID-19 pandemic brought to the forefront longstanding and pervasive health disparities (HD) in the United States that are driven by underlying structural inequities rooted in racism and intersecting systems of power. It is imperative that medical physics training programs increase their commitment and investment in teaching trainees about HD, especially as the profession becomes more patient-facing. To address this current training gap, we designed an introductory HD curriculum for medical physics graduate students and residents.
Methods: A HD scholar and medical physicist collaborated to design this course. The curriculum consisted of four weekly 1.5-hour synchronous online sessions. Sessions were developed based on transformative learning theory and involved didactic lectures, case studies, large and small group discussions, and reflection exercises. Session topics included social determinants of equity, structural racism, implicit bias, public outreach, and critical reflection. Participants were asked to fill out pre-post surveys containing open- and close-ended questions for each session and the overall course to evaluate the curriculum’s impact on participants. Due to the relevance and timeliness of this topic, trainees were encouraged to attend any part of the course as getting exposure to at least some HD training was prioritized over having a consistent course cohort for optimal data collection.

Results: Fifteen trainees attended at least part of the course with 8-11 attendees/session. Most participants reported that weekly sessions increased their feelings of competence to explain the relevance of HD to their role in medical physics (4/7), address mistrust, bias, and stereotyping during patient-provider encounters (6/10), engage in critical reflection (7/8), and design public engagement strategies to reduce HD (5/5). Among participants that completed a pre-post survey for the overall course (N=4), 75% reported they will likely/very likely likely explore issues related to HD in their future education, research, and/or practice. All would recommend this course to colleagues noting satisfaction with topics, atmosphere to discuss sensitive issues, virtual format, activities, and facilitators.

Discussion: The course was well-attended despite being outside of program requirements, which showed there was interest in the subject. Topics presented resonated with participants and were viewed as timely and relevant to their practice. The implementation of this course shows that it is possible to successfully incorporate HD instruction into the medical physics curriculum in an introductory manner. More robust and consistent data collection is necessary to fully assess the impact of the course on participants.

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Impact of a Single Institution Resident-Led Education Committee in Radiation Oncology

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Purpose: Resident-led collaborative groups provide a platform to refine ideas and support professional development and scholarship during residency. To actively engage in radiation oncology (RO) education and leadership, residents formed an Education Committee (EC). Here, we discuss the structure and impact of a resident-led EC.

Methods: With the support of the RO program leadership at a single academic institution, this committee was created with the goals of (1) identifying and addressing gaps in residency education, (2) implementing sustainable educational initiatives across various interprofessional groups, and (3) sharing ongoing projects within medical education to identify resources and invite collaboration. The leadership core consisted of 1-2 resident co-chairs and committee sub-leads. The committee held one-hour monthly meetings, which consisted of journal club to review medical education literature followed by pre-set discussion of topics spanning committee goals. Faculty consultants were invited to attend to provide their expertise.

Results: The EC included medical and physics residents and grew from 6 to 10 members within the first two years of implementation. It worked with department and institutional leadership to implement initiatives to address gaps identified in medical resident education, medical student outreach, and interprofessional RO education. Additionally, members used this platform to find collaborators and identify resources for education projects, including global health and climate health initiatives. Key outputs of the EC included a updated repository of shared residency resources with high-yield educational material, site-specific reading lists developed with faculty, and a week-long statistics module now integrated into the curriculum. To improve medical student outreach, the EC established collaboration with the affiliated medical school’s Oncology Interest Group to launch mentorship programs, including a tumor board seminar series engaging students in multidisciplinary oncology care. To support interprofessional RO education, the EC leads a medical assistant RO curriculum, which now has plans for multi-institutional expansion to other RO programs.

Discussion: Residencies are in need of pathways to foster resident engagement in medical education and scholarship. Additionally, the apprenticeship nature of RO training often lacks leadership and teaching opportunities, which can be supplied through resident-led collaborative groups. Here, we described our experience establishing a resident-led EC in RO, which has cultivated a community of resident leaders in education at our institution. This committee has been instrumental in implementing and sustaining initiatives across various facets of medical education.