SIXTH ANNUAL SPRING SYMPOSIUM

“USING DATA TO DRIVE INNOVATION IN RADIATION ONCOLOGY EDUCATION”

MAY 5, 2023

CHICAGO, ILLINOIS, USA

2023 SYMPOSIUM CHAIR:
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AMERICAN SOCIETY FOR RADIATION ONCOLOGY
# 2023 ROEC SG Spring Symposium Program

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2023 ROEC SPRING SYMPOSIUM SCHEDULE

All times Chicago/CDT (UTC/GMT -5 hours)

8:30 - 9:30: Breakfast, Coffee, & Networking (in-person), Networking (virtual)
9:30 - 9:40: Introductory Remarks - Rachel Jimenez MD
9:40 - 10:15: Session #1 - Undergraduate Medical Education (UGME) 1
10:15 - 10:20: Break
10:20 - 11:25: Session #2 – Graduate Medical Education (GME) 1
11:25 - 11:30: Break
11:30 - 12:05: Session #3 – Patient Education
12:05 - 1:00: Lunch & Networking (break-out rooms for virtual attendees)
1:00 - 1:40: Session #4 – Interprofessional Education
1:40 - 1:45: Report from ARRO – Kelsey Corrigan MD MPH
1:45 - 1:50: Report from ADROP – Rachel Jimenez MD
1:50 - 2:00: Break
2:00 - 2:40: Session #5 – GME 2
2:40 - 3:00: Break
3:00 – 3:40 Keynote Address:
  “Using Big Data to Improve Medical Education”
  Brian George MD MAed
  Associate Professor, Department of Surgery
  University of Michigan

3:40 - 4:00: Keynote Discussion/Break
4:00 - 4:50: Session #6 – UGME 2
4:50 - 5:25: Session #7 – GME 3
5:25 - 5:30: Closing remarks – Rachel Jimenez, MD, PhD
5:30 - ???: Post-Symposium dinner and in-person networking
  Jimmy’s Woodlawn Tap
  1172 E 55th St, Chicago, IL 60615
Keynote Address – Brian C. George MD MAed

“Mastery Learning for Clinical Skill Acquisition”

Brian C. George, MD, MAed, is Associate Professor of Surgery at the University of Michigan. Dr. George serves as the Director of the Center for Surgical Training and Research. He is a national leader in operative performance assessment and is the Executive Director of a multi-institutional non-profit educational research consortium, The Society for Improving Medical Professional Learning (SIMPL). In collaboration with the many institutional members of this group, he is laying the groundwork for an ongoing national initiative in healthcare education quality improvement.

With funding from multiple medical regulatory agencies and medical specialty groups, Dr. George’s current research bridges the gap between surgical education research and health services research. This multidisciplinary approach aims to understand the impact of surgical trainee competence on early-career patient outcomes and then use that data to implement new patient-centered standards and processes for surgical training.
SESSION 1:

UNDERGRADUATE MEDICAL EDUCATION 1

Moderator: Yasmin Hasan, University of Chicago
Assessment of Research Mentorship during Medical School for Future Radiation Oncology Trainees

Presenter: Marisa Palmeri
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Background: Medical student research productivity is an important component of a competitive radiation oncology (RO) residency application and research mentoring by RO faculty has the potential of stimulating enhanced interest in the specialty. According to the AAMC faculty roster, there are approximately 1,800 RO faculty at US MD-granting medical schools; however, little is known about the availability of RO-specific research opportunities relative to other specialties. We hypothesize that students who ultimately pursue RO residency will have a high percentage of medical school publications with non-RO mentors published in non-RO journals.

Methods: A list of 193 RO residents in a single post-graduate year class who graduated from medical school in June 2019 was compiled. Forty-six residents who were in medical school for more than four years (e.g. for an MD/PhD program) were excluded. The record of full-length scientific publications initiated during medical school (defined as published between January 1, 2016 and December 31, 2019) for the remaining 147 residents was assessed using Scopus and cross-referenced using PubMed and Google Scholar. Data related to publication type, institution, author position, and mentor specialty was recorded. The primary mentor was defined as the senior (last) author unless he/she was a trainee and the first author an attending. Descriptive statistics are reported.

Results: A total of 434 publications were authored by the 147 residents, among which 115 (78%) attended a medical school with an affiliated RO residency program. The median number of publications per student was 2 (interquartile range (IQR) 1-4). Students’ median author position was 2 (IQR 1-4) and 13 publications (3.0%) included 2 or more students. Categories of publications included 336 clinical (78%), 47 basic science (11%), 38 case reports/series (9%), and 12 education/training (3%). Manuscripts were published in a wide variety of journals, including 83 (19%) in 12 different RO-oriented journals. There were 294 unique mentors, with 70 mentors (24%) on two or more student publications, and 187 mentors (64%) sharing the same institution as the student. A total of 253 mentors (86%) had a MD or DO degree. Mentors most commonly specialized in RO (n=142, 56%), surgical subspecialties (n=53, 21%), and medical oncology (n=18, 7%).

Discussion: A high percentage of student publications among future RO residents are published in non-RO journals and result from mentoring relationships with physicians in other specialties. Our future work will evaluate the underlying reasons for these findings, and potential avenues to better engage students exploring a career in oncology.

Keywords: Medical education, Faculty mentoring, Medical students.

Scientific Writing in Radiation Oncology: Development and Implementation of a Virtual Elective Module for Medical Students

Presenter: Lukas Käsmann
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Background: Improving scientific writing abilities and critical thinking is essential to support young doctors in their research endeavors and prepare medical students for careers in academic medicine. This work describes the development and implementation of a virtual and interactive course to encourage student engagement with scientific literature in the field of radiation oncology.

Methods: An elective course including ten modules was developed. Medical students in their clinical part of their medical studies were able to apply for this optional course without any restrictions regarding previous knowledge or scientific contributions starting in the summer term 2020. Due to the COVID-19 pandemic, the course was specifically developed in digital form. An anonymous questionnaire containing 32 questions using Likert-scale questions was distributed in November 2022 to all participants who successfully completed the elective course.

Results: In total, 25 (89%) of the questionnaires were filled out, returned, and evaluated. Technical difficulties to attend the course were not reported by any participant. 60% of all participants write an MD thesis in the field of radiation oncology. Besides the live course, 44 % of the participants used writing exercises and 56% self-learning tests on an additional bases. More than 90% of all participants report that the course supported critical thinking, helped with their MD thesis and that they acquired a toolbox of skills (Likert Scale range 4-5). Module rating showed a high satisfaction (Likert Scale range 3-5). Overall, 96% of all students rate the course with very good to good. For further improvement, 64% of the students wish to have additional presence teaching.

Discussion: Our early experience suggests a valuable role of teaching scientific writing abilities to medical students interested in radiation oncology. Our report demonstrates an improvement in empowerment, technical knowledge, and student satisfaction. However, additional presence teaching should be considered and may further encourage discussion and interaction between medical students. Future plans include increasing student participation from these and other oncology subspecialities and expanding the program to other institutions. We hypothesize that this approach will improve medical student exposure to radiation oncology, which could make a subsequent positive impact on multidisciplinary research and patient care.

Keywords: Medical education, scientific writing, virtual course.

Evaluating the Utility of Webinars Discussing the Radiation Oncology Residency Application Process in the COVID-19 Era

Presenter: Niema Razavian
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Background: Since the start of the COVID-19 pandemic, the number of digital resources available for medical students (MS) interested in radiation oncology (RO) has increased. Here, we evaluated the utility of webinars focused on educating MS about the RO residency application process.

Methods: The American College of Radiation Oncology hosted webinars in 2021 and 2022 prior to the Electronic Residency Application Service (ERAS) application deadline. For each webinar, program directors gave short presentations about the ERAS application, interviews, and program ranking, and concluded with question and answer session. Participant demographics were collected using live poll questions and understanding was assessed using a Likert scale (range 1 [no, not at all] to 4 [yes, definitely]). Recordings were available online for asynchronous viewing. Differences between groups were assessed using Chi-square statistics.

Results: Between both webinars, there were a total of 69 participants and 170 asynchronous views. A total of 86% and 71% of participants answered the demographics and understanding questions, respectively. The majority attended medical school within the US (75%), were in their third/fourth year (70%), graduating with an M.D. degree (88%), and planned to apply to RO residency (78%). In terms of baseline knowledge of the application process, 49% believed they knew "a lot," while 51% believed they knew "a little" or "nothing." The majority of participants noted the webinar improved their understanding of the general application process (mean 3.80), the ERAS application (mean 3.65), and the interview process (mean 3.90). For a subset of participants (n=39), survey results were stratified by baseline understanding of the application process ("a little" versus "a lot"). Compared to participants who knew "a lot" about the application process, those that knew "a little" about the process reported higher scores in general understanding (mean 3.80 versus 3.60), ERAS application (mean 3.72 versus 3.50), and interview process (mean 3.93 versus 3.8). However, these differences were not statistically significant.

Discussion: As the number of digital resources in RO increases, we must examine whether they meet the needs of their target audience. Webinars can improve MS understanding of the RO residency application process. These webinars were an ideal format to educate MS about this process because they utilized both attending and resident physicians - two sources of information considered highly trustworthy by MS. Given the recent decline in applications to RO, engaging with MS through dedicated webinars warrants continued exploration.

Keywords: radiation oncology, residency, preparation.

SESSION 2:

GRADUATE MEDICAL EDUCATION 1

Moderator: Chelsea Pinnix, MD Anderson
Contouring Workshops - The Beneficial Impact on Radiation Oncology Specialist Training in Ireland

Presenter: Guhan Rangaswamy
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Background: One of the key components of training in Radiation Oncology is gaining knowledge in contouring tumour volumes and organs at risk for radiotherapy planning. Trainees rotate through different tumour sites during their training and are expected to acquire competencies in contouring skills in tumour sites appropriate to their year of training. These skills are mostly acquired in an unstructured manner during supervised clinical work. We report on our institutional experience of introducing structured contouring workshops and on the feedback obtained from trainees.

Methods: Eight contouring workshops in different tumour sites - Head & Neck (n=3), Prostate (n=1), SABR Lung (n=2), Breast (n=1) and Oesophagus (n=1) were conducted between April 2019 and March 2022. Six were in-person workshops pre-COVID. Two were run virtually during the pandemic. The workshops were of 2-hour duration, limited to around 12 trainees each with varying degrees of experience in that particular tumour site. All workshops were similar in format with a tutorial on the tumour site followed by a contouring demonstration on an anonymised index case on the Eclipse planning platform referencing published contouring atlases. The trainees had access to a copy of the same case throughout the workshop. Their contours were reviewed individually and collectively. Feedback on the contouring experience was collected through a questionnaire after the workshop from each trainee. This feedback was incorporated into subsequent workshops where relevant.

Results: An average of 12 trainees (range 10-14) attended the workshops. All trainees, irrespective of year of training, rated the content, format of the workshops highly and felt that they were relevant to their daily practice. Their reported subjective level of confidence in contouring improved significantly from an average score of 5.6 out of 10 (range 4-7) before the workshop to a score of 8.7 (range 8-9) after, over the 8 workshops. There was no cost associated with conducting these workshops as these were done on our existing planning software.

Discussion: Based on the feedback obtained from the trainees, the workshops were of definite educational benefit. They favoured the inclusion of this approach to the teaching of contouring skills in their curriculum. In keeping with this feedback and the recent implementation of the new radiation oncology training curriculum in Ireland efforts are currently underway in incorporating these contouring workshops into the training programme on a structured basis. This will ensure that trainees develop progressive expertise in contouring skills in keeping with highest international standards.

Keywords: Contouring, Radiotherapy, Curriculum.

Tailored Mentorship for the Underrepresented & Allies in Radiation Oncology: The ARRO Equity and Inclusion Subcommittee Mentorship Experience

Presenter: Anjali Saripalli
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Background: There are limited opportunities for mentorship for Underrepresented in Medicine (URM) trainees and physicians in radiation oncology (RO). The purpose of this study was to create a formal mentorship program open to URMs and allies with interests in equity and inclusion as well as track metrics for evaluating program impact and identifying areas for improvement.

Methods: A mentorship program incorporating a virtual platform was designed by the Association of Residents in Radiation Oncology Equity and Inclusion Subcommittee. It was structured to include 6 sessions over 6 months with matched mentor/mentee pairs based on responses to a publicized online interest form. A compilation of evidence-based guidelines was provided as a reference for optimizing the mentorship relationship. Linked pre- and post-program surveys were administered to collect demographic data, define baseline goals and level of support, and evaluate program satisfaction.

Results: 35 mentor-mentee pairs were matched; 31 mentees completed the pre-program survey and 17 completed the post-program survey. Pre-program, 15 (48%) mentees reported lack of current mentorship/professional development support, 3 (9.7%) reported satisfaction with current mentorship, and 5 (16%) reported specific URM mentorship. Areas that were identified in the pre-program survey as important to mentees were addressed with high reported satisfaction based on the post-program survey. Mentees also reported high satisfaction with mentor attributes and high overall satisfaction. Opportunities for improvement include additional support for maintaining longitudinal relationships and reducing attrition rates with an adaptive approach of re-matching pairs when appropriate.

Discussion: Our results demonstrate that there is self-reported interest for better mentorship for URMs in RO, and that it is feasible to develop a nationwide structured mentorship program that addresses participants' goals with high satisfaction. Program expansion could provide URMs and allies in RO more opportunities for career development and promote a greater sense of community and inclusion.

Keywords: Mentorship, underrepresented in medicine, equity, and inclusion.

Radiation Oncology Resident Leadership Course: Does Integrating Communication Skill Development with Real Donors Lead to Effective Presentations?

Presenter: Sylvia Choo
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Sylvia Choo1, Kara Madey1, Lauren Linkowski1, Stephen Rosenberg2, Jessica Frakes2, Sarah Hoffe2

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Background: Interpersonal and communication skill development in graduate medical education is necessary for providing residents with training to facilitate interactions with oncology patients, such as breaking bad news and showing empathy. Yet, to succeed in professional careers, trainees need to be able to connect with audiences beyond that of colleagues and doctor/patient. Providing actionable feedback from specific audiences is important for trainees to develop communication skills in various situations. We sought to explore how residents could present research ideas to donors to determine effective delivery and approach.

Methods: At our center, radiation oncology medical and physical residents take part in a longitudinal leadership training course. In 2021, we partnered with our affiliated university communications academic department to discuss how to optimize communication strategies to donors with respect to message, tone of voice, pitch, and overall effectiveness. In 2022, we partnered with actual donors from a local colorectal cancer organization to hear resident pitches and provide real time feedback. Two medical residents and two physics residents were selected for the pitch session to present their research ideas without slides. Three board members from the donor organization and our institution's foundation liaison for the GI program participated virtually. All the resident participants were on-site.

Results: The residents were rated as highly effective by the donors in their pitches. Importantly, the donors emphasized that the residents appropriately communicated complex ideas at a lay person level. All donors reported that they understood the stated research objectives. The donors felt each resident successfully communicated the research idea and the need for additional funding. Feedback from the donors for the four residents in the pitch session centered around effective messaging, audience engagement, and confidence. Thematic analysis of the feedback revealed a universal need among participants to be more direct regarding the amount of funding necessary for each project.

Discussion: Leadership training should include focus on "leading self" which involves the development of effective communication skills. The opportunity for residents to speak with real donors and communicate their research ideas for possible future funding was well received by both the donors and the residents. One future improvement is to highlight to the residents the need to clarify what they are asking for with respect to funding amount. Additional studies are needed to assess the effectiveness of such a course with respect to future philanthropic success.

Keywords: Leadership, communication, funding.

Methods of Analyzing eContour's Engagement: Interrupted Time Series Analysis Versus Pre/Post Analysis

Presenters: Leah D’Souza and Lakshmi Narra
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Background: eContour is an evidence-based interactive contouring atlas. As of November 2022 there are 36,541 registered users. This study compares research methodology when assessing eContour's engagement, specifically a single arm interrupted time series analysis (ITSA) vs. traditional pre/post comparison analysis. The ITSA method is chosen because of its robust ability to account for trend, seasonality and autocorrelation bias.

Methods: Monthly case views data was extracted through mixpanel analytics software (Jan 2019 - Oct 2022). A single arm interrupted time series analysis (ITSA) with multiple intervention time points is a quasi-experimental design. We defined two time points to offer insight into trends: start of the pandemic (March 2020) and the e-Contour/MIM/ACRO collaboration in March 2022. These time points were selected given the potential to impact engagement as represented through the number of case views/month. Results of ITSA were compared to the commonly used pre/post analysis. In this traditional measure, we used Wilcoxon rank sum test to compare monthly eContour case views before and after each respective time points (March 2020 & 2022).

Results: The y-intercept (y 0) of the ITSA model estimates engagement during the pre-period at 13,467 views/month. The model predicts a shift in the y-intercept (y ∆) of 2,974 views/month as the immediate impact, although the estimate is not statistically significant (p<0.24). Over time, however, the pandemic has a sustained impact, with an estimated slope coefficient of 1,084 views/month (p<0.001). The immediate impact of eContour/MIM/ACRO collaboration yielded no immediate positive outcome in engagement - a decrease in 2373 case views/month (p=0.4760). In addition, the long-term impact continued to exhibit suboptimal outcomes on engagement (p=0.1091), with a decrease in 971 case views/month. Using traditional pre/posttest analysis, the pandemic has demonstrated an increase from 13,504 to 27,540 case views/month (p<0.01). A similar increase in engagement was observed around the ACRO 2022 time point (23,999 to 40,802; p<0.01).

Discussion: This study demonstrates the importance of selecting the appropriate methodology to assess engagement. Both the ITSA and pre/post methodologies demonstrated increased trends in engagement post-pandemic, whereas the ITSA did not demonstrate increased engagement post ACRO 2022. The major limitation of our current ITSA is the shorter number of time-points post ACRO 2022. Longer follow-up is required to observe a potential sustained increase in engagement.

Keywords: methodology, interrupted time series analysis (ITSA), contouring education

Disclosure: D'Souza: None Narra: None Sharifzadeh: None Gillespie: Editor in Chief and Co-Founder of eContour Price: None Lin: None
Financial Leadership Skills Training: Can a Hybrid Didactic/Interactive Exercise Model Fill a Gap in Graduate Medical Education?

Presenter: Kara Madey
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Background: With recent healthcare changes, competition for financial resources is increasing. Graduate medical education (GME) programs do not routinely prepare residents to understand the complexity of financial decisions that affect their practice. At our institution, we designed new sessions to explore personal and departmental financial education in our yearly Radiation Oncology (RO) leadership course.

Methods: Over the past five years, we have been piloting a longitudinal leadership course for our RO medical and physics residents, integrating a hybrid didactic/interactive exercise approach. The core RO faculty consists of the course director, the residency directors, and department leadership. The course structure includes an introduction to understanding how resource allocation is determined at the institutional level as well as a personal finance component. We recruited the RO Vice Chair, RO Department Administrator, and the MD, MBA Chair of the Vacancy Review Committee at our institution to teach these concepts over three sessions. The first was a didactic introduction to departmental finance by our Vice Chair to prepare attendees for the second interactive session, in which residents worked through a pro forma to determine the feasibility of hiring a new departmental faculty member. The final session was led by our MD, MBA colleague who taught residents how hiring decisions are made and explained what happens to the pro forma at the institutional level. The third session integrated an interactive exercise focusing on personal finance skills.

Results: At the end of the series, the ten resident attendees were informally surveyed regarding how effective and worthwhile the three finance sessions were. The verbal feedback regarding the curriculum was uniformly positive. All ten residents, including the physics resident, indicated that these classes were helpful and filled a gap in the current GME curriculum. Further feedback analysis noted that additional interactive exercises should be prioritized to reinforce understanding of these financial concepts.

Discussion: Financial education is lacking in most GME training programs. Targeted instruction for both personal and departmental financial decisions was well received in this novel course at our institution. Further studies are needed to determine effectiveness and optimal integration of financial leadership skill development in the GME setting. Future directions could be to determine the best balance of didactic instruction and interactive exercises to enhance resident understanding of these financial topics.

Keywords: Department finance, personal finance, resident education.

The Impact of Updated ACGME Program Requirements for Radiation Oncology Residencies

Presenter: Olivia Trumble  
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Background: In 2022, the Accreditation Council for Graduate Medical Education (ACGME) made several changes to the common program requirements for radiation oncology, which may be difficult for some residency programs to meet in their current state. Now, programs are expected to have 1.5 clinical physician faculty members per resident. Plus, the sponsoring institution must sponsor at least one medical oncology program and sponsor or have affiliations with ACGME-accredited surgical oncology and pathology programs. We sought to investigate if radiation oncology programs would presently be able to meet these requirements.

Methods: We compiled a list of accredited radiation oncology residency programs from the ACGME website. We visited the webpage of each program to count the number of radiation oncology physician residents and clinical physician faculty to calculate the corresponding ratio. We included clinical faculty from main campus and select satellite sites and affiliate sites, if residents definitely or probably rotated there. We also searched the websites of each sponsoring institution for sponsored pathology, medical oncology, and surgical oncology programs.

Results: We identified 90 ACGME-accredited radiation oncology residency programs. At least 9 programs appear to currently have a ratio of clinical physician faculty to residents of less than 1.5:1, ranging from 0.85 to 1.38. Additionally, 1 sponsoring institution does not have its own hematology and medical oncology or medical oncology program, 61 do not have a surgical oncology fellowship, and 5 do not have a pathology residency; however, this does not include affiliated programs.

Discussion: Approximately 10% of radiation oncology residency programs seem to have an insufficient number of clinical faculty to accommodate their residents, per new ACGME requirements. Furthermore, almost 70% of sponsoring institutions do not sponsor a medical oncology, pathology, or surgical oncology program, though this does not include potentially affiliated programs. A primary limitation of our study is that we collected information from publicly available information, which may be inaccurate. Nevertheless, based on our findings, it is likely that the new requirements may impose challenges on several programs, and failing to achieve them can risk program accreditation.

Keywords: Program Accreditation, ACGME Regulations, Radiation Oncology.

Disclosure: Trumble: none  De Leo: none  Yeung: none
SESSION 3:

PATIENT EDUCATION

Moderator: James Randall, Northwestern University
Oncology Patient Education and Student Education Program

Presenter: James Alin  
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Background: For many medical students interested in oncology during medical school, they will face a range of often disconnected activities. This may include participating in mentorship with faculty (shadowing/rotating), oncology lectures separated across multiple modules on step1/step2 topics, interest group meetings, volunteering, as well as participating in fundraisers or events through their local cancer center. We wanted to find a way to combine these efforts at the Georgia Cancer Center, as a model for other medical schools who also want to strength oncology education and career exploration opportunities at their programs.

Methods: We paired teams of medical students with a physician-oncologist mentors covering every major oncology field from radiology/pathology to heme-onc to surgery and radiation oncology. Each team was given a topic (ie Breast Cancer, Pediatric Cancer etc) to produce a Patient Education video to inform patients about the most up-to-date cancer prevention and screening initiatives. In addition, these teams also raised money for our local 'Unite in the Fight' fundraiser supporting the Georgia Cancer Center (GCC). The videos they produced were shown to the participants of main event of the fundraiser. Next, the teams were tasked with producing Student education videos that focused on high yield step review for their same topics. These videos were judged by a panel of medical educators, oncologists, and cancer-survivors with awards for top patient education, top student education, and top fundraising team.

Results: We had 10 teams of students (48 students overall) participate, each producing Patient and Student videos that were highly rated by the judges. The Dean of Curriculum has now included the Student Education videos as part of the Capstone module that prepares M2's for Step 1 and clerkships. We are working with the GCC to include the Patient Education videos on tablets provides to patients in the oncology clinic. Lastly, student teams raised over $10,000 from 167 donors for Unite in the Fight (total fundraiser that year was $50,000).

Discussion: We feel that we were able to provide a synergistic longitudinal experience that allowed 48 students to 1) explore oncology as a career, 2) contribute to patient education, 3) contribute to student education, and make an impact on the local cancer survivor community. By contrast, in years past oncology interest group events were attending by 5-10 students. Many students reported building strong mentorship relationships after working with their physician mentors over the year of this event.

Keywords: Medical Education, Oncology Education, Patient education.

Radiation Oncology Providers’ Practices and Preferences for Delivering Patient Education on Radiation Therapy: A Mixed Methods Study

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**Background:** Patient understanding of the radiation treatment process, including anticipated logistics, side effects, and outcomes of treatment, is often limited. We lack data on optimal radiation oncology provider approaches to patient education. Our objective was to assess patient education practices and preferences of interdisciplinary radiation oncology providers to inform recommendations for providers and institutions.

**Methods:** An anonymous, web-based survey was developed in collaboration with the Radiation Oncology Education Collaborative Study Group (ROECSG) Patient Education Working Group and distributed to all members of the ROECSG listserv via Qualtrics in October 2022. The survey contained 17 items: 13 multiple choice and 4 open-ended. Descriptive statistics summarized survey responses. Thematic analysis was used to analyze qualitative responses.

**Results:** 123 ROECSG members completed the survey (31% response rate). Most respondents were radiation oncology attendees (64%), worked in an academic/university affiliated setting (86%), and were in North America (82%). Aside from verbal communication, the most common educational approaches used were institution-specific materials (61%) and electronic health system-generated materials (38%). 41% of respondents highlighted that their patient education practices differed according to whether assessments were in-person or virtual; printed handouts versus Internet images/videos were used most often for in-person versus virtual visits, respectively. A majority (86%) stated that their institution utilized disease site-specific patient education materials. Over half (58%) reported that their institution had non-English materials available. Review of patient education materials by staff (53%) was the most common assessment method, though 19% reported no assessment of materials at their institution. Among institutions with an assessment process, respondents were largely "unsure" (56%) of the assessment frequency. On qualitative analysis, a central theme surrounding challenges for providing patient education was lack of time for providers to deliver and patients to review materials provided. Respondents also identified administrative roadblocks such as inadequate leadership support, training, and funding for developing education materials. Key strategies for successful patient education included using visual/multimedia materials, personalizing content for patients/caregivers (e.g., based on their learning styles, preferences, and language), reiterating information at multiple timepoints by multiple team members, and utilizing active education (e.g., teach-back method, encouraging notetaking, involving caregivers).

**Discussion:** Many radiation oncology providers use institution-specific and disease site-specific materials to provide patient education, with personalization of content for patients differing for in-person versus virtual environments. Increased adoption of visual/multimedia materials and partnerships with organizational leadership may facilitate access to and contribute towards the development of high-quality, tailored patient education resources.

**Keywords:** Patient education, personalized learning, multimedia.

Communicating the External Beam Radiotherapy Experience (CEBRE) Discussion Guides: Real World Implementation and Evaluation

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Background: Communicating about the radiotherapy treatment process can be difficult for both patients and healthcare professionals. The Communicating the External Beam Radiotherapy Experience (CEBRE) discussion guides use graphic narratives to explain external beam radiotherapy. The CEBRE and CEBRE en Español guidelines have been freely available for download (https://www.roecsg.org/cebre and https://roecsg.org/cebre-en-espanol/) since October 2018 and August 2021, respectively. The guides aim to help educate patients, facilitate communication between radiation oncologists and patients, and reduce treatment-related anxiety

Methods: This study reports data regarding global downloads of the CEBRE guides since 2018 and describes development of an “implementation and use” survey. Individuals downloading the guides were asked to report their institution, profession, and likelihood of using the guides clinically (5-point Likert scale; 1 not at all likely to 5 extremely likely). To evaluate real-world implementation, a more detailed survey will be distributed via REDCap to individuals who previously downloaded the guides. Survey data will provide information on how physicians or other radiation therapy team members are using these unique patient education materials, where they are being used, and potential areas for improvement.

Results: As of 10/16/22, 602 individuals have downloaded the CEBRE guides in English and 63 in Spanish. The English CEBRE has been downloaded in the United States (n=466), India (n=14), Philippines (n=12), and 33 other countries (n=110). CEBRE en Español has been downloaded in the United States (n=28), Mexico (n=9), Chile (n=7) and 6 other countries (n=19). The median reported likelihood of using CEBRE clinically was 4 (interquartile range, 3-4) for the English guides and 4 (3-5) for Spanish. The survey to determine real-world implementation and use is currently underway, and results will be presented when available.

Discussion: The CEBRE guides have been downloaded around the globe since public release. The ongoing survey will characterize how the CEBRE guides are being used worldwide. This data will also open opportunities for improvement and future study, such as potential adaptations to other languages and applications for other healthcare fields.

Keywords: Radiotherapy, Graphic Medicine, Patient Education

Disclosure: Haydon: None  Avila: None  Callender: None  Ortega: Franco: Diversity Supplement (NIH-3R01CA240582-01A1S1), NIH/NCI Loan Repayment Program, Career Development Award from the Center for Diversity and Inclusion of the Brigham and Women's Hospital. Ichikawa: Grant funding from the Radiation Oncology Institute Golden: Grant funding from the NIH, Radiation Oncology Institute, and Bucksbaum Center for Clinical Excellence. Manager of RadOneQuestions.com.
SESSION 4:

INTERPROFESSIONAL EDUCATION

Moderator: Anamaria Yeung, University of Florida
A Single Site Pilot Project Examining Radiation Oncology Nursing Education Needs and Nursing Confidence

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Background: Moskalenko et al. published the first radiation oncology (RO) nursing needs assessment in the USA in 2021. No RO nursing credential or scope of practice exists in the USA. RO and related disciplines are rarely covered in nursing education. Opportunities for continuing education (CE) are limited at the local, state, and national levels. However, nurses are required to sustain clinical knowledge by obtaining CE credits for multiple organizations. RO nurses serve a growing role with increasing patient acuity, complex multidisciplinary team care, concurrent systemic therapies, and survivorship.

Methods: Permission was obtained to use and adapt the needs assessment from Moskalenko et al. for a pilot study at a single academic medical center RO department. Nurses were asked for demographics regarding experience and education. A five-point Likert scale (1, "Extremely Confident"; 2, "Quite Confident"; 3, "Somewhat Confident"; 4, "Not Very Confident"; 5, "Not At All Confident") was used to capture confidence levels regarding educating patients, and providing acute versus late care. A knowledge pre-test was developed with physician input. A series of self-study recorded PowerPoint presentations was created. A knowledge post-test and feedback are planned.

Results: Item response rates ranged from 92-100% (n=12-13). 91% (n=11) of respondents reported being RNs for ≥5 years, 75% (n=9) reported having ≥5 years of oncology experience, and 50% (n=6) reported ≥5 years of RO experience. 66.6% (n=8) of respondents reported being oncology certified nurses, and 17% (n=2) nurses reported having the Oncology Nursing Society/Oncology Nursing Credentialing Corporation radiation therapy certificate. On-the-job experience (100%; n=12), physicians (83%; n=10), and nursing colleagues (67%; n=8) were the most reported sources of RO knowledge. All nurses reported responsibility for patient education, with 58% (n=7) "Somewhat Confident" to "Not At All Confident" that they could explain simulation and concurrent chemoradiation therapy to patients. 67% (n=8) reported being "Somewhat Confident" to "Not At All Confident" that they could explain brachytherapy, external beam, CT, MRI, or PET scans to patients. The greatest number of nurses reported they were "Extremely Confident" to "Quite Confident" managing lung and prostate/GU patients acutely (both 67%; n=8) and prostate chronically (67%; n=8). The greatest number of nurses expressed they were "Somewhat Confident" to "Not At All Confident" managing pediatric patients acutely (75%; n=9) and chronically (92%; n=11).

Discussion: We report findings from a RO nursing needs assessment from a single academic healthcare facility. These data may inform ongoing efforts to optimize RO nursing education.

Keywords: Nurse, Education, Radiation Oncology.

Disclosure: Hillson: No disclosures  Allen: No disclosures  Carpenter: No disclosures
Large-Scale Remote Training for Medical Physicists to Improve IMRT/VMAT in Low Middle-Income Countries

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Background: High-quality intensity-modulated radiation therapy (IMRT) / volumetric modulated arc therapy (VMAT) is necessary to drive positive patient outcomes, yet gaps in staff training hinder its implementation in low-to-middle-income countries (LMICs). We aimed to evaluate a large-scale remote training curriculum for medical physicists and clinicians with existing IMRT capabilities in LMICs.

Methods: We conducted a virtual course on "Mastering IMRT/VMAT for Medical Physicists." The program comprised 15 weekly 1-hour live video conferencing sessions with interactive didactics and case-based learning taught by expert volunteer medical physicists. Enrollment was free and open to LMICs globally for 1 month on a first-come basis with a limit of 500, plus few exceptions. We distributed an electronic survey before and after the course to assess participants' confidence (on a 1-5 Likert scale) in 7 domains of IMRT/VMAT and knowledge through 11 multiple choice questions. We tracked attendance hours for course credit. We also gave participants the option to develop an IMRT or VMAT plan for identical, standardized bilateral Head & Neck cancer cases before and after the course, earning additional credit hours upon submission. After the program, 8 medical physics volunteers independently graded treatment plans using a rubric for qualitative domains. Furthermore, we gave plans a quantitative score using an automated scorecard with dose-volume histogram metrics. We utilized the ProKnow DS platform for file-sharing and grading. Two-tailed paired t-test analyses compared pre- vs. post-course survey and treatment planning scores for medical physicists, medical physics residents, and dosimetrist.

Results: A total of 514 participants from 63 countries and 342 unique centers enrolled, including 448 (87.1%) medical physicists, 49 (9.5%) medical physics residents, 5 (1%) dosimetrist, and 12 (2.4%) other clinicians. Of these, 240 medical physicists, medical physics residents, and dosimetrist responded to both the pre- and post-course surveys. Mean confidence scores increased from 3.00/5 (SD: 1.04) to 3.80/5 (0.87) (p < 0.001). Knowledge scores improved from 4.16/11 (SD: 1.77) to 5.98/11 (SD: 2.11) (p < 0.001). Additionally, 33 participants completed both the pre-course and post-course treatment planning assignments. Automated scorecard performance significantly improved from 12.64/25 (SD: 7.50) to 17.74/25 (SD: 6.74) (p = 0.0068). Grading rubric scores did not significantly change, from 9.15/14 (SD: 3.33) to 9.76/14 (SD: 2.65) (p = 0.4).

Discussion: A virtual curriculum on IMRT/VMAT improved participant's treatment planning performance, knowledge, and confidence. A distributed team of volunteers enabled this to be a low-cost, scalable intervention to help clinics in LMICs.

Keywords: IMRT/VMAT, Global Oncology, Education.

Multi-Institutional Expansion of a Longitudinal Radiation Oncology Curriculum for Medical Assistants and Allied Health Professionals (OnC MAP)

Presenter: Horatio Thomas
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Background: A single-institution longitudinal radiation oncology curriculum for medical assistants was shown to be sustainable over multiple years and increased job satisfaction.1 We aimed to assess the sustainability of a multi-institutional expansion of a monthly web-based longitudinal curriculum, and its impact on attendees' confidence and knowledge.

Methods: Four institutions were recruited, and non-physician staff participants were asked to participate. Between September 2022 and December 2022, participants completed 3 of 15 planned sessions including (1) radiation oncology clinical workflows, (2) medications and vital signs, and (3) prostate cancer. Before and after each session, participants completed surveys about their confidence in knowledge of session topics on a likert-5 point scale (1="very unconfident" to 5= "very confident") and completed knowledge tests. Results of confidence surveys were dichotomized (≥4 vs. ≤3). Surveys and tests were summarized using descriptive statistics and paired t-test.

Results: Twenty-four of thirty-five (69%) participants report clinical roles (4-7 per institution). Ten (42%) were medical assistants (MA), 8 (33%) were allied health professionals including registered nurses (RN), licensed vocational nurses (LVNs), or advanced practice providers (APP). In pre-session surveys, half of respondents were confident (Likert ≥4) in their understanding of consult notes or knowledge of common medications or abnormal vital signs. Less than half were confident in their ability to understand or use "one-liners" (~32%) or knowledge of common systemic therapies (29%), medication side effects (41%), risk factors for prostate cancer (25%), or how prostate cancer is staged or managed (38%). On average, respondents were more likely to report confidence in their knowledge after session one (45% to 73%, p<0.01), two (52% to 83%, p<0.01), and three (40% to 95%, p<0.01). On pre-/post-knowledge tests, participants scored similarly for session one (84% vs. 79%, p=0.17) but tended to have increased scores after session two (62% to 74%, p=0.19) and three (38% to 60%, p=0.09), though these differences were not statistically significant. Most participants (85%) considered the amount and level of content appropriate despite the mixed clinical roles of participants.

Discussion: We report the feasibility of expanding a longitudinal interprofessional curriculum to four institutions, the successful integration of medical assistants, nurses, and advanced practice providers, and incorporation of objective knowledge tests. Participants reported increased confidence in their knowledge after each session and tended to score higher on post-assessments. Future directions include additional monthly disease-site based sessions, incorporation of online asynchronous learning, and incorporation of spaced-repetition of content into assessment to promote knowledge retention.

Keywords: Interprofessional education, radiation oncology, multi-institutional.

Disclosure: Thomas: None Sinha: None Ni: None Phoung: None Xu: None Walker: None Braunstein: None
SESSION 5:

GRADUATE MEDICAL EDUCATION 2

Moderator: Jie Jane Chen, University of California San Francisco
Radiation Treatment Plan Evaluation: An Educational Tool for Radiation Oncology Trainees

Presenter: Naba Ali
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Background: Resident education in radiation treatment plan evaluation is variable, but it is a critical component of resident education as treatment plans are patient-tailored and customized. Prior studies have reported that over 90% of residents are interested in additional resources, but most report insufficient training. We developed a case-based educational curriculum to increase confidence and competence in plan evaluation by incorporating physics and dosimetry faculty input. We used this pilot study to evaluate feasibility of implementing dedicated treatment plan evaluation teaching sessions at an academic institution.

Methods: A single institution pilot study with 14 volunteer residents involving pre- and post-plan evaluation teaching session. Three de-identified central nervous system (CNS) cases, including high-grade and low-grade gliomas, were selected that corresponded to the topics of the residents' clinical lectures during the time they were administered. Physics faculty and dosimetrists developed treatment plans that incorporated common problems identified during plan evaluation including inaccurate contours, excessive doses to organs at risk (OARs), suboptimal beam arrangements, and inadequate target volume coverage. An interactive, dosimetry-led teaching session reviewed the cases and tips for requesting plan changes. Residents completed anonymous follow-up surveys regarding the cases and didactic session.

Results: Seven of 14 (50%) eligible residents completed the three initial case surveys which took on average 11 minutes and 55 seconds to complete (range 8 minutes 39 seconds -13 minutes 50 seconds). Of the participants, most correctly identified the major issues with each case: correctly indicating which plans they would approve and the differences between plans. However, a minority of residents were able to accurately discuss more nuanced details, with only 57% and 42% correctly rejecting inaccurate contours and OAR constraints, respectively; 29% accurately listed the pros and cons of specific beam arrangements; and 14% identified techniques dosimetry could use to improve target coverage. On the follow-up survey, 100% of residents reported that both the cases and the review session improved their confidence and understanding of treatment planning and plan evaluation and stated that they would like to see similar educational material incorporated in residency training in the future.

Discussion: We describe an effective, multidisciplinary tool to supplement resident education in plan evaluation. This curriculum simulates frequent problems that providers face and provides tools to collaborate with dosimetry and physics to improve treatment plans. Additional follow-up on evaluating and improving confidence and preparedness with plan evaluation in independent practice is warranted.

Keywords: Radiation oncology, plan evaluation, resident education.

Maintaining High Quality Dosimetry Education in Radiation Oncology Medical Residency Amid and Post-COVID-19 Pandemic: A Reimagined Training Rotation

Presenter: Ashley Hunzeker
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Background: The Mayo Clinic radiation oncology medical residency program has maintained a dedicated medical dosimetry rotation since 1996. During this one-month rotation, residents practice and complete treatment plans under the supervision of certified medical dosimetrists. Skill development includes image fusions, contouring, treatment planning, and plan review all occurring in a one-on-one face-to-face educational environment. During the COVID-19 pandemic, our department incorporated dosimetry telework, and the rotation was modified into remote experience with an emphasis on creating enduring content while still maintaining a high-quality educational rotation.

Methods: In early 2020, the medical residency and dosimetry program leaders evaluated the state of the resident rotation with the goal of identifying areas of the rotation that could be made into enduring content, modernizing the objectives of the rotation, and adapting the face-to-face educational experience into a virtual environment. The new goals and platform were implemented in January 2022. Evaluations pre and post implementation were reviewed.

Results: After education committee review, goals and objectives were updated to reflect current practice. The rotation was restructured into a disease-site specific approach, with shared supervision by disease site, rather than a single dosimetry mentor. Site-specific standard of practice (SOP) documentation and twenty-four step-by-step tutorial videos teaching 3D and inverse treatment planning techniques were created. Virtual practice scenarios were created to ensure the appropriate breadth of experience. After onboarding for the rotation, residents reviewed site-specific SOP documentation and training tutorials while planning virtual cases independently, under disease site-specific dosimetry supervision. Virtual interactive plan review sessions of both practice and actual patients were performed through Microsoft Teams with supervising dosimetrists. Medical resident evaluation of the dosimetry rotation pre- and post-pandemic were collected via survey. Preliminary feedback on the recent implementation of enduring content and remote environment education have been positive, citing high quality content and satisfaction with virtual learning platform from residents. Raw data collection is currently in progress. Mentor feedback also cited improved rotation quality with enhanced efficiency of one-on-one instructional time.

Discussion: As the telework environment continues to evolve; the initial results of the restructured rotation present a positive outlook on the future of remote education and the success of enduring content from the perspective of both medical residents and dosimetrists. These results may also translate to the evolution of other aspects of the residency program. Further enhancements of the rotation including rotational assessments and attending physician interaction are planned for future resident rotations.

Keywords: Residency, dosimetry, pandemic.

The Practice Accreditation Resident Reviewer Program (PARRP): A National Program to Educate Residents About Radiation Oncology Practice Accreditation Through Mentored Chart Review

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Background: While instruction in patient safety and quality improvement is a core requirement for radiation oncology graduate medical education, many residents feel their training in this domain is inadequate. To address this discrepancy, we developed a mentorship program that allows residents to serve as junior chart reviewers within the American College of Radiation Oncology (ACRO) practice accreditation program. Practice accreditation is a voluntary process by which a radiation oncology facility's adherence to quality treatment standards is assessed through comprehensive evaluation of their equipment, personal, and treatment records. We hypothesize that hands-on training in practice accreditation will increase resident knowledge of quality care standards.

Methods: This prospective study will be open to PGY-4 and PGY-5 radiation oncology residents nationally. Residents will initially undergo a self-administered didactic curriculum - consisting of readings and webinars - on the principles of practice accreditation, quality standards, and documentation review. Subsequently, residents will serve as junior reviewers within the ACRO accreditation program. During each chart review cycle, residents will be paired 1:1 with an experienced accreditation faculty mentor. Both resident and faculty will independently review the same set of charts/treatment records and score documentation quality using a pre-specified rubric. After chart evaluation, faculty will meet with residents via videoconference to discuss scoring and provide feedback. To graduate the program, residents must complete 3 chart review cycles and evaluate at least 10 charts.

Results: Primary endpoint is improvement in resident understanding of quality care standards, practice accreditation, and documentation review, which will be assessed through pre- and post- program surveys. At the end of each chart review cycle, surveys will be used to assess secondary endpoints including residents' time to complete chart review, confidence in chart review, and perceptions of faculty mentorship. Faculty mentors will also evaluate resident competence in chart review at the end of each chart review cycle.

Discussion: This is the first program to teach radiation oncology residents about practice accreditation. By providing mentorship and hands-on experience, we aim to better equip residents with the knowledge and skills needed to maintain care and documentation standards as an attending physician. In doing so, this program highlights how patient safety and quality improvement can be incorporated into everyday practice.

Keywords: Practice accreditation, mentorship, quality care.

SESSION 6:

UNDERGRADUATE MEDICAL EDUCATION 2

Moderator: Kiran Kumar, UT Southwestern
Implementation of an Interactive Radiation Oncology Clinical Rotation for Medical Students

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Background: Our radiotherapy department is situated onsite at a university-affiliated hospital where medical students undertake clinical rotations. However, no formal programme for attachments to the radiation oncology service was previously in place. Student experience was limited to occasional classroom-based lectures and sporadic contact with cancer patients while rotating through other clinical services. Under-exposure to radiation oncology (RO) (and oncology generally) during medical school is common. A 2016 survey of medical students at two US universities found that only 4% of third year and 7% of fourth year students completed an RO rotation (Osvarak et al 2016). And 47% of Australian and New Zealand medical students recently reported that RO was not incorporated into their curriculum at all (Bravery et al 2020). We identified improving medical student involvement as a priority for our department.

Methods: We collaborated with tutors at the University to arrange for medical students to have allocated RO rotations during their clinical attachments at the hospital. Agreed learning objectives fitted into three categories:

- fundamental clinical skills in history taking and physical examination
- care of cancer patients
- an introduction to RO and its role in the care of cancer patients.

A multidisciplinary effort with involvement of consultant and trainee radiation oncologists, radiation therapists, nurses, and university representatives allowed us to develop a programme to deliver these learning objectives.

Results: The programme began in January 2022. One radiation oncologist takes overall responsibility for day-to-day operations and acts as the primary point of contact for the students and other staff members in case of any issues. Students receive tutorials on oncological emergencies and are involved in academic sessions in the department. They are supervised as they spend time contouring organs at risk and clinical targets and also have dedicated sessions with radiation therapists where they observe the delivery of external beam radiotherapy. Clinical experience is gained via attendance at outpatient clinics and on the inpatient oncology ward. Feedback on history taking and clinical examination is provided via tutorials with radiation oncologists and trainees. Students provided feedback which indicated that they had enjoyed their experience of the specialty and found the rotation beneficial.

Discussion: The rotation has been well-received by students and the university tutors. The primary goal of incorporating RO rotations into the medical school curriculum was successful and these attachments will continue in future. Involvement of relevant stakeholders within the department and the university contributed to the successful implantation.

Keywords: Undergraduate medical education, Intro to Radiation Oncology.

National Value-Based Healthcare Competition for Medical Students

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Background: Although we have amazing tools like immunotherapy and radiation therapy to offer our patients, all too often the process of delivering this world-class care simultaneously burdens our patients. Medical school curriculums are only beginning to appreciate the importance of including value-based care education in their curriculums. As future physicians, it is our responsibility to contribute to solving these deficiencies in our process, but to do so we need to build educational tools that expose us to these concepts, is engaging enough to justify devoting ever limited time in medical school, and empowers us to be able to act.

Methods: Our team designed and implemented a National Value-based Care competition, that provides a longitudinal curriculum for students to voluntarily learn about value-based care through three components: 1) Local School Competition, 2) National Competition, 3) Peer mentorship/leadership. In the first phase, the local school competition, teams of 4-5 medical students review a standardized patient case (based on a real patient), identify value deficits in the process, explore one specific value deficit in detail and propose a solution. In the National Competition, the winners from each school, compete to implement their solution and collaborate with key stakeholders at their hospital through the Six Sigma process improvement methodology. Finally, the winners from each school become the mentors and local competition organizers for the next year.

Results: In our first year, we focused on our own medical school (MCG), and had 6 teams of students representing 28 students from the M1 and M2 classes submit their final project. We received positive feedback from the students, their faculty mentors, as well as the faculty judges. We then exported, including 4 schools: MCG, Florida State University (FSU), Baylor, and Penn State. Across the four schools we had 30 teams participate representing 134 medical students. The top three winning teams all produced real world projects that were either IRB approved or seeking IRB approval.

Discussion: We created a case competition that increased engagement with key value-based healthcare concepts for students. It is worth noting, that participation was entirely voluntary, so our results suggest students across multiple school are interested in these topics and even willing to see a project all the way through when provided an engaging and incentivizing process. We are now training the next generation of student competition organizer to prepare for the next set of local and national competitions.

Keywords: Medical Education, Value-based care, Healthcare deficit/inequities.

Beyond the Standard Student Interest Group: An Opportunity for Early Shadowing Experiences and Mentorship in Radiation Oncology

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Background: There has been a national decline in applicants to radiation oncology (RO) residencies in recent years, which is partly a result of limited exposure to RO during medical school [1]. Student Interest Groups (SIGs) give students early exposure to a variety of specialties. We recently revamped our RO-SIG to increase engagement, meet mentors in the field, and to grant shadowing experiences early in medical school. The purpose of this study is to determine if the RO-SIG increases interest in and knowledge about the field.

Methods: The RO-SIG hosted two career panels in 2022, which were attended by 41 M1-2 students. Prior to the events surveys were emailed to those who registered asking them about their interest in oncology, in RO specifically, and their perceived accessibility of mentors in oncology fields. These questions were rated on a Likert scale from 0-5 (5 highest, 0 lowest). The survey included one short response question, "what is your understanding of the role of the RO?" which was evaluated qualitatively. Additionally, all students registered for the RO-SIG were given the opportunity to sign up for shadowing in the RO clinic. These students are surveyed before and after the shadowing experience. The same survey was emailed after either event to the students who participated. The results were tabulated and matched responses were compared.

Results: 34 students (32 M1s, 2 M2s) completed the pre-survey and 15 (14 M1s, 1 M2) completed the post-event survey. The interest in both an oncology specialty and in RO increased from the initial to the post-SIG survey. Of the 15 matched responses, the interest in oncology increased from 3.73 pre-SIG to 4 (p=0.05) and in RO specifically from 3.4 to 4 (p=0.05). The mean perceived accessibility of faculty mentors in oncology increased from 3.2 to 3.73 (p=0.03). Prior to interacting with the RO-SIG, 3/15 students did not know anything about RO, 7 said ROs "use radiation to treat cancers, and 4 said they "work in a team of oncologists." Post-event, the answers were more detailed in the understanding of the ROs "long-term relationships with patients" and "ability to both cure and palliate cancer patients."

Discussion: RO-SIGs can increase interest in oncology and RO. Medical students enjoy the opportunity to gain early exposure to this specialty and benefit from connecting with mentors. Reference: Wu et al. The Declining Residency Applicant Pool: A Multi-Institutional Medical Student Survey to Identify Precipitating Factors. Adv Radiat Oncol, 2021.

Keywords: Student interest group, engagement, radiation oncology mentorship.

Disclosure: Sport- None  Yarden- None  Fields- None
Exploring Radiation Oncology Representation on the National Board of Medical Examiners (NBME) Official Practice Material for the Undergraduate United States National Standardized Medical Board Examinations

Presenter: Mary Mahoney  
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Background: The portrayal of oncology-related topics on the National Board of Medical Examiners (NBME) published practice material for undergraduate medical education (UGME) standardized examinations including the United States Medical Licensing Exams (USMLE) Step 1, Step 2 Clinical Knowledge (CK), and NBME Clinical Science Subject Examinations ("Shelf") is largely unknown. The goal of this study is to explore the presence and characterization of radiation oncology topics, including radiation therapy (RT), on these practice examinations.

Methods: All current and commercially accessible NBME published self-assessments and sample questions for the aforementioned examinations will be queried for content pertaining to oncology and associated treatment modalities of RT, surgery, and systemic therapy. The total volume of oncology-related questions and its distribution across all 3 major practice examination types will be recorded. The questions will be cataloged by selected attributes including context, treatment modality appearing as the correct answer for "next best step" (NBS) prompt, and answers appearing as the incorrect answer for NBS prompt.

Results: 1320 USMLE Step 1 practice questions are available for analysis. In preliminary analysis, minimal questions about RT were noted; all appearing to involve concepts of associated toxicity. 920 USMLE Step 2CK practice questions are available for analysis. RT-related questions appeared with higher frequency on the clinical science preparation material (n=10) compared to basic science (n=4), while also notably appearing as a listed answer choice for NBS prompt against other treatment modalities. 1325 practice questions from relevant NBME shelf examinations were available. RT appeared sparingly on the practice NBME shelf examinations of Surgery (n=5), Medicine (n=4), Ob/Gyn (n=2), and Clinical Neurology (n=2). RT questions were absent from Pediatrics, Emergency Medicine, and Family Medicine Shelf practice examination material. In the final analysis of these practice questions from all 3 major examination types, we seek to conduct a comparative analysis to other treatment modalities.

Discussion: This work represents the first attempt, to our knowledge, to characterize RT topic appearance within the NBME published practice questions and their accompanying explanations for the USMLE Step 1, Step 2CK, and select NBME shelf examinations. Our analysis is important in assessing the presence of RT topics on medical student board preparation material, a potential avenue of RT content exposure in UGME. Careful review and comparative analyses of all oncology-related content can provide important insight for UGME-related RT education. Our anticipated analyses and future discussion may identify areas for improvements in the important education of oncology-related topics in UGME.

Keywords: National Board of Medical Examiners (NBME) Self-Assessments, Undergraduate Medical Education (UGME), Cancer Education.

SESSION 7:

GRADUATE MEDICAL EDUCATION 3

Moderator: Leah D’Souza, Rush University
Attitudes and Perceptions of the REFLECT Communication Curriculum for Clinical Oncology Graduate Medical Education

Presenter: Brady Laughlin
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Background: Communication and interpersonal skills are important medical components of oncology patient care. The REFLECT (Respect, Empathy, Facilitate Effective Communication, Listen, Elicit Information, Compassion, and Teach Others) curriculum is a novel communication to improve and refine physician/patient interactions for oncology graduate medical trainees. Each year, this comprehensive course consisted of quarterly (four-hour) workshops comprised of assigned reading, knowledge assessments, didactic lectures, expert guest lecturers, standardized patient (SP) simulations, role-playing, patient/expert panels, coaching, reflective writing, and debriefing/feedback sessions. We sought to evaluate the attitudes and perceptions of the communication curriculum in oncology trainees.

Methods: Surveys were developed to obtain perceptions of the REFLECT curriculum from trainee (Radiation Oncology and Medical Oncology) participants and faculty mentors. A 9-question and 11-question Likert scale surveys (1 = not beneficial, 5 = beneficial) was distributed to resident/fellow participants and faculty mentors, respectively. Questions asked trainee and faculty opinions about perception of improvement in communication, handling of stressful situations, value of curriculum, and overall impression of the curriculum. Surveys were distributed through Qualtrics, and were anonymous, voluntary, and non-incentivized.

Results: Twelve resident/fellow participants completed the participant survey. Five (41.6%) Radiation Oncology trainees and 7 (58.3%) Hematology/Oncology fellows completed the survey. Nine faculty members, 8 radiation oncologists and 1 medical oncologist, completed the faculty survey. In general, trainees felt that the curriculum improved their communication skills (mean = 3.5, range 1-5). Additionally, most also felt the workshop was beneficial in being able to handle certain topics (69.2%). Seven participants (54%) felt that the curriculum enhanced their communication. However, only 28.4% of trainees felt it was beneficial to their training. The overall impression was positive, with 77% of participants rating the curriculum as beneficial. Meanwhile, faculty members felt the curriculum was beneficial with average responses ranging from 4.5-5. There was a significantly more positive perception of the REFLECT curriculum among faculty members compared to trainees (p <0.05).

Discussion: While the REFLECT curriculum was perceived to enhance communication skills, trainees did not find the curriculum beneficial. On the other hand, faculty physicians and staff felt the curriculum was beneficial. As interactive skills and communication is critical to build positive interaction with patients, further work is needed to improve trainee's perception of the REFLECT curriculum.

Keywords: Communication curriculum, Empathy, Oncology training

Disclosure: Laughlin: None Vaught: None Vern-Gross: None
A Pilot Study of a Virtual Interactive Radiation Oncology-Specific Residents-As-Teachers Curriculum: Preliminary Results

Presenter: Lisa Ni  
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**Background:** Radiation oncology resident physicians have expressed the desire for formal training in teaching for settings and audiences that are specific to their specialty. We describe preliminary results from a funded pilot study for a virtual, interactive Residents-As-Teachers (RaTe) curriculum.

**Methods:** All radiation oncology trainees at a single institution were invited to voluntarily participate in this study (N=13). The first module of this longitudinal curriculum, "Teaching Medical Students in the Outpatient Radiation Oncology Clinic," was implemented in November 2022. The module included an asynchronous 30-minute interactive video didactic, a self-assessment tool for participants to use while teaching in clinic, and a list of additional relevant resources. Trainees who consented to participate in the study completed self-assessment questionnaires prior to the intervention and completed anonymous questionnaires immediately afterward evaluating their experience with the module.

**Results:** Of the 13 trainees who qualified for participation, 8 (62%) consented to participate in the study. There was participation across training levels: 2 (25%) PGY-2, 1 (13%) PGY-3, 2 (25%) PGY-4, 2 (25%) PGY-5, and 1 (13%) fellow. Six (75%) had no prior training in teaching before residency, while 4 (50%) had no training in teaching during residency. Median self-assessment score of overall teaching performance on an 11-point scale (0-10) was 6.5 (range, 3 to 8). Seven out of 8 (88%) study participants completed the post-intervention survey for this module. When asked how likely they were to change their teaching practices as a result of the intervention, all respondents chose "Very Likely" (6 responses, 86%) or "Somewhat Likely" (1 response, 14%). Out of an 11-point scale (0-10), respondents rated their likelihood to recommend this module to other radiation oncology trainees at a median of 10 (range, 8-10).

**Discussion:** These preliminary results indicate the feasibility of implementing the first asynchronous virtual module within a radiation oncology-specific residents-as-teachers series at a single institution. The module was well-received, and participants were highly likely to recommend the module to other trainees. Future directions include determining how this curriculum impacts participant teaching confidence and quality. Additionally, we plan to expand the curriculum to include other teaching topics specific to radiation oncology, as well as include participants from other institutions.

**Keywords:** Graduate Medical Education, Radiation Oncology, Internet-Based Intervention.

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Race to the Summit: Impact of a Social Media-Based Exercise Competition on Physician Physical, Psychological, and Emotional Well-Being

Presenter: Alexis Schutz
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Background: In the wake of the COVID-19 pandemic and with increasing non-clinical demands on physician time and effort, the health care community is experiencing disproportionate rates of burnout. Oncologists, specifically, frequently endure challenging situations of caring for terminally ill patients who require emotional support along with intricate medical care. In response, various well-being initiatives for physicians have emerged, predominantly focusing on education or wellness opportunities. However, most these programs are institution-based and not accessible to the physician community as a whole. The effect of physical exercise, particularly team-based activity, on physician well-being and burnout has been postulated but not rigorously studied. We therefore seek to formally investigate whether team-based exercise programs can facilitate collective well-being by enabling physicians to address burnout collectively rather than individually.

Methods: This prospective study will involve the two-month voluntary team-based multi-sport competition, ACRO Race to the Summit, which will track total exercise minutes logged across various forms of physical activities during the racing period of January 1st, 2023- February 28th, 2023. A pre/post survey design will be used to investigate the potential impact of such collective activity on radiation oncology physician well-being. Included in both surveys, a set of 25 multiple-choice questions based on the validated Stanford Medicine well-being survey and the IPAQ (International Physical Activity Questionnaire) will focus on physical activity level and psychological and emotional well-being in the workplace. The post-race survey will include additional questions meant to evaluate participants' perceived impact of the competition on these categories.

Results: Primary endpoints will assess change in pre- and post-survey metrics related to level of physical activity, and psychological and emotional well-being at work. Secondary endpoints will examine perceived value of team-based exercise in cultivating well-being.

Discussion: We anticipate that the results from this survey may inform commentary on the role of collective, inclusive exercise as a tool to combat physician burnout. Moreover, the study may provide insight into existing trends in physical activity, and psychological and emotional well-being in the radiation oncology community. Formation of and investment in non-institution, non-work related teams may prove to be a unique means of addressing burnout by strengthening a sense of community within the field as a whole.

Keywords: Well-being, Exercise, Teamwork.

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