ROECSG
RADIATION ONCOLOGY EDUCATION COLLABORATIVE STUDY GROUP

NINTH ANNUAL SPRING SYMPOSIUM

"CONNECTED LEARNING, COLLECTIVE PROGRESS: ADVANCING RADIATION ONCOLOGY EDUCATION"

MAY 15, 2026

ROCHESTER, MINNESOTA, USA

2026 SYMPOSIUM CHAIR:
ALLISON GARDA, MD
MAYO CLINIC ROCHESTER

@ROECSG

CO-SPONSORED BY

ASTRO
AMERICAN SOCIETY FOR RADIATION ONCOLOGY

2026 ROECSG Spring Symposium Planning Committee

Allison Garda MD – Mayo Clinic (Rochester) – 2026 Symposium Chair
Steve Braunstein MD PhD – University of California San Francisco
Kimberly Corbin MD – Mayo Clinic (Rochester)
Daniel Golden MD MHPE – Rush University Medical Center
Jillian Gunther MD PhD – MD Anderson Cancer Center
Jordan Holmes MD MPH – Indiana University
Rachel Jimenez MD – Massachusetts General Hospital
Leah Katz MD MPH – University of Miami
Lisa Ni MD – University of Washington
Jeremy Price MD PhD – Temple Health
Kevin Shiue MD – Indiana University
Kristi Tonning MS PhD RT(T) – Oregon Health & Science University
May Tsao MD FRCPC – Odette Cancer Centre – Sunnybrook Health Sciences Centre

2026 ROECSG Spring Symposium Abstract Review

Abstract Review Committee Chairs
Lisa Ni MD, University of Washington
Jeremy Price MD PhD, Temple Health

2026 Abstract Reviewers

- Naba Ali
- Marian Axente
- James Bates
- Steve Braunstein
- Paul Buclez
- Yannick Eller
- Jillian Gunther
- Jordan Holmes
- Jonathan Klein
- Mary Mahoney
- Esin Namoglu
- Lisa Ni
- Rohan Patel
- Gabrielle Peters
- Jeremy Price
- Kevin Shiue
- Austin Sim
- Matthew Studenski

2026 ROECSG Spring Symposium Program
Table of Contents

2026 ROECSG SPRING SYMPOSIUM SCHEDULE

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

8:00 - 9:00: Breakfast, Coffee, & Networking

9:00 - 9:10: Introductory Remarks – Allison Garda MD, 2026 Symposium Chair

9:10 - 10:20: Abstract Session #1 – Residency In-Training Education

10:20 - 10:30: Break

10:30 - 11:40: Abstract Session #2 – Patient Education

11:40 - 12:10: Patient Advocate Session – Morgan Newman MSW

12:10 - 1:00: Lunch

1:00 - 2:10: Abstract Session #3 – The Interprofessional Team

2:10 - 2:30: ROECSG Working Group Updates

2:30 - 3:40: Abstract Session #4 – Medical Student Education

3:40 - 3:50: Break

3:50 - 4:20: Keynote Address:

"From Burnout to Thriving in Medical Education and Practice"
Colin P. West MD PhD
Professor of Medicine, Medical Education, and Biostatistics
Divisions of General Internal Medicine and Clinical Trials and Biostatistics
Departments of Internal Medicine and Quantitative Health Sciences
Mayo Clinic – Rochester

4:20 - 4:30: Keynote Discussion/Break

4:30 - 5:40: Abstract Session #5 – Residency – Program Development

5:40 - 5:50: Closing remarks – Allison Garda, MD, 2026 Symposium Chair

5:50 - ???: Post-Symposium dinner and in-person networking

Keynote Speaker – Colin P. West, MD, PhD

"From Burnout to Thriving in Medical Education and Practice"

Professor of Medicine, Medical Education, and Biostatistics
Divisions of General Internal Medicine and Clinical Trials and Biostatistics
Departments of Internal Medicine and Quantitative Health Sciences
Mayo Clinic – Rochester

Dr. West is a quantitative health sciences researcher whose work focuses primarily on healthcare professional well-being, evidence-based medicine and biostatistics, and medical education. Results of research conducted by Dr. West and his team have been published in multiple top-tier journals, including the Lancet, JAMA, Annals of Internal Medicine, and JAMA Internal Medicine.

Patient Advocate Speaker – Morgan Newman, MSW

ABSTRACT SESSION 1:

RESIDENCY – IN-TRAINING EDUCATION

Moderator: Elizabeth McKone – Mayo Clinic

A Multi-Timepoint Evaluation of Structured Contouring Training in Radiation Oncology Trainees in Ireland

Presenter: Maura O'Connell, Medicine MB, BCh, BEO(Hons)

Email: mauraoconnell1@outlook.com

Maura O'Connell[1], Ciaran Malone[2], Jill Nicholson[1], James Waldron[2], Aisling M Glynn[1], Orla McArdle[1], Guhan Rangaswamy[1]

[1]Department of Radiation Oncology, St Luke's Radiation Oncology Network, [2]Department of Physics, St Luke's Radiation Oncology Network

Background: Inter-observer variability in target volume and organ-at-risk (OAR) delineation remains a source of uncertainty in radiotherapy planning. This study evaluated the impact and durability of structured contouring workshops on delineation accuracy and confidence among radiation oncology trainees.

Methods: A prospective analysis was conducted among radiation oncology trainees who participated in two structured, site-specific contouring workshops in head and neck (H&N) and prostate tumour sites. Each participant completed contouring tasks before the workshop, immediately afterward (within one week), and three months later, using standardised imaging datasets for selected H&N and prostate cancer cases. Participant contours were compared against expert consensus contours using quantitative spatial metrics, including Surface Dice coefficients (at 1, 2, 3 mm tolerance), Average Surface Distance (ASD), and Hausdorff Distance (HD). Improvement was defined as the percentage of participants whose post-workshop performance was greater than or equal to pre-workshop values, while retention represented the percentage maintaining or exceeding post-workshop accuracy at three months. Confidence and self-perceived learning were assessed through pre- and post-workshop questionnaires.

Results: Six trainees (H&N) and seven trainees (prostate) completed all contouring tasks at the time points indicated. For H&N, contour improvement from pre- to post-workshop ranged from 62-70% and 32-68% for prostate. Immediate improvement was larger in H&N, while retention favoured prostate. For H&N, key metric improvements were Surface Dice 68.3%, ASD 70.0%, HD 70.0%, with three-month retention 39.3%, 35.7%, 42.9%; most contours remained better than pre at three months (63.0-77.8%, highest for HD, 77.8%). For prostate, improvements were Surface Dice 66.7%, ASD 67.6%, HD 32.4%, with retention 68.9%, 76.7%, 86.7%; most contours remained better than pre (86.2-89.7%, highest for HD 89.7%). On a per-participant basis, H&N improvement ranged from 48-80%, with retention between 24-53%, whereas prostate improvement ranged from 0-96%, with higher retention (64-100%). These findings suggest that prostate contouring, which typically starts at a higher baseline accuracy, maintains improvement more effectively, while H&N-being more anatomically complex-shows greater initial gains from a much lower baseline.

Conclusion: Structured contouring workshops significantly enhanced delineation accuracy and confidence among trainees. However, improvements in contouring accuracy diminished over time, indicating limited long-term retention, especially for anatomically challenging regions. These results highlight that a single workshop provides valuable but transient benefit. To sustain and consolidate proficiency, reinforcement sessions or repeated training may be necessary to ensure consistent delineation and long-term competency in radiotherapy planning.

Disclosures: none

Qualitative Contouring Changes After Completion of Radiation Oncology Resident Clinical Rotations: Secondary Analysis of an International Longitudinal Trial

Presenter: Hieu Nguyen, BS

Email: hin002@health.ucsd.edu

Hieu Nguyen[1], Megan E. Orr[1], Matin Yarmand[2], Borui Wang[3], Kristin Daniels[1], Elizabeth A. M. Duran[1], Nadir Weibel[4], Erin F. Gillespie[5], James D. Murphy[1], Michael Sherer[1]

[1]Department of Radiation Medicine and Applied Sciences, UC San Diego, [2]College of Computing and Informatics, UNC Charlotte, [3]Department of Information Science, Cornell University, [4]Department of Computer Science and Engineering, UC San Diego, [5]University of Washington, Department of Radiation Oncology

Background: Accurate contouring is essential for high-quality radiation therapy, yet variability remains common during training and beyond in clinical practice. This study qualitatively characterized contouring mistakes across different disease sites before and after site-specific clinical rotations. We hypothesized that residents would exhibit more errors pre-rotation, with improvement following rotation completion.

Methods: Residents completed pre- and post-rotation contouring assessments consisting of three tasks from their respective disease sites. Each resident's contour was visually compared to an expert reference contour overlaid on the same axial slice. Residents completing their first clinical rotation in Head/Neck (HN), gynecologic (Gyn), or gastrointestinal (GI) disease sites were randomized 1:2 to receive standard contouring education resources (control) or iContour educational priming. iContour is a web-based platform that displays anonymized DICOM images and provides real-time feedback to residents as they contour practice cases.

Results: This trial recruited 31 residents, primarily from the United States (n = 27), with training ranging from PGY2-5 (median PGY-2). Pre- and post-test contours were available for 12 HN, 14 Gyn, and 5 GI residents, totaling 185 contours. For primary-tumor CTV contouring in a nasopharynx case, contouring errors included under-coverage of the pterygoid muscles (seen in 75% of pre-tests and 92% of post-tests) and overly liberal anterior nasopharyngeal coverage (33% pre, 33% post). Elective HN nodal and OAR contouring errors included under-contouring of level Ib (33% pre, 66% post) and V (83% pre/post) cervical lymph nodes, and difficulty identifying the deep parotid lobe (25% pre, 50% post). Notably, residents no longer included the pharyngeal constrictor muscles in the post-rotation nodal CTV (50% pre, 0% post). In the GI case, residents over-contoured the anal canal anteriorly into the prostate (60% pre, 20% post) and posteriorly into the ischiorectal fossa (40% pre/post). GYN contouring was accurate, with fewer errors seen in the common iliac node (31% pre, 43% post) and bowel bag (14% pre/post) volumes. No correlation was observed between educational priming and contour performance.

Conclusion: Resident errors included under-contouring of the deep parotid gland and key nodal subsites in the HN case, and over-contouring of the anal canal into adjacent structures in the GI case. In GYN cases, residents overall demonstrated more proficient contouring with proper lymph node and bowel bag coverage. There were few clear improvement patterns following rotation completion, consistent with previously reported quantitative analyses. These findings highlight predictable site-specific errors that may guide targeted education and feedback for trainees and clinicians.

Disclosures: Orr: Research supported by RSNA Research Resident/Fellow Grant (RR2243RO, MS).

Pilot Chart Rounds Workshop for Radiation Oncology Residents in the Philippines

Presenter: Kara Banson, MD

Email: kbanson@gmail.com

Kara M. Banson[1], Patricia S. Sy[2], David Serrano[3], Daryl M. Obciana[4], Miriam Calaguas[3], Nonette Cupino[2], Todd Yoder[1], Kevin Nicholson[1], Camille Hardy-Abeloos[1], Naamit K. Gerber[1], Michael Dykstra[5], Benjamin Li[6,7], Luiza Bett[1], Aishwarya Shah[1], Jason Gurewitz[1], Jaymee Fernandez-Ramos[8], Kenneth Hu[1]

[1]NYU Langone Health, [2]Philippine General Hospital, [3]St Luke's Medical Center, [4]Jose R. Reyes Memorial Medical Center, [5]University of Michigan, [6]University of Washington, [7]Fred Hutch Cancer Center, [8]Asian Hospital and Medical Center

Background: Radiotherapy treatment plan evaluation is a universal core competency. We partnered with radiation oncology residents in the Philippines to develop a structured, interactive chart rounds workshop series. We sought to evaluate a pilot training initiative on breast cancer to gain feedback and inform future planned initiatives.

Methods: To understand local practice, we conducted site visits at three radiation oncology departments in the Philippines (one private, two public) to review workflow, technology, clinical cases, and resident responsibilities. With input from US- and Philippines-based radiation oncologists, physicists, and dosimetrists, we designed a 1-hour hybrid (in-person/virtual) pilot workshop on breast plan evaluation with pre- and post-workshop surveys. Residents were guided through four anonymized breast plans using the acronym FCB-CHOPS framework (fusion, contours, beam, coverage, heterogeneity, organs at risk, prescription and dose summation): (1) whole breast 3D-CRT with inadequate inferior flash; (2) whole breast 3D-CRT with inadequate medical coverage; (3) whole breast 3D-CRT with sequential boost, emphasizing hotspot evaluation on primary, boost, and composite plans; and (4) VMAT versus 4-field 3D-CRT for postmastectomy radiation. Attending physicians and physicists were invited to participate, with emphasis on resident participation.

Results: Twenty-seven residents, five attendings, and two physicists participated in the pilot workshop; 20 residents completed the pre-workshop survey and 19 completed the post-workshop survey. Residents reported learning treatment planning through informal instruction from peer residents (95%), independent learning (80%), and attendings (65%), with fewer reporting learning from structured didactics (25%). All trainees reported using a systematic mnemonic (CB-CHOP or FCB-CHOPS). Self-reported comfort in plan evaluation was highest for 3D-CRT, followed by IMRT, brachytherapy, and lowest for SRS/SBRT. For breast plans, most (80%) correctly identified the rationale for including flash, but only 20% knew how physicists technically implement flash. All respondents used at least axial CT slices when evaluating breast plans; fewer used beams-eye-view (45%) or skin/surface rendering (14%). Mean comfort in evaluating breast plans was 3.50/5 beforehand vs. 3.32/5 afterwards ($p = 0.51$). After the workshop, 95% reported having a defined strategy for breast plan evaluation, 95% found the workshop very helpful, and 100% expressed wanting to participate in future sessions.

Conclusion: A pilot workshop identified and helped address gaps in plan evaluation skills. Although not statistically significant, shifts in comfort level could reflect increased awareness of the complexity and rigor required for high-quality breast plan assessment. Given high interest in future workshops, this model supports collaborative global radiation oncology education and demonstrates space for growth.

Disclosures: none

Development of a novel multidisciplinary physics study guide for radiation oncology residents

Presenter: May Tsao, MD, FRCPC

Email: may.tsao@sunnybrook.ca

May N. Tsao[1], Jordan A. Holmes[2], Matthew T. Studenski[3], Jay Burmeister[4], Ashley Cetnar[5], Peter Ferjancic[6], Kelsey Corrigan[7], Binita R. Chacko[8], Marian Axente[9], Alexandra DeLeo[10]

[1]Department of Radiation Oncology, University of Toronto, [2]Department of Radiation Oncology, Indiana University School of Medicine, [3]Department of Radiation Oncology, University of Miami Miller School of Medicine, [4]Department of Oncology, Wayne State University, [5]Department of Radiation Oncology, Ohio State University, [6]Department of Radiation Oncology, Rush University Medical Center, [7]Department of Radiation Oncology, Aurora Radiation Oncology, [8]Department of Medical Imaging, University of Toronto, [9]Department of Radiation Oncology, Emory University School of Medicine, [10]Department of Radiation Oncology, University of Florida

Background: Radiation physics is a core component of radiation oncology training and clinical practice. The American Association of Physicists in Medicine (AAPM) and the American Society for Radiation Oncology (ASTRO) published the latest core physics curriculum for radiation oncology residents in 2024, which lists 21 physics topics and the recommended number of didactic hours for each. However, the development of comprehensive, yet focused and readily available physics education modules has been limited. To support physics education for radiation oncology residents, we developed a novel physics educational resource.

Methods: Key stakeholders (radiation oncology residents, medical physicists, and radiation oncologists) created an anonymous, web-based needs assessment regarding physics education. We administered the needs assessment to radiation oncology residents in the United States and Canada. Using the needs assessment results, a multidisciplinary team of radiation physicists, radiation oncologists, radiation oncology residents and radiation physics residents developed a physics educational resource. We disseminated this novel physics educational resource on-line through the Radiation Oncology Education Collaborative Study Group (ROECSG) and the ASTRO Association of Residents in Radiation Oncology (ARRO) websites in the fall 2025. Users will evaluate this educational resource using the validated revised Approved Instructional Resources (rAIR) tool.

Results: Needs assessment: All 72 respondents from the needs assessment had a structured physics curriculum as part of their radiation oncology-training program. However, only 39% were aware of the AAPM/ASTRO core physics curriculum. The overwhelming majority (99%) were interested in a physics review covering the AAPM/ASTRO core physics curriculum. Respondents rated a topic-based question bank with detailed answers as the most helpful (86%) or moderately helpful (13%). Physics educational resource: 287 multiple-choice questions with detailed answers, organized by the 21 AAPM/ASTRO physics topics were developed. We posted this educational resource as a Portable Document Format (PDF) file and as an interactive study guide (allowing the user to choose multiple-choice questions and click on respective detailed answers).

Conclusion: This work highlights the importance of dedicated volunteers in the ROECSG Graduate Medical Education Working Group and their essential role in identifying and addressing the needs of our trainees. The development of this educational resource demonstrates that a multidisciplinary, international collaboration can successfully create and disseminate valuable radiation physics education, making it freely accessible to all trainees. We are currently collecting user feedback, which will inform and guide future updates and enhancements to this physics educational resource.

Disclosures: none

Impact of a Structured Radiation Oncology Residency Bootcamp on Trainee Preparedness and Program Cohesion: A Pilot Bootcamp Experience

Presenter: Emily Boyer, MD, BEd

Email: emily.boyer@umontreal.ca

Emily Boyer[1], Jean-Marc Bourque[1], Carole Lambert[1]

[1]Université de Montréal

Background: Radiation oncology residency demands rapid acquisition of multidisciplinary clinical, technical, and professional competencies. Structured educational interventions can enhance trainee preparedness. We designed and evaluated a structured Radiation Oncology (RO) Residency Bootcamp using Kern's six-step model of curriculum development to improve transition preparedness, self-efficacy, and program cohesion.

Methods: A formal and informal needs assessment was conducted through structured discussions and surveys to identify curricular gaps and define learning objectives. A seven-week bootcamp was delivered during protected academic time within the first two months of the academic year. Sessions combined didactic and interactive formats and were facilitated by a multidisciplinary faculty team, including radiation oncologists, residents, medical physicists, radiation technologists, nuclear medicine specialists, a psychologist, a nutritionist, and a health sciences librarian. All residents (n = 6) within a single academic RO training program participated. Following completion, participants completed an anonymous post-intervention survey consisting of 5-point Likert-scale items and open-ended questions. Quantitative responses were summarized descriptively, and qualitative feedback underwent thematic analysis.

Results: Five of six residents (83%) completed the post-bootcamp survey. Resident-led, faculty-supervised sessions, clinical skills workshops (e.g., nasal endoscopy), and multidisciplinary teaching were identified as key strengths. Participants reported perceived improvements in preparedness across multiple domains, including understanding multidisciplinary roles, fundamentals of radiation biology, contouring and treatment plan evaluation, and patient education. All respondents indicated reduced stress related to residency as well as enhanced sense of program cohesion and professional belonging within the radiation oncology community. All respondents requested continuation of the bootcamp in future academic years.

Conclusion: Implementation of a structured introductory radiation oncology bootcamp is feasible within a protected academic schedule and is associated with improved self-reported confidence, preparedness, and program cohesion. Although limited by small sample size and reliance on self-reported measures, this model provides a reproducible framework for structured onboarding in radiation oncology. Future directions should incorporate objective knowledge assessments as well as other foundational topics (e.g., foundational pathology principles, electronic medical record workflow optimization, and advanced contouring platform functionality), site-based clinical case integration, formal mentorship opportunities and the development of other group-learning initiatives.

Disclosures: none

Integrating Microlearning through Template-Based Educational Sidebars in Radiation Oncology Chart Rounds

Presenter: Ria Brown, MD

Email: ria.brown@emory.edu

Ria N. Brown[1], Kristin A. Ward[1], Rohini K. Bhatia[1], Naba Ali[1], Kirk Luca[1], Eduard Schreimann[1], Sunil W. Dutta[1]

[1]Emory University

Background: Chart rounds are central to quality assurance and education in radiation oncology but often prioritize plan evaluation over structured teaching. As radiation oncology departments expand, the volume of cases requiring peer review continues to rise. This growth can limit opportunities for real-time teaching during chart rounds. To address this challenge, we developed a microlearning strategy, which entails embedding concise, evidence-based teaching points directly into chart rounds without impeding workflow. This strategy will be piloted specifically during breast chart rounds prior to integration in other disease sites.

Methods: For each commonly used breast radiation prescription template, standardized educational pearls were developed by residents, with approval by attendings, to provide dose rationale, contouring guidelines, key supporting clinical trials, and toxicity management considerations relevant to each prescription template. When a specific treatment prescription is selected during chart rounds, the corresponding educational points automatically populate within our case review interface as a sidebar. Development required a one-time initial effort and no additional preparation per case.

Results: The prescription-linked educational pearls have been developed and reviewed by residents and attending faculty. Technical assessment by the institutional chart rounds software lead has confirmed feasibility for integration into the existing digital platform. Implementation is planned within upcoming chart rounds sessions. Feedback surveys have been designed and will be administered following implementation to assess perceived educational value, impact on confidence with common radiation regimens, and workflow efficiency. We hypothesize that embedding structured microlearning into peer review will improve trainee knowledge reinforcement without increasing chart rounds duration. Preliminary feedback data may be available at the time of presentation.

Conclusion: Integrating educational microlearning into radiation oncology chart rounds represents a novel approach to enhancing real-time structured learning without disrupting clinical workflow. By leveraging a prescription-linked design, this strategy minimizes workload by using trainee-developed and attending-validated educational pearls, directly tied to established clinical protocols. We anticipate that this approach will be both scalable and generalizable across other radiation oncology subsites. Trainee feedback will clarify the impact of this initiative on resident confidence, clinical knowledge retention, and perceived value of chart rounds as a learning tool. If successful, this method could offer a model for efficiently addressing growing educational demands within expanding radiation oncology practices.

Disclosures: none.

Educational Interventions on Palliative Radiation Therapy: A Systematic Review

Presenter: Stephanie Quon, BASc

Email: quons@student.ubc.ca

Stephanie Quon[1], Isabel Truong[1], Katherine Zheng[1]

[1]University of British Columbia

Background: Palliative radiation therapy (RT) is a cornerstone of symptom management in oncology, providing rapid relief for pain, neurologic compromise, and organ dysfunction across malignancies. Despite its effectiveness, studies consistently demonstrate limited knowledge among physicians and trainees regarding indications, timing, and benefits of palliative RT, contributing to delayed referral and suboptimal patient care. Educational interventions targeting palliative RT have been developed across undergraduate medical education (UGME), graduate medical education (GME), and continuing medical education (CME), but their effectiveness and key characteristics have not been systematically synthesized. This systematic review aims to evaluate the effectiveness and identify key features of educational interventions focused on palliative RT.

Methods: A systematic review was conducted in accordance with PRISMA guidelines. MEDLINE, Embase, Scopus, Web of Science, ERIC, and Cochrane CENTRAL were searched from inception to present. Eligible studies included educational interventions targeting medical students, residents, fellows, or practicing clinicians focused on palliative RT. Interventions included didactic curricula, case-based learning, simulation, digital modules, multidisciplinary teaching, and clinical rotations. Two independent reviewers screened studies, extracted data, and assessed methodological quality using the Medical Education Research Study Quality Instrument. Primary outcomes included changes in knowledge, confidence, referral behavior, and educational effectiveness. Thematic synthesis was performed to identify recurring patterns across interventions.

Results: A total of 25 studies met inclusion criteria, including interventions across UGME, GME, and CME settings. Most studies demonstrated improvements in learner knowledge, confidence, and perceived competency following educational interventions. Five major themes were identified: (1) Improved knowledge and clinical competency, with most interventions reporting significant gains in understanding indications, dose fractionation, and expected outcomes; (2) Enhanced confidence and referral readiness, including increased willingness to refer patients appropriately for palliative RT; (3) Effectiveness of multimodal and experiential learning, with case-based learning, clinical exposure, and multidisciplinary teaching demonstrating greater impact than didactic-only interventions; (4) Persistent misconceptions and knowledge gaps, particularly regarding timing, goals of therapy, and differentiation between curative and palliative intent; and (5) Heterogeneity and limited methodological quality, with wide variability in intervention design, duration, and evaluation metrics, and few studies assessing long-term retention or behavioral outcomes.

Conclusion: Educational interventions in palliative RT consistently improve learner knowledge, confidence, and perceived competency. Multimodal and clinically integrated approaches appear most effective, while isolated didactic sessions demonstrate more limited impact. These findings support the integration of structured, multidisciplinary palliative RT education across medical training programs to improve timely referral, interdisciplinary collaboration, and patient-centered care.

Disclosures: none

ABSTRACT SESSION 2:

PATIENT EDUCATION

Moderator: Steve Braunstein – University of California, San Francisco

Impact of a Digital Education Platform on Patient Understanding of Prostate Cancer Treatment Options and Provider Communication: A Prospective Multi-Provider Pilot Study

Presenter: Isabella Bustillos, BS, MS

Email: ibustillos@usf.edu

Isabella C Bustillos[1], Dallin Fjerstad[1], Simran A Polce[2], Morgan E Tharp II[2], George D Grass[2], Daniel C Fernandez[2], Kosj Yamoah[2], Anupam Rishi[2]

[1]University of South Florida, Morsani College of Medicine, [2]Department of Radiation Oncology, H. Lee Moffitt Cancer Center and Research Institute

Background: Oncology consultations for prostate cancer can be overwhelming with complex discussions regarding disease risk stratification, multiple treatment options, and toxicity that may limit patient comprehension and shared decision-making. Building on prior work evaluating digital visual education tools in oncology, we prospectively evaluated whether a structured digital communication platform improves patient-reported understanding and improves the quality of the prostate cancer radiation oncology consultation.

Methods: In this IRB-approved, prospective pilot study, patients (and caregivers) with prostate cancer underwent initial consult using this digital visual education platform. Following consultation, patients and caregivers completed a 6-item survey evaluating perceived understanding of diagnosis, treatment options, and overall experience. Providers completed a 7-item survey assessing usability and communication effectiveness. Patients with ≥4 affirmative responses and providers with ≥5 affirmative responses were prospectively defined as meeting satisfaction criteria. The study was designed as a pilot feasibility assessment and powered to detect whether the proportion of satisfied patients exceeded 50%, assuming an anticipated satisfaction rate of 75% (90% power, one-sided α=0.05), with a planned enrollment of at least 30 patients.

Results: Seventy-six prostate cancer patients were enrolled across four providers. Patient-reported outcomes demonstrated uniformly high perceived educational benefit, with 100% of respondents indicating improved understanding of their disease and treatment options and reported they would review the information again if available online. Among patients who completed the consultation-experience question (75/76), all reported that the digital platform enhanced their visit and would recommend its use to other patients. Provider-reported outcomes demonstrated uniformly positive responses (100%) across all survey domains, including easier communication of complex information, improved perceived patient understanding of disease and treatment options, enhanced patient engagement, and a more effective consultation compared with standard practice, while integrating smoothly into clinical workflow.

Conclusion: The use of this digital education platform during prostate cancer consultation was associated with markedly improved patient-reported understanding and an enhanced consultation experience, with uniformly positive responses observed across a multi-provider cohort of 76 patients. These findings support integration of structured visual education tool to enhance patient-provider communication during complex treatment discussions. Future studies are warranted to evaluate overall treatment experience, adherence, and long-term clinical impact.

Disclosures: none

Designing an Interactive Digital Children's book with Gaming and Augmented Reality to Improve the Pediatric Proton Experience

Presenter: Jin-Jiu Lee, MPH

Email: jinjulee@usf.edu

Jin-Ju Lee[1], Jeff Hazelton[2], Kosj Yamoah[3], Sarah Hoffe[4]

[1]University of South Florida Morsani College of Medicine, [2]Captain VR and Cyber Sun, [3]Moffitt Cancer Center

Background: Anxiety is common for pediatric patients undergoing radiation therapy prior to simulation and the first day of treatment. This project is being done to determine if an interactive children's story can decrease anxiety and increase patient preparation for treatment. This report describes the initial design phase.

Methods: An interdisciplinary team was created consisting of physicians, radiation therapists, child life specialists, patient experience team members and technical staff from development, IT, and gaming. The team met with the institutional author and nurse illustrator to adapt their children's story with digital interactive media. This story revolves around Mac the Dog, who comes to the proton therapy center for treatment. Mac is shown as meeting the team, preparing for simulation with an immobilization device and then being still for treatment. Mac wears a cape to give him strength. The Unity platform was used to form the backbone of the development for the project which integrated digital design elements to optimize the story. Interactive gaming elements were designed to reward a patient's behavior such as when they correctly identified the roles of the different team members, the location of the treatment unit, etc. Conceptually, the team wanted to de-sensitize the child to the radiation machine and the process of simulation. To empower the child, an augmented reality cape could be seen on an IPAD and then placed over the child to mirror the cape of the central character, Mac the Dog. During the interactive experience, the child has the ability to move around the treatment facility and interact with the characters. Stickers are collected when the child has identified the correct items. At the end of the interaction, Mac is shown getting enough rest and eating healthy foods. 3D printed character figurines the child can pick will be part of the experience.

Results: The story is being adapted for digital media integration by a multidisciplinary clinical team, ensuring authenticity and relatability. The development team is using the latest design and gaming methodologies to make the app fun, engaging, and educational for pediatric patients. Given the restriction of virtual reality media to older children, the team ensured that only augmented reality systems were integrated.

Conclusion: Interactive gaming adaptation of a children's story is possible with a collaborative team of clinicians and technical experts. Once developed, feasibility and acceptance testing will be needed in the pediatric cancer population.

Disclosures: Hazelton: CEO of Captain VR and Cyber Sun

Improving Patient Awareness and Early Detection of Radiation Side Effects through Community Education in Kenya

Presenter: Geoffrey Kimotho

Email: geoffreykimotho1121@gmail.com

Geoffrey Kimotho[1]

[1]University of Nairobi, Kenya

Background: Many patients receiving radiation therapy in Kenya have little understanding of its side effects. This lack of awareness leads to fear, poor treatment follow up, and delayed management of side effects. The study aims to improve patient awareness and confidence through simple community education that uses local language and visual materials.

Methods: The study involves three hospitals in Nairobi, Kisumu, and Kakamega. A sample of 150 patients undergoing radiation therapy will receive short education sessions before treatment. The sessions include illustrated posters, storytelling, and small group discussions. Surveys will be done before and after the sessions to measure knowledge and attitude changes. Health workers will also be interviewed to assess the impact on communication with patients.

Results: It is expected that patients who take part in the education sessions will show better understanding of radiation side effects, improved ability to report symptoms early, and less treatment anxiety. Preliminary data from the first 50 patients already suggest higher satisfaction with care and better follow up attendance.

Conclusion: The project is expected to show that simple, locally designed education can help patients manage side effects more confidently and complete treatment safely. The results may guide hospitals in developing patient-centered communication tools and policies that improve cancer care. This approach could also be applied in other low-resource settings where patient awareness is low.

Disclosures: none

Improving Pre Consultation Patient Education at Mayo Clinic Midwest Radiation Oncology

Presenter: Sydney Schone, APRN CNP DNP

Email: schone.sydney@mayo.edu

Sydney Schone[1], Allison Garda[1], May Elbanna[1]

[1]Mayo Clinic

Background: The COVID 19 pandemic prompted a reassessment of how pre consultation patient education is delivered in radiation oncology as communication rapidly shifted to digital formats. A REDCap survey of Midwest Radiation Oncology staff identified major contributors to patient knowledge gaps, including limited information about side effects, simulation, logistics, mechanisms of radiation therapy, proton therapy, survivorship, brachytherapy, disease specific content, staffing roles, and financial considerations. Staff also reported a need for repeated and standardized educational materials across teams and clinic sites but noted insufficient time and resources to meet these needs. A complementary patient survey evaluated expectations, anxiety, fear surrounding radiation treatment, and confidence entering the consultation process. The project aimed to improve patient understanding and comfort with radiation oncology consultations.

Methods: A digital pre consultation education package was developed and included: an "Introduction to Radiation Oncology at Mayo Clinic" video, a suggested question prompt list for patients, a radiation simulation introduction booklet, an insurance brochure, and a regional practice location map. This packet was automatically delivered via the EPIC patient portal 48 hours prior to each consultation and reinforced by a written packet at check in. Following a pilot period, patient surveys assessed changes in understanding and experience, and staff surveys evaluated workflow impact and perceived value. Video analytics were used to monitor engagement and inform ongoing improvements.

Results: Survey findings confirmed significant patient and staff identified education gaps. The intervention reduced the proportion of patients reporting moderate to extreme anxiety by 10 percentage points (from 48% to 38%), with sustained improvement at follow up (approximately 30% reporting anxiety). Workflow and staffing roles were not adversely affected.

Conclusion: The project successfully streamlined and digitized patient education delivery, with automated EPIC distribution now integrated into standard practice. Patients reported strong appreciation for receiving information before consultation. The digital care package has since been expanded across the Mayo Clinic Enterprise, enhancing efficiency and preparation for both patients and caregivers. The project also catalyzed additional educational tools, including videos on simulation, brachytherapy for genitourinary and gynecologic patients, and pediatric focused materials.

Disclosures: none

Use of Patient-Centered versus Disease-Centered Language in Public-Facing Media from National Cancer Institute-Designated Comprehensive Cancer Centers

Presenter: Christopher Facer, BS

Email: christopher_m_facer@rush.edu

Christopher Michael Facer[1], Santiago Avila[2], Peter Conser[3], Daniel W. Golden[1]

[1]Rush University, [2]University of California, San Francisco, [3]The Ohio State University

Background: Receiving a cancer diagnosis often requires emotional and informational support. The way health information is delivered shapes patients' perceptions of their care and can influence cognitive framing and behavioral responses. Online resources constitute a common initial point of contact for patients navigating the complexities of their diagnosis. Thus, language should be used intentionally to support patients' psychological well-being. The ASCO Language of Respect guidelines and other patient advocates recommend using person-centered language (PCL) over disease-centered language (DCL) to preserve patient individuality and foster therapeutic trust. This study characterizes the frequency of PCL versus DCL within patient-facing webpages of National Cancer Institute-Designated Cancer Centers (NCI-DCCs).

Methods: NCI-DCCs (n=73) were identified using the NCI's website. To prioritize patient-facing communication, Comprehensive or Clinical Cancer Centers (n=66) were included, and Basic Laboratory Centers (n=7) were excluded. For each institution, the homepage and the webpage for four common cancer types (breast, lung, prostate, colorectal) were analyzed. Pages were classified as containing PCL, DCL, both, or neither. Descriptive statistics are reported.

Results: 322 unique webpages with 66 homepages, 63 Breast, 64 Prostate, 64 Lung, and 65 Colorectal webpages across the 66 NCI-DCCs were analyzed. Frequencies for PCL, DCL, both, or neither were: Homepages 9.1%, 36.4%, 9.1%, 45.5%; Breast 36.5%, 21.9%, 33.3%, 7.9%; Prostate 34.4%, 21.9%, 18.8%, 25.0%; Lung 37.5%, 25.0%, 17.2%, 20.3%; Colorectal 23.1%, 18.5%, 24.6%, 33.8%. Homepages were the least likely to use PCL, whether alone or in combination with DCL (18.2%), most likely to use DCL exclusively (36.4%), and most likely to use neither PCL nor DCL (45.5%). In contrast, disease-specific pages had higher use of PCL, whether alone or in combination with DCL. Breast cancer showed the highest rate of any PCL (69.8%), while colorectal cancer pages had the lowest rate (47.7%). However, DCL was still commonly used amongst all disease-specific webpages.

Conclusion: PCL as a language motif helps maintain a patient's individuality, promote positive identity formation, and strengthen trust with those with perceived authority, such as healthcare providers at NCI-DCCs. The linguistic structure found on commonly visited online resources should be thoughtful to avoid damaging or harmful language such as DCL. The use of DCL and neutral language on NCI-DCC homepages and disease-specific pages is a missed opportunity to optimize a patient's journey through their cancer diagnosis and treatment. Further research is needed to fully characterize the impact of using PCL versus DCL in the setting of treating patients with cancer.

Disclosures: Golden: reports grant funding from the Radiologic Society of North America and American Association for Cancer Education and is chair of the Radiation Oncology Education Collaborative Study Group.

Patient Centered Visualization in Telehealth: A Digital Innovation to Improve Understanding, Satisfaction, and Quality of Care

Presenter: Simran Polce, MD

Email: simran.polce@moffitt.org

Simran A. Polce[1], John Peterson[1], Casey Copeland[1], Loreen Nee[1], Stephen A. Rosenberg[1]

[1]Moffitt Cancer Center, Department of Radiation Oncology

Background: Telehealth has become a key part of medical care since COVID 19, including in radiation oncology where it is generally well received. However, platform variability, technical issues, and the lack of visual aids for complex discussions can reduce the quality of virtual visits. These limitations highlight the growing need for enhanced digital communication tools to improve patient understanding and engagement. To address this gap, we conducted a prospective, IRB approved, anonymous quality improvement study piloting the use of an interactive visual communication aid during virtual consultations to evaluate its feasibility and impact on patient satisfaction and understanding of their disease/treatment.

Methods: Adult patients with thoracic malignancies were screened for eligibility and enrolled during their virtual clinic consultations. The interactive visual tool used during the visit included graphics illustrating tumor location, disease staging, treatment options, anticipated short- and long-term side effects, and the expected follow up timeline. After the consultation, participants completed an anonymous survey consisting of seven multiple choice questions assessing the tool's usability, its impact on understanding of diagnosis and treatment, and the type of device used to view the digital aid. All survey questions were optional, and participants could decline to answer.

Results: 32 patients participated in the study across two providers. Average survey time: 3 minutes and 30 seconds. Disease Understanding: 31 patients responded, with 30 reporting the visual aid improved their comprehension. Regarding treatment options, 30 patients answered, and 29 indicated that the tool enhanced their understanding. Understanding their medical situation: 31 responded, all felt the visual aid improved their understanding. Among the 30 who answered, all stated they would review the information again if it were made available after the consultation. Additionally, 30 of 31 respondents said they would recommend the visual tool to other patients, and 29 of 30 reported that it improved their virtual consultation experience. Device type used to view the visual aid include phone, tablet, computer.

Conclusion: This study shows that an interactive visual communication tool significantly improves patient understanding and enhances the virtual consultation experience in thoracic radiation oncology. Positive responses across two providers and multiple device types support its feasibility and broad applicability. By addressing a key gap in telehealth-limited visual support for complex medical information-the tool strengthens clarity and engagement during virtual visits, underscoring its value as a patient centered educational resource. Further evaluation in additional clinical settings is warranted.

Disclosures: Polce: Varian Medical Systems, Honorarium and Travel Expenses for invited talk on CT based adaptive radiotherapy at RSS and internal Varian symposium 3/2025-8/2025. Rosenberg: Elekta, consulting fee for development of MRI linac for thoracic malignancies

Implementation of a Visual Digital Educational Tool to Enhance Head and Neck Cancer Care in an Underserved Patient Population

Presenter: Madhav Patel, MD

Email: mp4355@cumc.columbia.edu

Madhav Patel[1], Emanuel Leclerc[1], Kayla Daniell[1], Michelle Tuz[1], Lisa Kachnic[1], Scott Troob[1], Luqman Dad[1]

[1]Columbia University Medical Center

Background: Our institution serves an ethnically and economically disadvantaged, underserved community. This study evaluates the impact of a visual digital educational tool on patient understanding of head and neck cancer diagnosis and treatment, as well as its influence on the medical care experience for patients, caregivers, and providers.

Methods: In this prospective pilot quality improvement study (IRB-exempt), 14 consecutive patients diagnosed with head and neck cancer (June-July 2024) consented to physician-guided use of a visual digital platform (MyCareGorithm, LLC) to enhance comprehension of their diagnosis and treatment options. A Qualtrics-based questionnaire collected demographic data and assessed patient, caregiver, and physician perceptions of the tool's effectiveness in improving health information delivery and the overall medical visit experience.

Results: Of the 14 patients, 8 identified as White and 4 identified as Black or African American. Nearly half (n=6, 43%) identified as Hispanic/Latino, predominantly of Dominican descent (83%). Most patients (n=8, 57%) primarily spoke English, while 29% (n=4) spoke Spanish. Five patients (36%) had a college degree, 11 (79%) were not employed at the time of the study, and 12 (86%) reported a household income <$50,000. All patients (n=14, 100%) and caregivers (n=7, 100%) reported that the tool improved their understanding of diagnosis and treatment and expressed willingness to recommend and reuse it. Physicians found the tool enhanced communication of complex information (n=11, 79%) and improved both the quality (n=12, 86%) and effectiveness (n=11, 79%) of medical visits. However, in 50% of cases (n=7), physicians cited limitations in tool integration due to factors such as patients' pre-existing knowledge or palliative care goals.

Conclusion: Integrating a visual digital educational tool during consultations significantly improved patient and caregiver comprehension of head and neck cancer and enhanced the overall care experience. These findings underscore the tool's value across disadvantaged populations and highlight the need for further optimization for non-English speaking patients, and those with varying education and income levels.

Disclosures: none

ABSTRACT SESSION 3:

THE INTERPROFESSIONAL TEAM

Moderator: Kristi Tonning - Oregon Health and Sciences University

Mayo Clinic Radiation Oncology Advanced Practice Provider Fellowship

Presenter: Rachael Guenzel, APRN, CNP, DNP

Email: guenzel.rachael@mayo.edu

Rachael M. Guenzel[1], Sydney L. Schone[1], Kimberly S. Corbin[1], Jennifer L. Ellefson[1], Leah N. Francis[1], Allison E. Garda[1]

[1]Mayo Clinic Department of Radiation Oncology

Background: Advanced Practice Provider (APP) fellowships offer a structured pathway for APPs to gain specialized expertise within various subspecialties. However, across the United States, there are rare APP fellowship programs dedicated specifically to Radiation Oncology. This gap highlights an unmet need for focused training opportunities to support APP development in this highly specialized field.

Methods: In partnership with the Mayo Clinic School of Health Sciences, we are developing an APP Fellowship Program within the Department of Radiation Oncology. This 12-month program is designed to provide structured training through clinical rotations with preceptors in the most common disease sites: breast, lung, prostate, brain, and head & neck. Clinical experiences will include time at our practice within a tertiary care center as well as at our regional sites that function as general radiation oncology practices. Responsibilities will include new patient consultation, management of on-treatment toxicities, and follow up and survivorship care. The fellowship also incorporates rotations with our inpatient Radiation Oncology consulting service, Medical Oncology, and Palliative Medicine. In addition to clinical training, fellows will complete a defined number of didactic hours. They will also attend and participate in multiple tumor boards. Throughout the program, each APP fellow will complete a quality improvement project and present a case study on a quarterly basis to their peers. Additionally, there will be dedicated time to help with job application preparation and mock interviews.

Results: We anticipate accepting two fellows annually through a competitive application process. Program evaluation will include preceptor evaluations and fellow satisfaction surveys. Fellows will also score at least 80% on the Post-Fellowship Knowledge Test. Fellows will complete Advanced Practitioner Radiation Oncology course through APSHO and attend one CME conference. We aim for a retention rate of 50%, with graduates transitioning into positions within our department upon program completion. In addition, we anticipate enhanced clinical readiness and reduced onboarding time.

Conclusion: As one of the few Radiation Oncology specific APP fellowships in the country, this program will offer a unique and valuable training opportunity. The curriculum is designed to provide fellows with a comprehensive understanding of Radiation Oncology, including core principles of multi-disciplinary cancer care, radiotherapy principles, and a wide range of radiation therapy modalities. By offering structured, specialty-focused education, this pathway has the potential to enhance clinical readiness, streamline onboarding, and promote long-term retention by developing APPs with a demonstrated commitment to and strong foundational knowledge in Radiation Oncology.

Disclosures: Corbin: Abbvie (consultant)

Radiation Oncology for the Nurse Practitioner and Physician Assistant CME Course

Presenter: Sydney Schone, APRN, CNP, DNP

Email: schone.sydney@mayo.edu

Leah N. Francis[1], Sydney L. Schone[1]

[1]Mayo Clinic

Background: Radiation Oncology is a highly specialized subspecialty within oncology that plays a critical role in cancer treatment. However, Advanced Practice Providers (APPs) entering this field often lack formal education or structured onboarding specific to Radiation Oncology, resulting in practice gaps that impact patient care.

Methods: A national survey estimated that approximately 400 Advanced Practice Providers (APPs) work in Radiation Oncology, representing about 6.5% of Oncology APPs in the United States. Of 145 identified APPs, 57% responded, with roughly 70% reporting fewer than five years of experience in the specialty. The survey assessed demographics, perceived readiness for practice, and preferred curriculum topics. Among respondents, 88% reported having a dedicated training period, yet only 18% described it as a formal curriculum. Nearly 60% were unclear about the learning objectives during training, and 44.6% did not feel confident in their Radiation Oncology knowledge or clinical skills. Overall, findings indicated significant gaps in foundational preparation for APPs entering the field. Respondents reported spending about 80% of their time on direct and indirect patient care, including survivorship visits, symptom management, and patient education. Many receive limited exposure to Radiation Oncology during formal education, as it is not covered in national certification exams. A follow-up market analysis conducted by Mayo Clinic Radiation Oncology APPs confirmed that, as of February 1, 2023, no live or livestream courses specific to Radiation Oncology education for APPs were available.

Results: An initial education day, supported by Mayo Clinic leadership in 2017, brought together 13 Nurse Practitioners and Physician Assistants from the Radiation Oncology Midwest practice to collaborate on patient care for individuals receiving radiation therapy. Annual post course evaluations over the past eight years continue to highlight persistent gaps in structured education and competency development. Unlike other oncology subspecialties, Radiation Oncology lacks standardized APP level certification, contributing to variation in practice and training expectations.

Conclusion: Developing into an international conference in 2025, 221 participants convened from multiple countries and 43 U.S. states to advance education for Advanced Practice Providers (APPs) in Radiation Oncology. The program will enter its ninth year with the Radiation Oncology for the Nurse Practitioner and Physician Assistant Course in September 2026. This course aims to standardize APP training, address gaps in foundational knowledge, and enhance clinical competency in a rapidly evolving therapeutic landscape. By strengthening preparedness in symptom management, care coordination, and patient education, the course supports improved continuity and quality of care for patients undergoing radiation therapy.

Disclosures: none

Integrating professionalism, leadership, and career preparation into medical physics residency education: a virtual career series

Presenter: Jessica Fagerstrom, PhD, MEd

Email: jfagerst@uw.edu

Jessica M. Fagerstrom[1], Leah Schubert[2], Abby Besemer[3], Angelia Tran[1]

[1]University of Washington, [2]University of Colorado, [3]University of Wisconsin

Background: Medical physics residency programs accredited by the Commission on Accreditation of Medical Physics Educational Programs (CAMPEP) must address professionalism and leadership within their curricula. However, structured opportunities for residents to explore professional roles, leadership development, and diverse career pathways remain limited. To address this gap, we developed a structured virtual career series designed to enhance residents' exposure to leadership principles, professionalism, and career development strategies.

Methods: Organized by a single institution, the 2024-2025 virtual career series was shared broadly as a multi-institutional initiative, welcoming therapy and imaging residents from numerous residency programs nationally. Nine monthly sessions over the academic year featured high-profile invited speakers, including Erik Engwall (Chief Physicist, RaySearch Laboratories) and Robin Miller (then President-Elect Designate), among others. Topics included careers in industry, working in community practice, defining a clinical specialty, crafting a CV, interviewing for academic and community practice positions, seeking quality mentorship, getting involved in professional organizations, and transitioning from residency. Attendance fluctuated across sessions and within sessions, with a minimum of 11 and a maximum of 25 attendees. Residents were invited to complete anonymous pre- and post-series surveys assessing knowledge, confidence, and preparedness in leadership, professionalism, and career planning.

Results: A total of 12 residents participated in the pre-survey study, and 10 residents participated in the post-survey study. The following changes were observed in residents' self-reported levels of agreement to the following statements: "I am prepared for the job search process" (agree or strongly agree pre-survey: 42% vs. post-survey: 80%) "I am prepared for job negotiations" (agree or strongly agree pre-survey: 8% vs. post-survey: 40%) "I am aware of opportunities to become involved in professional organizations" (AAPM, ASTRO, etc.) (agree or strongly agree pre-survey: 69% vs. post-survey: 100%) Qualitative feedback emphasized the value of candid advice from established leaders and exposure to varied real-world career paths.

Conclusion: Integrating professionalism, leadership, and career development explicitly into the residency experience through a virtual, multi-institutional model can enhance resident preparedness beyond clinical competencies alone. The virtual career series demonstrated that structured exposure to national leaders across sectors can help fulfill CAMPEP curriculum requirements while supporting broader professional growth. The 2025-2026 career series is currently underway. Future efforts may include expanding speaker diversity, adding formal ethics-focused sessions, and evaluating longitudinal impacts on career trajectories.

Disclosures: none

The Impact of 3D Virtual Reality Simulation on Clinical Competency, Knowledge Retention, and Self-Efficacy in Radiation Therapy Training

Presenter: Kulbir Singh Sandhu, MSc, MBA

Email: ksandhu03@gmail.com

Kulbir S Sandhu[1], Marie Vans[2]

[1]Colorado State University, Employed at Varian Medical Systems, [2]Colorado State University

Background: Radiation therapy education faces persistent national and international challenges related to limited access to clinical Linear Accelerator (LINAC) systems, increasing patient volumes, and constrained opportunities for supervised hands-on training. Traditional instructional models relying on physical equipment, static media, and observational learning are increasingly insufficient for ensuring consistent competency development, procedural safety, and long-term knowledge retention. As technological complexity and workforce demands continue to rise in radiation oncology, scalable and immersive training approaches are needed to improve clinical preparedness without further burdening clinical resources.

Methods: A high-fidelity three-dimensional virtual reality (VR) simulation was developed to replicate radiation therapy workflows within a realistic LINAC treatment environment. Using a randomized, single-blinded experimental design, 66 participants were assigned to either a 3D VR training cohort (n = 40) or a Traditional 2D didactic cohort (n = 26). Training effectiveness was evaluated using a triangulated assessment framework that included knowledge assessments administered pre-training, post-training, and at 2-4 week retention; procedural safety checklists; blinded expert global ratings; task completion time; and observable error counts during physical LINAC execution. Randomized question delivery was employed to mitigate testing effects and strengthen internal validity.

Results: Participants trained using 3D VR demonstrated significantly greater improvements across all outcome measures compared with those receiving traditional instruction. The VR cohort achieved higher post-training and retention knowledge gains, completed a greater proportion of safety-critical checklist steps, received higher expert-rated clinical competence scores, required less time to complete clinical tasks, and committed fewer procedural errors (all $p < .001$, large effect sizes). Improvements were consistent across participants, indicating reliable transfer of learning from the virtual environment to real-world clinical performance.

Conclusion: Study rigor was evaluated using established medical education quality frameworks, including the Medical Education Research Study Quality Instrument (MERSQI) and the Newcastle-Ottawa Scale-Education (NOS-E). The study demonstrates strong methodological quality through a randomized comparative design, objective and triangulated outcome measures, blinded expert assessment, appropriate statistical analyses with effect sizes, baseline cohort equivalence, and outcomes extending beyond learner satisfaction to observable clinical performance and retention. These findings provide evidence that immersive VR training offers a scalable and effective approach for enhancing competency development in radiation therapy education, with immediate implications for workforce training efficiency and long-term implications for patient safety and standardized clinical preparedness.

Disclosures: none

Managing Radiation Therapy Treatment Delivery Challenges: Impact of an Interprofessional Educational Series for Radiation Therapists and Radiation Oncology Residents

Presenter: Jordan McDonald, MD
Email: jmcdonald2@mdanderson.org

Jordan McDonald[1], Denise De La Cruz[1], Chelsea Pinnix[1], Julianna Bronk[1], Comron Hassanzadeh[1], Emma Holliday[1], Anna Lee[1], Melissa Mitchell[1], Devarati Mitra[1], Subha Perni[1], Nicolete Taku[1], Jillian R. Gunther

[1]Department of Radiation Oncology, The University of Texas MD Anderson Cancer Center

Background: Radiation oncology (RO) residents report varying confidence with on-treatment setup challenges1. Radiation therapy technologist (RTT) training is variable across institutions2. This study assesses the impact of an interprofessional (IP) educational course on RTT and RO resident knowledge and comfort with managing radiation therapy (RT) treatment challenges.

Methods: An interprofessional course on managing RT treatment challenges was offered to RO residents, RTTs, and other RO team members. Each site-specific session was given by an expert RO attending with in-person and virtual attendees. Anonymous pre- and post-tests were collected via QR code. Pretests assessed demographics, knowledge (2 multiple choice questions), and comfort (Likert-type Scale, 1-5; 5=strongly agree) with the material. Post-tests evaluated knowledge and comfort with the same pre-test questions, along with additional questions assessing utility and potential implementation. Knowledge between the pre- and post-test was compared using Chi-square and Fisher's Exact tests, as appropriate, and comfort was compared using Mann-Whitney U testing. Paired data for knowledge and comfort were compared using the Wilcoxon signed-rank test.

Results: Nine one-hour sessions were conducted over one year. Respondents were mostly RO residents/attendings (47.5%) and RTTs (46.3%). 175 pretests and 156 post-tests were fully completed. Overall, 208/353 (58.9%) responses were correct pre-test and 221/313 (70.6%) post-test ($p=0.002$). Comfort improved from 101 (56.8%) reporting strong agreement or agreement pre-test to 131 (83.4%) post-test. Median comfort scores improved from 4 (IQR 3-4) pre-test to 4 (IQR 4-5) post-test, $p<0.001$. Respondents strongly agreed that the sessions were useful (median 5, IQR 5-5) and applicable to future practice (median 5, IQR 5-5). 118 respondents had paired pre- and post-tests, with significant improvement in knowledge ($p=0.004$) and comfort ($p<0.0001$). Paired knowledge scores improved significantly for RO trainees, with 70/108 (64.8%) correct on pre-test and 82/108 (75.9%) on the post-test ($p=0.01$). RO trainee comfort also improved significantly (median 3, IQR 3-4 pre-test vs. median 4, IQR 4-4 post-test; $p<0.0001$). RTT paired scores improved after the sessions: knowledge (53.5% pre-test to 60.7% post-test; $p=0.05$); comfort (median 4, IQR 4-5 pre-test vs. median 5, IQR 4-5 post-test; $p=0.21$). Participants appreciated learning about treatment setup decision-making, clinical nuance, and perspectives of other team members during treatment delivery.

Conclusion: Attendees of our IPE course demonstrated significant improvement in knowledge and comfort with the material. Similar educational efforts could be useful for a broader RO audience.

Disclosures: none

Cognitive Synchronization in Radiotherapy: Transforming Collaboration into Collective Intelligence

Presenter: Reem Alahmadi, MSc, Medical Physics

Email: ralahmadi@hotmail.com

Reem A. Alahmadi[1], Abdullah A. Alsuhaibani[1], Amna A. Mohaimeed[1]

[1]King Saud University Medical City

Background: Radiotherapy is a complex, multidisciplinary process where misaligned mental models among team members can cause miscommunication, inefficiencies, and latent safety risks that may not be detected by technical quality assurance alone. This work examines cognitive synchronization, the process of aligning shared mental models across disciplines, aiming to develop frameworks that improve interprofessional learning, communication, and decision-making, and overall radiotherapy quality.

Methods: A cross-sectional online survey of radiotherapy teams (n = 39) examined workflow processes in relation to cognitive synchronization. Demographic and professional background characteristics (e.g. team size) were collected. The survey assessed the clarity of treatment intent, communication of priorities, role understanding, and closed-loop communication, consistency of information interpretation, time pressure, confidence in resolving conflicting information and perceived frequency of information loss across workflow stages. Familiarity with synchronization concept, use of checklists, and perceptions of debriefing and simulation were evaluated. Additionally, it assessed openness to digital or AI-supported teamwork tools alongside qualitative insights into factors and tools that would improve alignment, and communication. Items were rated on a 5-point Likert scale, with open-ended questions on communication barriers, and training needs. Data were analyzed using descriptive statistics.

Results: Thirty-nine respondents (8 physicists, 7 therapists,14 radiation oncologists, 6 nurses, 4 trainees) from multiple countries participated. Most (54%) reported working in teams of more than six members. Participants indicated high awareness of individual role (69%; median 5/5) and high consistent shared understanding across radiotherapy workflow stages although this was lower (median 4/5). Regarding information loss across stages, the largest portion of respondents (14) were neutral, while one quarter of respondents (n=10) reported information loss across workflow (median 3/5), suggesting decreased alignment during transitions. More than half of participants (59%, n=23) were familiar with the concept of cognitive synchronization. Commonly reported challenges included time constraints and information gaps within workflow. Despite these challenges, most respondents expressed strong interest in structured evaluation, simulation-based training (84%), and digital or AI-supported tools (80%) to identify and address cognitive misalignment (median 4/5).

Conclusion: Research shows that teams working closely together develop inter-brain synchrony which leads to faster problem solving and better performance. Survey findings highlight the need for approaches supporting cognitive synchronization within radiotherapy teams. This work informs conceptualization of cognitive synchronization as a teachable and assessable team competency, rather than an implicit assumption of collaboration. Next steps include piloting department-level system embedding interdisciplinary check-ins and reflective prompts into workflows to strengthen shared mental model, learning and quality improvement.

Disclosures: none

ONC-Call: A Simulation-Based Interprofessional Workshop for the Management of Emergent Spinal Cord Compression

Presenter: Rehema Thomas, MD

Email: rjthomas6@mdanderson.org

Rehema J Thomas[1], Troy J Kleber[1], Jamie S Baker[1], Angela R Langstaff[1], Rachael M Martin-Paulpeter[1], Lori A Simmons[1], Jordan McDonald[1], Sabrina N Campelo[1], Xavier M Greaber[1], Mary M Steely[1], Cristofer Zepeda[1], Yiming M Zhu[2], Denise de la Cruz[1], Adam D Melancon[1], Mahsa Dehghanpour[1], Delores J Whiteing[1], Chelsea C Pinnix[1], Jillian R Gunther[1]

[1]The University of Texas MD Anderson Cancer Center, [2]Cross Cancer Institute, The University of Alberta

Background: Management of malignant spinal cord compression requires rapid coordination among radiation oncologists, radiation therapists, medical physicists, and medical dosimetrists. Despite the team-based nature of radiation therapy, structured interprofessional education (IPE) in urgent clinical scenarios remains limited in radiation oncology training. National needs assessments show that incoming radiation oncology residents often feel underprepared for management of radiation emergencies. To address this gap, we developed a simulation-based multidisciplinary workshop focused on the management of emergent spinal cord compression.

Methods: We conducted a three-hour workshop involving 53 trainees: 10 radiation oncology residents, 7 medical physics residents, 21 radiation therapy students, and 15 medical dosimetry students. Participants were intentionally divided into interdisciplinary small groups and rotated through five interactive stations reflecting the steps of emergent radiation delivery: patient evaluation, CT simulation, treatment planning, physics quality assurance, and treatment delivery. A standardized patient vignette of thoracic spinal cord compression was used throughout. Realistic simulation of the treatment workflow included use of a CT simulator, treatment planning software, and a linear accelerator with a mannequin model. Participants completed pre- and post-workshop surveys, including the Interprofessional Attitudes Scale (IPAS) for all trainees and clinical confidence and multidisciplinary awareness surveys for radiation oncology residents. Responses were compared using Wilcoxon rank-sum testing.

Results: IPAS response rates were 79% pre-workshop and 75% post-workshop. Baseline interprofessional attitudes were strongly favorable, with no significant changes observed. Among radiation oncology residents, response rates were 100% pre-workshop and 80% post-workshop. Significant improvements were seen in 13 of 14 clinical confidence and multidisciplinary awareness items ($p<0.05$), including simulation workflow, treatment planning and review, radiation dosing and toxicity management, and understanding the roles of medical dosimetry and physics in emergent care.

Conclusion: This workshop provides a feasible and reproducible model for structured IPE in radiation oncology emergencies. While baseline teamwork attitudes were high, the intervention significantly improved resident confidence and awareness of multidisciplinary roles. These competencies are essential for safe and timely management of emergent radiation indications. This framework may be incorporated into residency onboarding, on-call boot camps, or multidisciplinary curricula to better prepare trainees for emergency radiation care and multidisciplinary coordination.

Disclosures: none

ABSTRACT SESSION 4:

MEDICAL STUDENT EDUCATION

Moderator: Kelsey Frechette – Mayo Clinic

RO-SLOE: Radiation Oncology Standardized Letter of Evaluation
Presenter: Mary Mahoney, MD

Email: marymahoneymd02@gmail.com

Mary T Mahoney[1], Jillian R Gunther[2], Steve E Braunstein[3], Melanie J Gottlieb[4], Stephanie E Weiss[1], Jeremy G Price[1,5]

[1]Department of Radiation Oncology, Fox Chase Cancer Center, [2]Department of Radiation Oncology, University of Texas MD Anderson Cancer Center, [3]Department of Radiation Oncology, University of California San Francisco, [4]Population Studies Facility, Fox Chase Cancer Center, [5]Radiation Oncology Education Collaborative Study Group (ROECSG) Undergraduate Medical Education Working Group

Background: Radiation Oncology (RO) clerkship grades and letters of recommendation (LoR) are non-standardized and a poorly defined landscape, thus diminishing the ability to evaluate residency candidates. Other specialties have implemented a standardized letter of evaluation (SLOE) that objectively compares applicants via standardized categories across participating institutions. We sought to design a radiation oncology SLOE (RO-SLOE) by surveying stakeholders on key performance metrics for inclusion. In parallel, we collected current grading practices. This information will inform a RO-SLOE that should be both feasible and fair for cross institution comparison during the RO-residency application cycle.

Methods: Anonymous REDCap surveys were distributed via email to rotating RO MSs from two institutions (n=43) and all program directors (PDs) of ACGME-accredited RO departments (n=88). Respondents answered questions on the perceived utility of RO-SLOE, 13 key proposed inclusion areas, and current evaluation practices. Likert-type scores (1, strongly agree; 5, strongly disagree) are reported as the median and interquartile range (IQR).

Results: 25 PDs (28%) and 18 (42%) MSs completed the survey (response rate 43/131, 33%). Respondents (n=43) agreed with the value of RO-SLOE for grading (2, IQR1-3) and residency selection (2, IQR1-3) as well as 12 of 13 of the proposed criteria to be included within the RO-SLOE. There were mixed perceptions among stakeholders regarding the inclusion of the students' ability to contribute to DEI (3, IQR1-3). The disclosure of the relationship between the evaluator and the student (2, IQR2-2) and median score awarded by the evaluator (2, IQR2-3), likewise, the students' work ethic and preparedness (1, IQR1-1) as well as the ability to communicate empathically with patients (1, IQR1-2) should be included. There were no standardized grading criteria for rotating MSs, but the most common was "honors/high pass/pass/fail (H/HP/P/F)" (83%, 20/24). Several PDs reported assigning 90-100% rotators with honors (35%, 7/20). No PD reported a threshold for honors. While the perceived value of LoR within residency selection (3, IQR2-4) was indifferent, there was consensus on the limited utility of clerkship and away rotation grades for discrimination of residency candidates (4, IQR2.5-4).

Conclusion: Currently within RO MS rotations, there is heterogeneity in evaluations and suggestions of grade inflation particularly in the "H/HP/P/F" systems. This may explain why many PDs question the utility of RO rotation grades during residency selection. Key stakeholders are receptive to adopting an RO-SLOE for use in MS grading and residency applications, and there is alignment on core elements for inclusion.

Disclosures: none

A Radiation Oncology Departmental Open House is Effective in Improving Medical Student Familiarity and Interest in the Specialty

Presenter: Brady Laughlin, M.D.

Email: Laughlin.Brady@mayo.edu

Brady Laughlin[1], Heather Wilson[1], Randa Tao[1], Jonathan B. Ashman[1], Joshua R. Niska[1], Lisa A. McGee[1]

[1]Mayo Clinic Arizona

Background: Despite the important role of radiation oncology (RO) in the care of cancer patients, medical students have limited exposure to the field in through standard medical education curricula.

Methods: A single-institution open house was conducted for local medical students with the goal of increasing awareness and knowledge of RO. The event included lectures describing an overview of RO and residency training, as well as technical considerations such as common RO indications, and radiation treatment planning and delivery modalities. This was followed by a department tour to see and learn about RO treatment machines and an interactive question-and-answer session. Participants were invited to complete an anonymous post-event survey consisting of six pre-/post-comparison (Likert scale - 1 = Not at all familiar to 5 = very familiar) questions, 5 regarding the impact of the open house, and general feedback. Survey items evaluated baseline exposure to RO, familiarity with the role of the radiation oncologist and aspects of the field, comfort asking questions, and interest in further exposure.

Results: Fifteen students attended the open house, and twelve completed the survey: 9 (75%) MS1, 1 (8.3%) MS2, and 2 (16.7%) MS3. Baseline familiarity with RO was low (mean 2.5), with 7 (58.3%) reporting no or minimal familiarity, and 6 (50%) indicating no prior exposure. Following the open house, understanding of the role of a radiation oncologist improved (mean 2.3 to 4.1), as did knowledge of clinical indications (2.1 to 3.5), treatment planning (2.0 to 3.9), the multidisciplinary nature of care (2.8 to 3.8), and radiation therapy delivery modalities (1.8 to 3.8). Participants reported increased understanding of the specialty (mean 4.7), awareness of technology (4.6), comfort asking questions (4.6), and interest in radiation oncology (4.3). All respondents expressed motivation to pursue additional exposure, with highest interest in clinical shadowing (100%), research opportunities (91.6%), and mentorship or career advising (91.6%). Favorable highlights of the even were the departmental tour and question-and-answer session.

Conclusion: A structured open house significantly improved medical student understanding, awareness, and interest in RO and represents a feasible, scalable approach to early engagement and residency pipeline development.

Disclosures: none

Defining the Next Radiation Oncologist - An Analysis Regarding Students' Decision to Pursue a Specialized Training in RO

Presenter: Stefan Gravemeyer, MD

Email: stefan.gravemeyer@ukmuenster.de

Stefan Gravemeyer[1], Dogus Darici[2], David Rene Steike[1], A. Schober[2], Martina Schmitz[2], Hans Th Eich[1], Michael Oertel[1]

[1]Department of Radiotherapy and Oncology, University Hospital of Munster, Germany, [2]Institute for Anatomy and Molecular Neurobiology, University of Munster, Germany

Background: Small disciplines like radiation oncology (RO) tend to be underrepresented in the general curriculum which complicates the need to attract new residents and doctoral candidates to the field. To bridge this gap, our university implemented a successful multidisciplinary training for pre-clinical semesters combining both anatomical and RO knowledge. In a further analysis we could show that this mandatory teaching concept led to a significant enhanced interest in RO. The following study addresses students' perception about specialty training in RO in the setting of this course.

Methods: A quantitative, single-center, cross-sectional study with an overall cohort of 635 students in the time of 2023 - 2025 was conducted via online questionnaire before and after a one-week pre-clinical semester course in anatomy and RO. The analysis was conceptualized using descriptive statistical methods and the Expectancy-Value Model according to Eccles and Wigfield.

Results: Overall, 635 (432 female, 203 male) students with a mean age of 21.6 years took part in the survey over 2.5 years. An enhanced interest in research opportunities ($p=0.0007$) as well as financial stability ($p=0.0014$) and an advanced course in physics during finals ($p=0.0094$) had a significant influence on interest in RO. Also, a trend could be shown that female gender goes along with an enhanced interest in RO ($p=0.07$). The students' perceptions on specialty training in RO changed via the course. Significant differences with an enhanced perception on research opportunities ($p=0.0006$), professional success ($p<0.0001$) and professional recognition ($p<0.0001$) as well as an enhanced workload ($p=0.02$) whereas the perception of administrative tasks during daily work decreased ($p=0.009$). A time-depending increase of professional success ($p=0.01$; $r2=0.91$) and research opportunities ($p=0.03$; $r2=0.84$) attributed to RO were observed during the last 2.5 years.

Conclusion: This is the first study which characterized distinctive factors influencing students' decision to pursue a specialized training in RO. Students' expectations regarding a good specialty training are well represented in RO. The implementation of preclinical courses significantly changed students' perceptions and increased interest in pursuing specialized training in RO.

Disclosures: None

Early Clinical Immersion in Radiation Oncology: A Preclinical Elective Model

Presenter: Bryan Webb, MD, PhD

Email: bmwebb@emory.edu

Bryan M. Webb[1], Nicholas Bader[1], Matthew Case[1], Jolinta Lin[1], Soumon Rudra[1], Mohammad K. Khan[1], Soumya Unnikrishnan[1], Jill Remick[1], Naba Ali[1]

[1]Emory University School of Medicine

Purpose: Multiple interventions have aimed to address declining interest in radiation oncology among U.S. medical students. This educational model sought to increase early knowledge and interest in radiation oncology during the formative years of medical school, while establishing clinical and research mentorship to support the development of well-rounded future clinicians.

Methods: This intervention was designed as a longitudinal radiation oncology elective enrolling 16 medical students (13 MD, 3 MD/PhD) between 2022 and 2025 at a single academic institution. A maximum of 4 students were admitted per year; the elective spanned three months to ensure individualized mentorship and clinical exposure. Students were paired with multiple attending physicians and engaged in structured clinical experiences including inpatient and outpatient consultations, CT simulation, radiation treatment planning, treatment delivery, multidisciplinary tumor boards, chart rounds, and didactic sessions. At the conclusion of the elective, participants completed an optional post-intervention survey assessing understanding of radiation oncology and satisfaction with the elective.

Results: All participants were exposed to multiple disease sites, participated in contouring activities, and observed diverse patient consultations. Most students completed the post-elective survey (69%, n=11) providing the program with descriptive statistics. All survey respondents reported that the elective significantly enhanced their understanding of cancer treatment and the role of radiation therapy. Notably, 64% of respondents (n = 7) identified this elective as their first exposure to oncology. Qualitative feedback emphasized the impact of patient interactions on fostering students' empathy and enhancing perceptions of multidisciplinary cancer care and radiation oncology. Longitudinal follow-up with former participants revealed sustained interest in oncology and radiation oncology among 4 students (36%).

Conclusion: This early-exposure radiation oncology elective improved students' understanding of oncology care and generated sustained interest in radiation oncology through immersive clinical experiences and mentorship. This model is feasible, well-received, and reproducible at other institutions.

Disclosures: none

The Evolution of Medical Students' Interest in Radiation Oncology: From Student Interest Group Events to Residency Application

Presenter: Julia Shi, BA

Email: julia.shi@utsouthwestern.edu

Julia J. Shi[1], Gabrielle Gard[1], Hanan Alawe[1], Ethan B Wang[2], Kiran A. Kumar[1], Mona Arbab[1]

[1]Department of Radiation Oncology, University of Texas Southwestern Medical Center, [2]Department of Internal Medicine, Brigham and Women's Hospital

Background: In 2025, only 142 of 20,368 U.S. MD seniors applied to radiation oncology (RO) in the Match. A commonly cited reason for this is lack of exposure in medical school. We hypothesize that participation in a RO Student Interest Group (ROSIG) is associated with shadowing, research involvement, elective participation, and ultimately application to RO residency.

Methods: Our ROSIG is led by two 2nd year medical students (M2s) with support from the residency program directors. ROSIG hosts faculty-led talks, departmental tours, M4 post-match panels, and contouring workshops. In addition, the department offers 2- and 4-week electives in RO. In late 2023, ROSIG expanded to include shadowing contacts, research advertisement, and a dedicated newsletter. Medical students who shadowed in RO between July 2023 - January 2026 were surveyed regarding motivations for shadowing, participation in RO research, plans for electives, and specialty interests.

Results: Forty-five students (46.7% male, 53.3% female) shadowed RO. Shadowing increased from 8 M3 students to 20 M2 students after ROSIG expanded initiatives in late 2023. While only halfway through their first year, 10 M1 students have already shadowed, suggesting a similar trajectory in this class. Forty students (88.9%) responded to our survey. The most common factor influencing 47.5% of students' decision to shadow was ROSIG events. Furthermore, 19 students (47.5%) reported research involvement with a RO faculty, of which 9 (45.0%) credited ROSIG with influencing this decision. Five students not yet involved in research noted that ROSIG was helpful for identifying research opportunities. Of the students who participated, 23 (57.5%) already completed or plan to complete an elective. Among 25 current RO applicants, students planning to apply RO, and students with RO in their top three specialties of interest, 18 (72.0%) cited shadowing as one of the most influential factors in their interest. Ten students (25.0%) reported applying or planning to apply to RO, and of these, 5 credited ROSIG for shadowing and 4 for facilitating RO research. Notably, 100% of M4 RO applicants and current M3s preparing applications to RO shadowed prior.

Conclusion: Student-led exposure through ROSIG is associated with increased shadowing, research engagement, and eventual application to RO. All recent applicants and students planning to apply from our institution first shadowed in the department, many of whom attribute their decision to shadow RO to ROSIG. Therefore, we believe our ROSIG can serve as a model for other medical schools to help increase exposure to RO.

Disclosures: HA: Employed by UT Southwestern Medical Center. No other disclosures. EBW: Employed by Brigham and Women's Hospital. KAK: Employed by UT Southwestern Medical Center. Consulting with Varian, Vision RT. MA: Employed by UT Southwestern Medical Center. Consulting with ACRO.

Radiation Oncology Internship Days - an Unmet Need in Medical Education

Presenter: Kevin Fink, MD, BA

Email: kevin.fink@med.uni-muenchen.de

Kevin Fink[1,2], Stefan Lässer[3], Marie Forster[3], Sebastian H. Maier[2], Charlotte Schwicht[1], Paul Schwarzlmüller[4], Franziska Walter[2], Chukwuka Eze[2], Amanda Tufman[5], Nina-Sophie Schmidt-Hegemann[2], C. Benedikt Westphalen[1], Martin Dreyling[1], Michael von Bergwelt-Baildon[1], Martin R. Fischer[3], Claus Belka[2,6,7], Daniel F. Fleischmann[2,7]

[1]Department of Medicine III, University Hospital, LMU Munich and Comprehensive Cancer Center, [2]Department of Radiation Oncology, LMU University Hospital, LMU Munich, [3]Institute of Medical Education, LMU University Hospital, LMU Munich, [4]Department of Medicine IV, LMU University Hospital, LMU Munich, [5]Department of Internal Medicine V, University Hospital, LMU Munich and Comprehensive Cancer Center, [6]Bavarian Cancer Research Center (BZKF), Munich, Germany, [7]German Cancer Consortium (DKTK), partner site Munich, a partnership between DKFZ and University Hospital Munich

Background: At LMU Munich, a novel teaching format "Excellence Track Oncology" is being developed. This educational format aims at teaching advanced and interdisciplinary aspects in modern oncology with a special focus on radiation oncology along other oncology specialties. Radiation oncology internship days will be offered teaching students theoretical and practical insights into modern radiation oncology practice. To analyze the need for this educational format, we surveyed medical students in their first clinical year, as they are the target group for our proposed curriculum.

Methods: A voluntary and anonymous survey was conducted among medical students in their first clinical year (n = 39) using the Evasys® platform. The survey involved self-assessments of the oncological knowledge with a special focus on theoretical and practical knowledge in radiation oncology and the perceived benefit of internship days in radiation oncology practice. Descriptive data analysis was performed using RStudio.

Results: Regarding radiation oncology, 27 % of students rated their theoretical knowledge as "very poor", and 65 % of students rated their practical knowledge as "very poor". However, almost all students expected to improve both their theoretical (95 % "likely"/"very likely") and practical knowledge (89 % "likely"/"very likely") after participation in an interdisciplinary course incorporating radiation oncology. In response to open-ended questions, students particularly valued the practical approach involving hands-on oncology teaching. Overall, 68% of students agreed or strongly agreed that they would voluntarily participate in an "Excellence Track Oncology".

Conclusion: The proposed curriculum "Excellence Track Oncology" incorporating radiation oncology internship days shows strong acceptance in medical students in their first clinical year. Our results show an unmet need for improving for practical education in radiation oncology within an interdisciplinary oncology education setting.

Disclosures: none

Geographic Clustering of Radiation Oncology Residency Interviews: A Mutually Beneficial Endeavor

Presenter: Christian Schill, MD, MBA

Email: sarah.j.stephens@duke.edu

Christian Schill[1], Dana Casey[2], Bart A. Frizzell[3], Scott R. Floyd[1], Joseph K. Salama[1], Sarah J. Stephens[1]

[1]Duke University, [2]University of North Carolina, [3]Wake Forest University

Background: The residency interview landscape for radiation oncology has fluctuated significantly over recent years. Since the height of the pandemic programs have taken variable approaches to their interview structure ranging from virtual, to hybrid, to all in-person formats. One benefit of virtual interviews has been reducing the financial burden for both trainees and programs. The AAMC estimates that residency interviews cost applicants between $400 and $7000, with a median cost of roughly $3000. Virtual interviews can help offset this burden, however, certain "intangibles" of the in-person interview process are difficult to fully capture in a virtual format. To balance these competing goals, we initiated a geographically coordinated interview process during the 2024-2025 cycle to reduce the burden to trainees while still providing important in-person access to our respective programs. Based on our experience, we sought to understand the possibility of expanding this approach to other geographic regions.

Methods: We reviewed the geographic distribution of academic radiation oncology centers within the continental U.S. and grouped them into "clusters" based on geographic proximity (defined as programs within a reasonably drivable distance, a radius of approximately 200 miles). We then developed trainee-specific and program-specific surveys to assess the perceptions of those trainees who participated in our interview clustering and understand if other programs would be open to considering this approach.

Results: We hypothesized that geographically clustered interviews would be mutually beneficial by minimizing financial and travel burden to trainees and allowing programs the opportunity to have well-qualified applicants visit their program who might not otherwise have been able to make the trip. We identified 21 program clusters encompassing 80 programs or approximately 92% of residency slots available in the 2025 match. Trainee-specific surveys were distributed to those that interviewed with our programs and participated in geographically clustered interviews during the 2024-2025 and 2025-2026 interview seasons. We also distributed program-director specific surveys to active members of ADROP. Results of the respective surveys will be presented at the meeting.

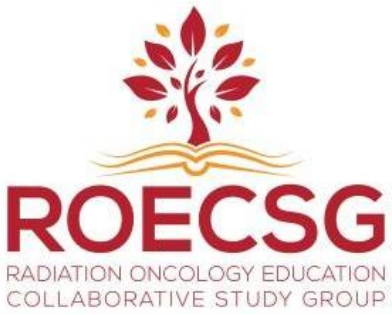
Conclusion: Many programs and applicants prefer in-person interviews. Geographically clustered interviews provide a mutually beneficial experience that increases trainee exposure to programs and vice versa. This approach is also expected to help reduce some of the cost burden for trainees, which may otherwise prove prohibitive for some.

Disclosures: none

ABSTRACT SESSION 5:

RESIDENCY – PROGRAM DEVELOPMENT

Moderator: Mary Mahoney – Fox Chase Cancer Center



Utilizing Anonymized Surveys to Implement Effective Residency Program Improvements

Presenter: Jacob Mapp, MD

Email: mapp.jacob@mayo.edu

Jacob E. Mapp[1], Brady S. Laughlin[1], Heather E. Billings[2], William G. Rule[1], Terence T. Sio[1], Randa Tao[1], Heather E. Wilson[1], Lisa A. McGee[1],

[1]Mayo Clinic, Arizona, [2]Mayo Clinic

Background: The annual American College of Graduate Medical Education survey often fails to capture nuanced perceptions of trainees and faculty within programs. To better understand resident and faculty experiences, we developed a separate departmental anonymous survey, one distributed to residents and alumni, and another distributed to faculty. This report describes how anonymous surveys offer a low-burden mechanism to assess stakeholder needs and identify actionable opportunities for improvement.

Methods: Our department's internal Education Learning Environment Optimization committee (ELEO) developed 2 anonymous surveys, one designed to assess resident sentiment and the other to assess attending sentiment. The resident and alumni survey consisted of 24 items. The faculty survey was composed of 21 items. Once finalized in Qualtrics, the links to each survey were sent to their respective participants via institutional email. The survey assessed perceptions of educational climate, mentorship quality, career development support, teaching engagement, and well-being. Following a 2-week survey window, ELEO review identified areas of alignment and discordance between resident and faculty responses to highlight structural challenges and inform actionable interventions.

Results: Resident and alumni responses demonstrated high satisfaction with clinical training, board preparation, and readiness for independent practice. They identified opportunities to improve didactics, career counseling, and access to longitudinal faculty mentorship. Faculty respondents similarly reported strong engagement in resident education and high satisfaction derived from teaching, mentorship and supporting resident growth. Faculty identified the need for structured mentorship training, protected time, and expanded opportunities for long-term mentorship. Addressing the alignment between resident-identified needs and faculty priorities, the department implemented a faculty mentorship workshop to enhance longitudinal mentorship and career guidance within the training program.

Conclusion: Departmental anonymous surveys were successful in capturing resident and faculty perceptions within a radiation oncology training program and translating these insights into actionable change through emergence of the faculty mentorship workshop.

Disclosures: Sio: Galera Therapeutics (Advisory Board), Novocure Inc. (Advisory Board), American Board of Radiology (GI Oral Board Examiner), Advances in Radiation Oncology (Associate Editor). Tao: Binaytara Foundation (Education/Meeting Faculty), Total Health (Education/Meeting Faculty), American Board of Radiology (Examiner/Question Writer), Red Journal (Associate Section Editor). McGee: Radiation Oncology Consultants (Physician).

Building Accreditation Readiness Through Resource Alignment: A Two-Year Radiation Oncology Residency Program Journey Toward ACGME-International Accreditation

Presenter: Mohamed Riyas Poolakundan, MD

Email: mriyas@hamad.qa

Mohamed R Poolakundan[1], Beena Kunheri[1], Rabih Hammoud[1], Saju R Divakar[1], Palmira Capparotti[1], Hissa A Abdulla[1], Satheesh Prasad Paloor[1], Shireen Sulaiman[1], Noora Al Hammadi[1]

[1]Hamad Medical Corporation

Background: Establishing a new residency program requires both a clear educational vision and proven institutional readiness that meets accreditation standards. To gain accreditation, residency programs must demonstrate substantial compliance with ACGME International (ACGME-I) requirements. These include sufficient clinical case volume, adequate qualified faculty, appropriate educational infrastructure, effective governance, and continuous quality improvement. However, there is limited published research on how institutions effectively utilize available resources to systematically develop ACGME-I-aligned residency programs within academic health settings. The objective is to describe our two-year experience in utilizing clinical, faculty, and educational resources to develop a new Radiation Oncology residency program aligned with ACGME-I standards, as part of preparing for initial accreditation.

Methods: We convened as multidisciplinary working groups, starting with a thorough, structured institutional needs assessment at the National Cancer Center at HMC, focusing on our patient volume and case mix, faculty numbers and qualifications, physical and digital learning infrastructure, governance structures, and trainee support systems. Multidisciplinary working group mapped institutional resources to ACGME-I program and common Program Requirements, covering competencies, milestones, supervision, evaluation, patient safety, well-being, and scholarly activity. We presented a curriculum framework, assessment strategy, and faculty development plan aligned with current GME policies to the DIO office. Progress was monitored through iterative gap analyses and stakeholder engagement, over a two-year implementation period.

Results: A 5-year Radiation Oncology Residency Program was successfully developed and approved with initial enrollment of two residents per year based on a five-year case load analysis demonstrating a sustainable growth. Educational infrastructure was Strengthened through the establishment of a robust governance structure including a Clinical competency committee and Program evaluation committee. A Competency based curricula was implemented with structured rotations covering all aspects of patient care including patient assessment, contouring, radiotherapy planning, planning approval, toxicity review and follow up. Milestone aligned assessments and faculty development initiative were introduced to support quality training. Continuous program evaluation and resident support pathways were embedded to ensure sustainability and accreditation readiness; First Cohort of residents commenced their training in Mid-2024.

Conclusion: Through deliberate resource alignment, structured governance, and sustained faculty engagement, our institution successfully developed a new Radiation Oncology residency program aligned with ACGME-International standards within a two-year timeframe. This experience demonstrates that rigorous needs assessment, iterative gap analysis, and strong leadership support can enable accreditation readiness even in regions without prior training models, offering a replicable framework for emerging GME programs seeking international accreditation.

Disclosures: none

Education Subcommittees: A Novel Approach to Evolution of a Radiation Oncology Residency Program

Presenter: Sean McCauley, MD

Email: mccauley.sean@mayo.edu

S. McCauley[1], B. Laughlin[1], R. Tao[1], J. Ashman[1], T. Sio[1], W. Rule[1], S. James[1], J. Niska[1], S. Ahmed[1], N. Yu[1], F. Yang[1], J.C. Rwigema[1], H. Wilson[1], L. McGee[1]

[1]Mayo Clinic, Arizona

Background: In most radiation oncology residency programs, responsibility for educational initiatives primarily falls to the program director, assistant program director, and program coordinator. Beyond required participation on the Clinical Competency Committee and Program Evaluation Committee, additional faculty involvement is not mandated by the Accreditation Council for Graduate Medical Education. This structure may burden program leadership and limit broader faculty engagement in resident education. We describe a novel subcommittee-based approach to enhance faculty participation and distribute responsibility for residency program development.

Methods: During the 2025-2026 academic year, five education-based departmental subcommittees were created to address specific domains of the residency program: recruitment, medical student engagement, program growth, curriculum, and learning environment optimization. Each committee was co-chaired by the residency program director and program coordinator and included 2-3 additional faculty members and a resident physician. Faculty participation and committee driven initiatives were tracked descriptively.

Results: Thirteen of 15 departmental faculty participated in at least one committee. The recruitment subcommittee hosted two virtual applicant events, increased faculty participation in application review, and streamlined the interview day based on resident and applicant feedback. The medical student engagement subcommittee developed social media content, delivered medical student lectures, and hosted virtual and in-person open houses. The program growth subcommittee collaborated with institutional leadership to establish a new advanced radiation oncology fellowship. The curriculum subcommittee optimized clinical rotations, identified disease site leads for didactic planning, centralized educational materials, implemented a revised statistics curriculum, and developed workflows with nuclear medicine to meet new Authorized User requirements. The learning environment optimization subcommittee provided faculty development updates at monthly meetings, set up faculty mentorship training, and distributed anonymous surveys to residents, alumni, and faculty to identify areas for improvement.

Conclusion: Implementation of a subcommittee-based educational structure enhanced faculty and resident engagement in residency program development and facilitated targeted improvements across multiple domains of a radiation oncology residency program. This model offers a scalable approach for shared educational leadership and faculty development within graduate medical education.

Disclosures: Tao: ABR oral and written boards question writer and examiner, International Journal of Radiation Oncology, Biology, Physics editorial board member. Ashman: International Journal of Radiation Oncology, Biology, Physics Associate Section Editor, GI. Sio: ABR Oral board examiner, Advances in Radiation Oncology Associate Editor.

Addressing a Systems-Based Practice Gap in Radiation Oncology: A Competency-Aligned Pilot Curriculum on Resource-Aware Cancer Care

Presenter: Prisha Jain, BS Candidate

Email: prishajain@g.ucla.edu

Prisha Jain[1], Nandita Kasireddy[2], Kali Smolen[2], Robert K. McLellan[2], Sarah Crockett[2], Charles R. Thomas Jr.[3], Sierra M. Silverwood[4], Katie E. Lichter[3]

[1]University of California, Los Angeles, [2]Geisel School of Medicine at Dartmouth, [3]Dartmouth Cancer Center, Geisel School of Medicine, [4]St. Joseph's Ascension Hospital

Background: Radiation oncology trainees are expected to demonstrate competency in Systems-Based Practice and Practice-Based Learning & Improvement. Formal education, however, addressing the operational and resource implications of radiation therapy delivery - including fractionation patterns, patient visit burden, and facility-level resource use - remains limited. Structured educational frameworks addressing trainees' interest in value-informed and sustainable care are lacking. We developed and evaluated a competency-aligned, interdisciplinary elective using oncology-focused content, including hypofractionation, to teach resource-conscious clinical decision-making.

Methods: We implemented a six-week hybrid elective at Geisel School of Medicine (Oct-Nov 2025), consisting of six 75-minute early evening sessions integrating radiation oncology case examples with systems-based care principles. Modules covered treatment pathway mapping, hypofractionation as a case study in reducing visit burden while maintaining oncologic efficacy, life cycle assessment (LCA) methodology applied to radiation therapy delivery, healthcare and brachytherapy waste streams, and operational considerations in cancer centers. Sessions also addressed health equity considerations and the disproportionate impacts of climate change on vulnerable populations. The interprofessional cohort (N=36) included medical students (30%, including pre-radiation oncology track), MPH students (30%), PhD candidates (14%), and faculty/staff (25%). Pre- and post-course surveys (12-item, 5-point Likert scale) assessing knowledge, confidence, and intended clinical application were completed by 20 and 12 participants, respectively. Matched-pairs analyses were conducted (N=9; 75% of post-survey respondents).

Results: Of 20 pre-survey respondents, 12 completed the post-survey (60% retention). Participants demonstrated significant improvements across competency domains, with five areas showing large effect sizes (Cohen's $d>0.8$, $p<0.05$). Notable gains included identifying resource optimization opportunities (2.60 ± 1.05 to 3.50 ± 0.80, $p=0.008$, $d=1.42$), understanding LCA methodology (3.60 ± 1.23 to 4.42 ± 0.67, $p=0.016$, $d=1.19$), and recognizing healthcare's operational and environmental impacts (2.85 ± 1.35 to 3.92 ± 0.79, $p=0.016$, $d=1.00$). Participants rated the interdisciplinary format highly (4.67/5.0), and 92% reported intent to apply these principles in future clinical practice.

Conclusion: This pilot curriculum addresses a measurable gap in medical training related to Systems-Based Practice, resource stewardship, and value-informed cancer care delivery. The interdisciplinary format was a key strength, suggesting that collaborative learning across healthcare disciplines enhances engagement and operational awareness. Using hypofractionation and treatment pathway mapping as oncology-specific teaching tools, the model demonstrates feasibility and scalability for postgraduate training programs seeking to integrate systems-level decision-making, including environmental and resource considerations. Future work should include larger, multi-institutional validation studies.

Disclosures: none

Advancing Leadership Education Through a Personality-Informed Curriculum in a Radiation Oncology Residency Program

Presenter: Jin-Ju Lee, MPH

Email: jinjulee@usf.edu

Jin Ju Lee[1], Jessica M. Frakes[2], Stephen A. Rosenberg[2], Sarah E. Hoffe[2]

[1]University of South Florida College of Medicine, [2]Moffitt Cancer Center

Background: Radiation oncology (RO) residents must lead multidisciplinary teams and communicate effectively, yet formal leadership training is limited and often overlooks interpersonal skills. Personality-based tools like TypeCoach, common in corporate settings, remain unevaluated in healthcare education. We incorporated TypeCoach into our RO graduate medical education (GME) curriculum to enhance teamwork and leadership skills within the workplace.

Methods: This IRB-exempt quality improvement study was conducted in a single academic RO department with ten physician and two physics residents. Participants attended five monthly interactive TypeCoach leadership sessions. Residents were asked to complete two anonymous surveys: one pre-intervention and one post-intervention. Surveys assessed communication, leadership, stress, adaptability, and teamwork using 1-7 Likert scales, frequency scales, and ranking questions (1-10). Descriptive statistics summarized responses.

Results: Eleven residents (92%) completed the baseline survey and ten (83%) completed the post-intervention survey. At baseline (1-10 scale), residents reported high confidence in communication (mean 7.0), moderate confidence in leadership (6.36), and lower confidence in influencing skills (5.55). Following the personality-informed leadership curriculum, confidence increased across all domains, with communication rising to 7.6, leadership to 7.5, and influencing skills to 7.3. Residents reported notable improvements in stress management and workplace engagement. Mean stress levels decreased from 6.27 to 5.7, while engagement increased from 7.18 to 8.5. Workplace conflict decreased from 4.09 to 3.6, and confidence in resolving conflict improved from 6.18 to 7.4. 55% of residents reported feeling nervous or stressed often at baseline, which decreased to 10% post-intervention. Notably, all residents reported being able to reduce stress before it became extreme after the curriculum, compared with 72% at baseline. In addition, residents' confidence in clarifying confusing instructions increased from 6.73 to 7.6. Communication and teamwork also improved. At baseline, 54% of residents agreed or strongly agreed that they adapted their communication style to different team members, increasing to 80% post-intervention. Participants reported that their co-residents' understanding of their strengths increased from 6.0 to 6.7, and their understanding of their work styles rose from 5.45 to 7.2. Perceptions of program directors' ability to adjust to residents' work styles improved from 7.36 to 8.3.

Conclusion: Implementation of a personality-based leadership curriculum was associated with improvements in communication, leadership confidence, stress management, and teamwork among RO residents. These findings support further exploration of structured personality-based frameworks to enhance leadership and interpersonal skill development in GME curricula.

Disclosures: none

Mapping Climate Health Training Programs for Healthcare Professionals: A Scoping Review

Presenter: Sierra Silverwood, MD

Email: silverwo@msu.edu

Sierra S. Silverwood[1], Sebastian Densely[2], Honor J. Passow[3], Katie E. Lichter[4]

[1]St. Joseph's Ascension Hospital, [2]Charles E. Schmidt College of Medicine, [3]The Dartmouth Institute for Health Policy & Clinical Practice, [4]Department of Radiation Oncology & Applied Sciences, The Dartmouth Institute for Health Policy & Clinical Practice

Background: Climate and weather-related events are increasingly disrupting healthcare delivery and requiring system resilience, with heightened relevance for time-sensitive treatments, such as oncology and radiation oncology. This scoping review maps climate and health training programs for healthcare professionals and trainees, characterizing program content domains, delivery models, and evaluation approaches.

Methods: A scoping review was conducted between December 2025 and January 2026 to identify climate and health programs targeting healthcare professionals and trainees. Eligible programs were those focused on the intersection of climate change and one or more of the essential domains: health impacts, healthcare sustainability, adaptation, disaster preparedness, or environmental justice. Information sources included targeted website searches of major climate-health education organizations using predefined search terms, supplemented by expert consultation. English-language programs that were fully remote or hybrid were included. Data extraction included program characteristics, target audience, content domains, pedagogy, financial costs, incentives, evaluation methods, and reported outcomes.

Results: All seventeen programs that met our inclusion criteria were delivered by academic institutions, public health agencies, or non-profit organizations. Most were fully virtual (16, 94%). Nine programs (53%) targeted healthcare professionals broadly, while others focused on specific disciplines or roles. Only one program (6%) focused explicitly on radiation oncology, and oncology-specific content was otherwise largely absent. Most programs were introductory in scope (14, 82%), while three provided more in-depth training focused on practical skills such as risk assessment, policy analysis, and implementation of evidence-based climate solutions. Inclusion of the essential content domains was variable: climate science and health impacts (17, 100%), healthcare sustainability (6, 35%), public health adaptation strategies (2, 12%), disaster preparedness (1, 6%), and environmental justice or equity (7, 41%). Didactic approaches predominated (11, 65%), with additional use of case-based, experiential, and applied learning methods. Incentives such as CME or certification were offered by 15 programs (88%). Formal evaluation strategies were uncommon, with fewer than five programs reporting learning outcomes.

Conclusion: Climate and health education for healthcare professionals is expanding but remains fragmented, largely introductory, and inconsistently evaluated. The limited availability of oncology- and radiation oncology-specific programming highlights a curricular gap in preparing cancer care teams for emerging climate-related operational and care delivery challenges. Coordinated, competency-based, and longitudinal training programs with robust outcome assessment are needed to strengthen healthcare workforce preparedness.

Disclosures: none

A Mentorship Skill Development Workshop is Effective in Improving Self-Assessed Faculty Mentorship Skills

Presenter: Lisa McGee, MD

Email: mcgee.lisa@mayo.edu

Lisa McGee[1], Heather Billings[2], Randa Tao[1], William Rule[1], Terence Sio[1], Heather Wilson[1], Brady Laughlin[1]

[1]Mayo Clinic, Arizona, [2]Mayo Clinic, Rochester, MN

Background: A strategic approach to mentorship skill development in radiation oncology faculty is essential to the education and career development of colleagues. Published data assessing the feasibility and impact of such a program are lacking. This report describes the successful implementation of a formal faculty mentorship skill development workshop.

Methods: A faculty mentorship skill development workshop was conducted over three 1-hour educational sessions to a 16-faculty radiation oncology department. Sessions were taught by an expert physician career educator. Session topics included introduction to mentor training and aligning expectations, maintaining effective communication and promoting optimal learning environments as well as fostering independence and promoting professional development. Participants were invited to complete an anonymous pre- and post-event survey consisting of 13 pre-/post-comparison (Likert scale - 1 = strongly disagree to 5 = strongly agree) questions, 7 regarding self-assessment of mentorship skills and 6 regarding challenges to being an effective mentor. Four additional questions assessed faculty personal mentorship experience.

Results: Ten out of 16 participants completed surveys. Faculty acknowledged having one or more high quality mentors in their career (mean 3.89) and that these prior experiences influenced their own mentoring style (mean 3.5). For the most part, faculty responses were neutral in having access to current mentors supporting professional development (mean 3.13) and having mentorship valued at the institution level (mean 3.0). Following the mentorship workshop, participants demonstrated improvement across all self-assessed mentorship skill domains, with mean increases ranging from +0.69 to+1.42 on the 5-point Likert scale. The largest gains were observed in understanding core mentorship competencies (+1.42) and establishing clear expectations with mentees (+1.10). Improvements were also noted in awareness of common mentoring challenges (+0.99), providing constructive feedback (+0.98), confidence as a mentor (+0.84), supporting mentees to achieve goals (+0.84) and mentoring across differences (+0.69). Participant scores evaluating perception of challenges to being an effective mentor trended toward or demonstrated improvement ranging from -0.04 to -0.74. The largest reduction in perceived difficulty was in setting boundaries and establishing clear expectations (-0.74). Improvements were also noted in feeling prepared to mentor across differences (-0.37), addressing sensitive topics (-0.33), allocating time for mentoring (-0.22), balancing support with accountability (-0.04) and lack of institutional support (-0.04).

Conclusion: A formal mentorship skill workshop improved faculty perceptions of self-assessed mentorship skill domains and mentorship challenges. Implementing formal faculty mentorship skill development in a radiation oncology department is feasible.

Disclosures: none

ASYNCHRONOUS ORAL PRESENTATIONS

Rad Onc Smart Learn: Empowering Radiation Oncology Trainees Through a Personalized AI-Driven Educational Copilot

Presenter: Abass Conteh, MD, PhD

Email: aconteh@stanford.edu

Abass M. Conteh[1], Jennifer S. Chiang[1], Archis Bhandarkar[2], Chitra Parikh[3], Lakshmi Venkat[1], George Ford[4], Mark K. Buyyounouski[1]

[1]Department of Radiation Oncology, Stanford University, [2]Department of Neurosurgery, Mayo Clinic, [3]Department of Medicine, Greenwich Hospital, [4]Standford University

Background: First-time pass rates for the American Board of Radiology (ABR) Radiation Oncology Oral Certifying Exam have recently declined, underscoring the need for effective preparation strategies. Rad Onc Smart Learn (RSL) is a web-based platform that includes an oral board examination preparation module featuring case-based interactive mock examinations and an optional tutoring mode. Its AI-enabled examiner supports optional microphone-based spoken responses with speech-to-text transcription, adaptive follow-up questioning, and structured, rubric-aligned feedback, enabling repetitive practice with immediate formative feedback. A pilot survey study is currently underway to evaluate the platform's feasibility, usability, and impact on user self-efficacy among pilot participants.

Methods: Survey instruments are programmed to be administered within the application before and after mock oral/tutoring sessions and are linked to participant pseudonyms. Eligible participants include radiation oncology resident pilot testers. Measures include self-reported preparedness for the Oral Certifying Exam, confidence in clinical knowledge and communication under time pressure, clarity of knowledge gaps, usability (including Single Ease Question [SEQ] and Likert-style items), perceived change in oral boards performance, and likelihood of future use and recommendation. Descriptive statistics will be used to summarize survey responses.

Results: We anticipate completion of pre- and post-session surveys by 15 participants. Common baseline barriers to consistent board preparation are expected to include limited time and unclear study priorities. Following use of RSL, we expect increases in self-reported knowledge preparedness, confidence in communication, and perceived overall oral exam performance. We also anticipate that most participants will rate the platform as easy to use and compatible with resident workflow. Expected likelihood of reusing RSL and recommending it to another resident is a median of at least 7 on a 0-10 scale (0 = not at all likely; 10 = extremely likely). Requested improvements are expected to include additional cases across disease sites and expanded customization of difficulty or pacing.

Conclusion: This pilot is expected to provide evidence supporting RSL, a responsible AI-enabled platform, as an avenue to more equitable and individualized board preparation in radiation oncology. Pilot findings will guide immediate platform refinement and inform future multi-institutional studies with objective performance endpoints, with broader implications for scalable AI-supported education across graduate medical education. RSL has the potential to meaningfully transform board examination preparation in radiation oncology by expanding access to high-quality, structured practice; enabling feedback-rich learning independent of time and location; and individualizing preparation to each learner's level, pace, and identified gaps.

Disclosures: none

Development and Preliminary Evaluation of a Multidisciplinary Gastrointestinal Oncology Observership for Undergraduates

Presenter: Jay Garlapati, MD

Email: jkgarla@emory.edu

J. K. Garlapati[1], B. Preti[2], N. Bakhit[2], S. W. Dutta[1], N. Ali[3]

[1]Department of Radiation Oncology, Emory University, [2]Emory University, [3]University of Rochester School of Medicine and Dentistry

Background: Early clinical exposure to oncology care during undergraduate education may promote interpersonal development and foster emotional intelligence among future physicians. Situated learning models, such as clinical shadowing, allow learners to observe real-world applications of medical concepts and understand their impact on patients. We describe the development, implementation, and preliminary evaluation of a multidisciplinary gastrointestinal (GI) oncology observership for undergraduate students.

Methods: The multidisciplinary GI oncology observership was developed by a GI medical oncologist and radiation oncologist at a single academic institution. Undergraduate students were selected through a competitive application process assessing academic background, interest in medicine, and readiness to engage in team-based clinical environments. GI oncology was selected based on faculty expertise and availability.

Results: In 2025, 5 students were selected from 32 applicants to participate. Participants completed preparatory educational modules covering foundational principles of oncology with a focus on GI malignancies. The observership consisted of four days of structured shadowing across outpatient and inpatient GI medical and radiation oncology settings. Students observed new patient consultations, follow-up visits, and on-treatment encounters, with intentional faculty-facilitated discussions regarding serious illness communication, treatment-related toxicities, survivorship, and palliative care. Exposure to interdisciplinary care included interactions with nurses, advanced practice providers, radiation therapists, dietitians, and social workers. Most participants (80%, n=5) completed an optional post-observership survey assessing educational value and professional impact. All survey respondents (100%, n=4) indicated increased understanding of multidisciplinary cancer care, desire to pursue a career in medicine, and interest in oncology. Qualitative feedback highlighted enhanced empathy, comfort with emotionally challenging clinical conversations, and appreciation of patient-centered decision-making in cancer care. The observership is planned for continuation and expansion in the subsequent academic year.

Conclusion: A structured multidisciplinary oncology undergraduate observership is a feasible method to develop emotional intelligence and to stimulate interest in medical careers, though further validation with larger student cohorts and objective outcome measures is necessary to validate long-term impacts.

Disclosures: Garlapati: Employee of Emory University. Preti: Employee of Emory University, Programme Advisory Board of International Conference on Residency Education (ICRE), Executive Board Member of Canadian Association for Medical Education (CAME). Dutta: Employee of Emory University. Ali: Employee of Emory University

A Pilot Study of a Virtual Interactive Residents-As-Teachers Curriculum in Radiation Oncology: Creating an Inclusive Interdisciplinary Learning Environment

Presenter: Michael Gribble MD

Email: michael.gribble@ucsf.edu

Michael L. Gribble[1], Katelyn Hasse[1], Robin Peter[1], Alexander S. Qian[1], Lisa Ni[2], Steve E. Braunstein[1]

[1]University of California, San Francisco, [2]University of Washington

Background: Radiation oncology residents work alongside a diverse group of interdisciplinary team members, yet receive little formal training in inclusive interprofessional teaching (1). We previously developed and piloted a virtual interactive Residents-As-Teachers (RaTe) curriculum at a single institution, with the first module addressing teaching medical students in the outpatient clinic (2). Here we describe the second module, "Creating an Inclusive Interdisciplinary Learning Environment," designed to equip residents with frameworks for recognizing implicit bias, understanding the influence of social identity and stereotype threat, applying practical strategies for fostering belonging, and defining roles and interprofessional collaboration in the clinical learning environment.

Methods: All radiation oncology medical and physics residents at a single institution will be invited to voluntarily participate (n=13). The module follows the format of Module 1: an asynchronous, interactive video didactic with reflective activities, a self-assessment tool, and curated resources. Content is organized into three sections: (1) implicit bias and social identity - including privilege, stereotype threat, applied clinical vignettes, and individual and team-level mitigation strategies; (2) equity and inclusion in the learning environment: a five-step framework covering setting the tone, checking in, reflecting on messaging, incorporating equity into teaching, and responding and readjusting; and (3) understanding radiation oncology team roles and fostering interprofessional collaboration. Consenting trainees will complete pre- and post-intervention questionnaires assessing self-reported confidence and intended behavior change.

Results: Data collection is targeted for April 2026. Pre- and post-intervention questionnaires will utilize Likert scale items to assess self-reported confidence in inclusive teaching practices and intended behavior change. We hypothesize that participants will report increased confidence in recognizing implicit bias and applying inclusive teaching strategies. We also anticipate participants will report greater awareness of interprofessional team member roles and increased confidence in supporting collaborative practice. Consistent with Module 1 results, we anticipate the majority of residents will indicate they are "Very Likely" or "Somewhat Likely" to change their teaching practices because of the intervention.

Conclusion: This module broadens the RaTe curriculum to address inclusive interprofessional teaching, a gap of particular relevance in radiation oncology, where residents collaborate across multiple disciplines to deliver high-quality care. By integrating foundational diversity, equity, and inclusion concepts with radiation oncology-specific clinical scenarios and interprofessional role education, this module aims to produce measurable shifts in resident awareness and teaching behavior. Findings will inform continued curriculum expansion and may serve as a model for specialty-specific residents-as-teachers programs seeking to embed equity and inclusion into clinical teaching development.

Disclosures: Gribble, Hasse, Peter, Qian, Ni, Braunstein: The authors received a seed grant from University of California San Francisco Innovations Funding for this project. Braunstein: ROECSG Executive Board Member

Assessing the National Landscape of Horizontal Integration of Key Concepts in Radiation Oncology Graduate Medical Education

Presenter: Luke Higgins, MD

Email: lukemh@med.umich.edu

Luke Higgins[1], Sarah Bergholtz[2], Sean Miller[1], Donna Edwards[1], Elizabeth Covington[1], William Jackson[1], Jennifer Shah[1]

[1]Department of Radiation Oncology, University of Michigan, [2]Trinity Health Livonia Hospital

Background: Horizontal integration, a pedagogical model in which key concepts are included in curricula at multiple timepoints and in multiple contexts, has been best described in undergraduate medical education (UME), with evidence for better performance on summative assessments. In UME, horizontal integration is a required accreditation standard from the Liaison Committee on Medical Education. This pedagogical approach carries relevance to delivery of key topics in graduate medical education (GME). Radiation oncology GME delivers a high volume of new material through didactic and clinical curricula, including many key concepts with relevance across multiple disease sites. We aim to gauge the national status of integrated curricular delivery across four key concepts: social drivers of health, oligometastatic disease, radiopharmaceuticals, and re-irradiation.

Methods: Key concepts for inclusion were identified by consensus between authors. Survey items will assess (1) inclusion of concepts in formalized curricula, (2) horizontal integration of concepts in curricula, (3) existence of "stand alone" sessions on included concepts, (4) efforts to increase inclusion of concepts in formalized curricula, and (5) existence of dedicated service(s), teaching faculty, and/or strong referral base for relevant topics. Optional qualitative responses will be included for additional data collection. Survey peer review was completed by an institutional working group with expertise in survey design. Residency program director name and contact email were identified through the American Medical Association Fellowship and Residency Electronic Interactive Database Access (FREIDA) tool for 87 radiation oncology GME programs. For program directors without contact information in FREIDA, the American Society for Radiation Oncology member database was utilized to collect contact email. Collected demographics will be limited to program size to maintain anonymity. This study has been deemed exempt from Institutional Review Board approval.

Results: We expect to have preliminary results available for discussion at the time of presentation. Results are expected to demonstrate a low level of formalized horizontal integration with responses varied by both institution and concept.

Conclusion: Radiation oncology GME curricular delivery is impacted by many intrinsic and extrinsic factors including program faculty and resources, institutional referral base and practices, accreditation standards, and rapidly evolving practice. We believe there is high value in intentional and horizontally integrated delivery of key topics across didactic and clinical curricula, including those planned for assessment in our survey. As we undertake efforts to understand the current curricular landscape, assessment of specific models of horizontal integration are also needed to assess effective curricula.

Disclosures: Higgins: Dr. Higgins discloses travel funding from the American Society for Radiation Oncology (ASTRO). Covington: Dr. Covington reports leadership position as Co-lead of MEQUAL within the Michigan Radiation Oncology Quality Consortium and grant funding from the Office of Health Equity at Michigan Medicine.

Optimizing Radiation Therapy for Rural Communities: A Data-Driven Pilot Evaluation of The Role of Patient-Physicist Consultations

Presenter: Adia Holtman, BS

Email: adia.medicalphysics@gmail.com

Adia L Holtman[1], Aradhana Kaushal[1], Todd Atwood[2], Tom Oldland[1]

[1]The University of Kentucky Markey Cancer Center, [2]UC San Diego Department of Radiation Medicine & Applied Science

Background: Limited previous work, including a Phase III clinical trial, has found increased technical and overall satisfaction and reduced anxiety in patients undergoing external beam radiotherapy (EBRT) who receive consultations with medical physicists compared to the standard of care (SOC) alone. Other literature points to effects on treatment adherence and physician time savings. We will assess the impact of personalized, technical discussions with physicists on patient satisfaction in a novel rural population. We aim to integrate the most successful components of various published works to better support our specific population and refine recommendations for patient-physicist consultations, especially for low health literacy.

Methods: At initial physician consultation, EBRT candidates will be offered choice of participation in the SOC or medical physics consultation arm with explanatory materials. Participants in both arms will respond to the same survey assessing perceived control, technical satisfaction, overall satisfaction, and anxiety, per the short-form Spielberger State-Trait Anxiety Inventory. This survey will be completed thrice: after physician consultation, after simulation, and after first treatment. For the intervention group, consultations will be performed by a qualified medical physicist with prior patient interaction workshop experience. Site-specific infographics have been developed and adapted from previous works to best serve our clinic/population and will be offered at the first consultation before CT simulation. Before first treatment, another consultation will offer discussion including individualized treatment plans. Data will be analyzed between urban and rural populations per demographic information collected as well as across varying number of consultations and across patient visits. Significance will be evaluated using ANOVA, Tukey, and Student's t-tests. This work will be performed under UK Healthcare IRB [108781].

Results: We expect to recruit 60+ participants, similar to published literature. We hypothesize that patients who participate in a physics consultation will report higher technical understanding compared to those who do not. Patients who receive both planned consultations are expected to report higher satisfaction levels and reduced anxiety compared to those receiving no consultation or just a singular consultation. The effects for rural patients will likely be more significant than for urban patients due to baseline differences in health literacy.

Conclusion: Physics consultations are expected to improve patient experience at Markey Cancer Center, especially among rural populations. Our study design intentionality (e.g., excluding a timepoint often associated with habituation) will allow physics consultations to yield maximum positive impact on our patients for the resources dedicated and guide international recommendations for clinical implementation.

Disclosures: none

Strategic Medical Student Engagement Enhances Knowledge, Interest and Recruitment into Radiation Oncology

Presenter: Lisa McGee, MD

Email: mcgee.lisa@mayo.edu

Lisa McGee[1], Jonathon Ashman[1], Terence Sio[1], Randa Tao[1], Joshua Niska[1], Richard Kunath[1], Heather Wilson[1], Brady Laughlin[1]

[1]Mayo Clinic Arizona

Background: Match data suggests there may be a suboptimal number of radiation oncology (RO) residency applicants. This report describes one RO residency program's approach to medical student engagement (MSE) to improve interest in RO and enhance recruitment.

Methods: One RO residency program implemented a strategic approach to MSE during the 2024-25 academic year (AY) with the goal of increasing medical student specialty awareness and interest and enhancing residency recruitment. A MSE committee composed of the residency Program Director, both Medical Student Clerkship Codirectors, two faculty at large and one resident physician was developed to implement this initiative. Key components of MSE were identified including social media, didactic lectures, open house events, and research mentorship. Events that led students to conduct clinical rotations, preclinical observerships, research rotations, or residency applications were considered measures of success. Since the goal of this initiative was to implement new outreach efforts, clinical rotations and observerships were not counted as a MSE initiative, although were included as a measure of success if they resulted from another MSE event.

Results: Seven Instagram posts and 14 X posts were created to promote MSE events and announce departmental achievements. Didactic lectures were offered to all five local medical schools; three of which participated. One medical school included a RO didactic lecture during the MS2 oncology block; 2 medical schools incorporated student interest group lectures. Virtual and in-person open house events were conducted to educate students on RO. The in-person open house was most successful in generating RO interest. Four out of ten attendees expressed interest in RO after the open house by completing observerships and initiating research projects (N=2), requesting a future student interest group RO lecture (N=1), and completing a rotation and applying to residency the following AY (N=1). One of the students who completed an observership and initiated a research project was awarded an ASTRO Medical Student Fellowship Award. Four students total, including the 2 students from the in-person open house established a formal research mentorship. One student completed a poster presentation at a national meeting, wrote four manuscripts, and was accepted to medical school. Another student completed a poster presentation at a national conference. The remaining two students have projects in process. All four students completing research projects maintain an interest in RO.

Conclusion: Implementation of a comprehensive MSE initiative is feasible. Early results suggest improved knowledge and interest in RO which can enhance residency recruitment.

Disclosures: none

Assessment of Quality and Guideline Concordance of Online Resources for Acute Radiation Dermatitis in Breast Cancer

Presenter: Kevin Nishimura, BMedSc(Hons)

Email: kevin047@student.ubc.ca

Kevin Nishimura[1], Sandy Lum-Wang[1], Paris-Ann Ingledew[2]

[1]University of British Columbia, [2]British Columbia (BC) Cancer, University of British Columbia

Background: Acute radiation dermatitis (ARD) is the most common adverse effect of radiation therapy for breast cancer. With the widespread use of the Internet for health information, online resources may play an important role in how patients understand and manage ARD. This study evaluates the quality of web-based information on breast cancer ARD and its congruence with current consensus guidelines.

Methods: Websites addressing breast cancer ARD were identified using Google and two meta-search engines, then rank-ordered based on frequency of appearance and search result position. Website quality markers, including readability, structure, and content comprehensiveness, were assessed using a previously validated standardized rating tool. Content coverage and accuracy were defined by comparison with a consensus document derived from international and national consensus guidelines. Inter-rater reliability was established through independent assessments by two reviewers.

Results: 831 websites were identified, and the top 50 were included for analysis. Website affiliations included non-profit organizations (36%), health care facilities (34%), commercial sources (22%), academic institutions (6%), and government organizations (2%). The mean Flesch-Kincaid Grade Level score was 10.6. Topics most discussed included management strategies (98%), symptoms (98%), and prevention (88%). Among prevention and management strategies recommended in expert consensus guidelines, daily gentle cleansing (84%) and moisturization (76%) were most commonly covered. Despite frequent coverage, many websites substantially underspecified the guidance necessary for effective patient education (59% [22/37] for cleansing and 63% [24/38] for moisturization). Many other guideline-supported strategies were infrequently covered, including Mepitel film (12%), betamethasone (8%), photobiomodulation therapy (8%), and olive oil use (4%).

Conclusion: Websites addressing breast cancer ARD commonly covered prevention and management strategies. However, concordance with expert consensus guidelines was generally low given variable topic coverage and incomplete recommendations. These findings may help guide patient-physician discussions and inform the development of guideline-aligned online resources.

Disclosures: none

Optimizing Radiation Oncology Workplace Productivity and Well-being through Digital Media: A Performance Evaluation of the 'Time Titans' Podcast

Presenter: Madhav Patel, MD

Email: mp4355cu@gmail.com

Madhav Patel[1], Amanda Yen[1], Crystal Seldon[2], Sara Beltran Ponce, [3]Medical College of Wisconsin, Leah Katz[2]

[1]Columbia University Medical Center, [2]University of Miami Miller School of Medicine, [3]Medical College of Wisconsin

Background: One-quarter to one-half of radiation oncology physicians experience burnout. Effective time management/allocation can enhance well-being and accelerate career development, as supported by published recommended strategies from the 2023 ACR Commission on Radiation Oncology. 'Time Titans' is a podcast that assists professionals in navigating modern workplace demands to enhance personal and professional well-being. The objective of this study is to evaluate engagement and performance metrics of this novel digital platform.

Methods: Three radiation oncology physicians hosted 22 podcast episodes from July 2023 - October 2025, available on >5 digital media platforms. Episodes involved an interview with guests (1-2 per episode) from a variety of personal, academic and professional backgrounds. The Spotify podcast platform and Microsoft Excel were utilized to collect descriptive statistics for demographic, engagement and performance data, and stratify featured guests by profession.

Results: Listeners primarily engaged with the 'Time Titans' through Apple (47.1%) and Spotify (37.6%) podcasts. Total streams and downloads on all platforms was 3,383, with an average of 78 per episode. Listeners were primarily within the United States (81.6%), followed by Germany (6.8%). The majority of listeners were female (58.3%) and between 35-44 years old (41.2%), followed by 28-34 years (30.5%) and 45-59 years (14.3%). The majority of podcasts featured radiation oncology physicians (n=14, 63.6%); however, multi-specialty physicians, other professionals (life coach, journalist, spiritual leader), and a patient were also featured as lead guests.

Conclusion: Digital tools including podcasts which offer coaching from individuals with a variety of personal, academic, and career experiences may be uniquely well-positioned to engage listeners towards effective approaches for wellness and professional advancement.

Disclosures: Crystal Seldon, Sara Beltran Ponce, Leah Katz: Co-Founder/Host of Time Titans Podcast.

Radiation Oncology in the Core Curriculum: A Pre-/Post-Lecture Survey of MS1 Knowledge and Engagement

Presenter: Joshua Qian, MD

Email: joshuaqian98@gmail.com

Joshua Y. Qian[1], Mary T. Mahoney[2], Madeline M. Flanagan, Anthony Alanis[3], Steven Braunstein[4], Jillian R. Gunther[5], Daniel Gorovets[1]

[1]Memorial Sloan Kettering Cancer Center, [2]Fox Chase Cancer Center, [3]Baylor College of Medicine, [4]University of California San Francisco, [5]The University of Texas MD Anderson Cancer Center

Background: Limited early exposure to radiation oncology (RO) may constrain medical student understanding of the specialty and interest in RO careers. We hypothesized that an RO-focused core-curriculum lecture within a first-year oncology block improves objective knowledge and self-reported familiarity and interest of the specialty.

Methods: At a single medical school, an in-person RO core lecture was delivered as part of the required oncology block. Under IRB exemption, students completed voluntary and anonymous pre- and post-lecture questionnaires. Objective knowledge was assessed with a single multiple-choice question. Subjective outcomes used 5-point Likert scales (1=lowest, 5=highest) for familiarity with RO and interest in pursuing RO. Pre- and post-responses were analyzed as independent groups. Post-lecture outreach for shadowing/research opportunities with the lecturer was tracked.

Results: Fourteen students completed the pre-lecture questionnaire and 16 completed the post-lecture questionnaire. Correct responses increased from 8/14 (57.1%) pre-lecture to 14/16 (87.5%) post-lecture (+30.4 percentage points; Fisher's exact p=0.10). Self-reported familiarity with RO significantly increased (pre-lecture median 1.5 [IQR 1-2] vs post-lecture median 4.0 [IQR 2-4]; Mann-Whitney p=0.0002). Interest in pursuing RO also increased (median 2 [IQR 2-3] pre vs 3 [IQR 2-4] post; p=0.14). After the lecture, five medical students independently reached out to the lecturer for shadowing and/or research opportunities, and all five completed an observational experience.

Conclusion: A single, required RO core-curriculum lecture was associated with a large improvement in perceived familiarity with the field and an increase in objective knowledge, with a trend toward higher career interest. Post-lecture outreach culminating in completed shadowing/research experiences suggests early curricular RO exposure may catalyze actionable engagement. Future iterations should incorporate paired identifiers, larger sample sizes, and longitudinal follow-up, including subsequent RO engagement, specialty decisions, and residency match outcomes.

Disclosures: none

Artificial Intelligence in Radiation Oncology Education for Hematologic Malignancies: A Systematic Review

Presenter: Stephanie Quon, BASc

Email: quons@student.ubc.ca

Stephanie Quon[1], Isabel Truong[1], Katherine Zheng[1]

[1]University of British Columbia

Background: Artificial intelligence (AI) has rapidly transformed radiation oncology through applications in treatment planning, contouring, and clinical decision support. Concurrently, AI has emerged as a novel educational tool, offering personalized learning, automated feedback, and adaptive educational platforms. These technologies are particularly relevant in hematologic malignancies, where radiation therapy plays evolving roles in curative, consolidative, and palliative settings and requires mastery of complex imaging, planning, and risk stratification concepts. Despite increasing adoption of AI in clinical practice, its integration into radiation oncology education has remained poorly characterized. This systematic review evaluated the use of AI in radiation oncology education, with emphasis on applications relevant to hematologic malignancies.

Methods: A systematic review was conducted in accordance with PRISMA guidelines. MEDLINE, Embase, Scopus, Web of Science, ERIC, and IEEE Xplore were searched from inception to present. Eligible studies included educational interventions utilizing AI technologies. Studies involving medical students, residents, fellows, or practicing clinicians were included. Data extraction included learner population, AI technology, educational design, outcomes, and evaluation metrics. Study quality was assessed using the Medical Education Research Study Quality Instrument. Thematic synthesis was performed to identify recurring patterns across studies.

Results: A total of 22 studies met inclusion criteria, with most interventions focused on contouring, treatment planning, and clinical decision-making. Five major themes emerged: (1) Improved learning efficiency and knowledge acquisition, with AI-supported tools facilitating faster comprehension and improved retention of complex concepts; (2) Enhanced procedural and contouring competency, particularly through automated feedback and AI-assisted contour evaluation; (3) Personalized and adaptive learning, enabling individualized instruction and performance-based feedback; (4) Integration of multimodal and simulation-based education, including virtual tutors, generative AI platforms, and AI-assisted clinical scenario training that bridged theoretical and practical learning; and (5) Limited application specific to hematologic malignancies, with few AI-driven educational interventions directly addressing lymphoma, myeloma, or other hematologic indications. Substantial heterogeneity in AI technologies, educational design, and evaluation metrics was observed.

Conclusion: AI-enabled educational tools improved learner efficiency, procedural competency, and engagement in radiation oncology education. Personalized feedback, adaptive learning, and simulation-based training offered advantages over traditional educational approaches. However, applications specific to hematologic malignancies remained limited, and high-quality studies evaluating long-term educational and clinical impact were lacking. These findings highlight important opportunities to develop targeted AI-driven educational interventions and support the integration of AI into radiation oncology training to prepare clinicians for modern oncology practice.

Disclosures: none

Physician Misconceptions About Radiation Therapy in Hematologic Malignancies: A Systematic Review

Presenter: Stephanie Quon, BASc

Email: quons@student.ubc.ca

Stephanie Quon[1], Isabel Truong[1], Katherine Zheng[1]

[1]University of British Columbia

Background: Radiation therapy (RT) plays a critical role in the management of hematologic malignancies, including lymphoma and multiple myeloma, in curative, consolidative, and palliative settings. Advances in radiation techniques have improved targeting precision and reduced toxicity while maintaining excellent disease control. Despite these advances, prior studies have suggested that physicians and trainees may underestimate the effectiveness, safety, and appropriate indications for RT, potentially contributing to delayed referral and suboptimal multidisciplinary care. This systematic review aimed to identify and characterize physician misconceptions, knowledge gaps, and educational deficiencies related to RT in hematologic malignancies.

Methods: A systematic review was conducted in accordance with PRISMA guidelines. MEDLINE, Embase, Scopus, Web of Science, ERIC, and Cochrane CENTRAL were searched from inception to present. Eligible studies included surveys, qualitative studies, and educational assessments evaluating physician or trainee knowledge, attitudes, or misconceptions regarding RT in hematologic malignancies. Data extraction included participant population, specialty, knowledge domains assessed, misconceptions identified, and educational factors associated with knowledge gaps. Study quality was assessed using validated medical education research quality instruments. Thematic synthesis was performed to identify recurring patterns across studies.

Results: A total of 31 studies met inclusion criteria. Misconceptions regarding RT in hematologic malignancies were common across multiple specialties and training levels. Five major themes emerged: (1) Overestimation of toxicity risks, with many physicians associating RT with high rates of late complications based on outdated techniques rather than contemporary targeted approaches; (2) Underestimation of curative and disease-controlling potential, including limited recognition of RT as a curative modality in localized lymphoma and an effective consolidative therapy; (3) Knowledge gaps regarding integration with systemic therapies, including uncertainty about sequencing, safety, and multidisciplinary coordination; (4) Limited familiarity with modern radiation techniques and indications, including involved-site radiation therapy, reduced radiation volumes, and advances in treatment planning; and (5) Variation in knowledge across specialties and training levels, with greater misconceptions observed among non-radiation oncology physicians and early trainees.

Conclusion: Physician misconceptions regarding RT in hematologic malignancies persisted despite advances in radiation techniques and strong evidence supporting its safety and efficacy. Misunderstanding of toxicity risks, curative potential, and integration with systemic therapies likely contributed to underutilization and delayed referral. These findings highlighted critical educational gaps and the need for targeted, multidisciplinary educational interventions to improve understanding of RT. Addressing these misconceptions may improve referral patterns, enhance interdisciplinary collaboration, and optimize patient outcomes in hematologic malignancies.

Disclosures: none

Advancing Early Medical School Exposure to Radiation Oncology: A Scalable Curriculum Approach

Presenter: Trenton Reinicke, BS

Email: treinicke@oakland.edu

Trenton Reinicke[1], Neel Patel[1], Avery K. Supernois[1], James R. Burmeister[1], Maha Saada Jawad[1]

[1]Oakland University William Beaumont School of Medicine

Background: Radiation therapy is an essential part of cancer care. Despite this, the study of Radiation Oncology (RO) remains markedly underrepresented in medical education, with many students receiving little to no exposure to the field. Even at institutions with RO programs, it can be limited to optional rotations. The understanding of how radiotherapy fits within multidisciplinary care in oncology is subsequently limited early in medical training. As a consequence, informed specialty exploration is further restricted. To address this educational gap, we developed and implemented scalable strategies at Oakland University William Beaumont School of Medicine (OUWB) to provide RO exposure during the preclinical curriculum.

Methods: Student leaders from the Oncology Interest Group (OncIG) and Radiology/Radiation Oncology Student Interest Group (RADS), in collaboration with the Corewell Health East (CHE) Department of Radiation Oncology residency program, designed a multifaceted educational initiative. This included integrating RO content into required coursework, embedding problem-based learning cases, offering early shadowing opportunities, and virtual tumor board sessions. In addition, a RO Skills Night was held in March 2025, which provided hands-on simulation and instruction with treatment planning software and radiotherapy equipment. Attendees received a comprehensive discussion of the field, mock simulations for radiotherapy planning, hands-on contouring, and educational stations in sequence: lung/breast, prostate, head and neck, a brachytherapy demonstration, and a treatment planning overview.

Results: Thirty-two first- and second-year medical students participated in the inaugural Radiation Oncology Skills Night at OUWB, providing early hands-on exposure to the field. Faculty-verified outcomes and institutional coverage suggested improved student understanding of the role of radiation oncologists, paths to residency, interdisciplinary collaboration, and radiotherapy technology. Personal interaction with radiation oncology faculty, including attendings, residents, and physicists, was consistently valued by participants. Following the event, the CHE Department of Radiation Oncology observed increased student engagement, including more shadowing requests, research inquiries, and interest in optional RO clinical electives during the subsequent academic year (2026). These outcomes supported the establishment of a RO Skills Night as an annual collaborative program. A formal mixed-methods survey is being administered at the 2026 event and will be analyzed and reported separately.

Conclusion: Early exposure to RO in medical education is feasible, impactful, and scalable. The OUWB model promotes interdisciplinary collaboration, enhances cancer literacy, and provides an understanding of cancer treatment options. Initiatives like this, expanding to medical schools nationally, could address the educational gap in RO and lead to further interest in RO careers.

Disclosures: none

Thank you to ASTRO for co-sponsoring the symposium!

Questions about ROECSG, to register as a member (paid or free), or to make a donation

www.roecsg.org www.roecsg.org/membership/ www.roecsg.org/donate/

or e-mail info@roecsg.org

https://www.roecsg.org/