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Results: Fifty-seven (F2F: n=30; ONL: n=27) participants completed both evaluations. The ONL course had a substantially wider geographic participation, with participants from 19 countries (vs. 4 countries in the F2F course) completing the pre-evaluation. F2F had primarily RO resident participation (80%) compared to ONL (41%). In the ONL course, most were from a different field (52%), including medical physics residents or medical students. Compared to baseline self-assessments, both cohorts demonstrated similar self-confidence improvements with their anatomy knowledge, contouring skills, and in interpreting radiology images (all $P < 0.001$). In the anatomy/radiology knowledge testing, the ONL group showed improvement (mean improvement \pm SD: 4.6 ± 6.3 on a 40-point scale; $P < 0.001$) but the F2F group did not (1.6 ± 5.6 ; $P=0.159$). The F2F group demonstrated improvement with the contouring assessment (mean \pm SD: 0.10 ± 0.17 on a 1-point Dice scale; $P=0.004$), whereas only a trend was found for the ONL group (0.07 ± 0.16 ; $P=0.076$). Both cohorts perceived the course as a positive learning experience (F2F: 4.8 ± 0.4 on a 5-point scale; ONL: 4.5 ± 0.6) and stated it will improve their professional practice (F2F: 4.6 ± 0.5 on a 5-point scale; ONL: 4.2 ± 0.8). Both groups would recommend the course to others (F2F: 4.8 ± 0.4 on a 5-point scale; ONL: 4.4 ± 0.6).

Conclusion: The ONL ARC Bootcamp achieved similar results as the F2F version, with improved self-confidence, knowledge scores, and high satisfaction levels among participants. The ONL course is more accessible to diverse geographic regions and disciplines, allows for ongoing education during the COVID-19 pandemic, and can be used as a framework to develop other online educational interventions in radiation oncology.

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2355

Impact of the COVID-19 Pandemic on Postgraduate Training in Radiation Oncology

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Purpose/Objective(s): To report the degree to which post-graduate trainees in radiation oncology perceive their education has been impacted by COVID-19.

Materials/Methods: A cross-sectional online survey was administered in June 2020 to trainee members of Canadian Association of Radiation Oncology (CARO). The 82-item survey was adapted from a similar survey administered during SARS and included the Stanford Acute Stress Reaction and Ways of Coping Questionnaires. The survey was developed using

best practices including expert review and cognitive pre-testing. Frequency statistics are reported.

Results: Thirty-four trainees (10 fellows, 24 residents) responded. Nearly half of participants indicated that the overall impact of COVID-19 on training was negative/very negative (n=15; 46%) or neutral (n=15; 46%) with a small number indicating a positive/very positive (n=3; 9%). Majority of trainees agreed/strongly agreed with the following statements: "I had difficulty concentrating on tasks because of concerns about COVID-19" (n=17; 52%), "I had fears about contracting COVID-19" (n=17; 52%), "I had fears of family/loved ones contracting COVID-19" (n=29; 88%), "I felt socially isolated from friends and family because of COVID-19" (n=23; 70%), "I felt safe from COVID-19 in the hospital during my clinical duties" (n=15; 46%), and "I was concerned that my personal safety was at risk if/when I was redeployed from my planned clinical duties" (n=20; 61%). The changes that had a negative/very negative impact on learning included "the impact of limited patient contact" (n=19; 58%), "the impact of virtual patient contact" (n=11; 33%), and "limitations to travel and networking" (n=31; 91%). Most reported reduced teaching from staff (n=22; 66%). Two-thirds of trainees (n=22, 67%) reported severe (> 50%) reduction in ambulatory clinical activities, 16 (49%) reported a moderate (< 50%) reduction in new patient consultations, while virtual follow-ups (n=25; 76%) and in-patient clinical care activities (n=12; 36%) increased. Nearly half of respondents reported no impact on contouring (n=16; 49%), on-treatment management (n=17; 52%) and tumor boards (n=14; 42%) with the majority of other respondents reporting a decrease in these activities. Electives were cancelled in province (n=10/20; 50%), out-of-province (n=16/20; 80%) and internationally (n=15/18; 83%).

Conclusion: Significant changes to radiation oncology training were wrought by the COVID-19 pandemic and roughly half of trainees perceive that these changes had a negative impact on their training. Safety concerns for self and family were significant and strategies to mitigate these concerns should be a priority.

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2356

Evaluation of an Informal Virtual Medical Student Elective in Radiation Oncology During the COVID Era

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Purpose/Objective(s): The COVID19 pandemic prevented most onsite elective rotations for medical students (MSs) in 2020; therefore, alternate methods of subspecialty exploration were necessary. We assessed the efficacy of an informal virtual elective (IVE) for students interested in radiation oncology (RO).

Materials/Methods: We created a series of IVE activities (non-credit granting) related to RO. MSs interested in the formal RO away elective at MD Anderson Cancer Center (MDACC) were invited to participate. A pre- and post-IVE survey was performed in the Summer and Fall of 2020, respectively. Likert-type scores (1=not at all, 5=extremely) were

reported as median [interquartile range]. The Wilcoxon rank sum test was used to compare pre/post values.

Results: The pre- and post-IVE surveys were completed by 22/27 (81%) and 20/27 (74%) students, respectively. Prior to the IVE, students reported their top reasons for participation: promote self in preparation for interview season (5, 23%), receive an introduction to the field of RO (4, 18%), interact with faculty/residents at MDACC (3, 14%), networking (3, 14%), initiate research collaborations (3, 14%), self-exposure in RO (2, 9%), explore research opportunities (1, 5%), explore learning opportunities (1, 5%). Students reported that resident mentors would be extremely beneficial (5 [4-5]) on the pre-IVE survey vs. quite beneficial (4 [4-5]) on the post-IVE survey ($P = 0.42$). Faculty mentors were rated slightly more beneficial after the IVE (5 [4-5]) compared to prior (4.5 [4-5]) ($P = 0.79$). Students rated preparing and delivering a virtual presentation as quite beneficial (4 [3-4]) prior to the IVE and extremely beneficial (3 [3-5]) after the IVE ($P = 0.16$). The MS lecture series was rated as quite beneficial both prior to (4 [4-5]) and after (4.5 [4-5]) the IVE ($P = 0.86$). The remote resident didactics were rated as quite beneficial on both the pre- and post-IVE survey (4 [4-5] vs 4 [3-4], respectively, $P = 0.054$). On the pre-IVE survey, MSs preferred a full onsite away elective (16, 73%) vs. an official virtual elective (3, 14%), or an IVE (3, 14%). On the post-IVE survey, fewer MSs preferred an official virtual elective (1, 5%), and most still preferred a full onsite away elective (16, 80%). On the post-IVE survey, students reported participating in an onsite elective at their home institution (14, 70%), a full virtual away elective (7, 35%), a full onsite away elective (4, 20%), and none (2, 10%). Overall, students scored the ability of the IVE to provide an adequate introduction to RO higher after the experience (4 [4-5] vs 3 [3-4.25], $P = 0.10$)

Conclusion: MSs report that IVE experiences can provide an adequate introduction to RO, although they prefer a formal onsite away elective. These informal virtual activities could be used to introduce MSs to smaller, less accessible subspecialties such as RO, even when onsite rotations are again allowed.

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2357

Development of a United States Radiation Oncology Curricular Framework: A Stakeholder Delphi Consensus

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Purpose/Objective(s): A United States (US) radiation oncology (RO) curriculum, developed by key stakeholders using best practices for curriculum inquiry, is needed to guide residency education and qualifying examinations. Competency-based training, including entrustable professional activities (EPAs), provides an outcomes-based approach to modern graduate medical education. This study developed the first list of US RO EPAs and curricular content domains (CDs) to guide resident training and assessment in the modern era.

Materials/Methods: The Radiation Oncology Education Collaborative Study Group (ROECSG) Core Curriculum Project Leadership Committee (LC) developed initial EPAs and CDs. Following recruitment of stakeholders, a Delphi process was used for consensus. In the first Delphi, EPAs and CDs were reviewed for inclusion/exclusion, clarity, level of training (EPAs only), and time allocation (CDs only). Participants submitted additional EPAs/CDs for consideration. Any EPA or CD one standard deviation below the median underwent LC review. All participants completing the first Delphi were invited to the second. New EPAs or EPAs undergoing major revisions were re-reviewed. Percent allocated curriculum time was finalized for CDs and for a single subdomain (SD).

Results: 186 participants representing diverse RO stakeholder groups volunteered to participate. 114 completed the first Delphi (61.3%): 6/9 CDs met consensus, 1 CD was removed, 2 CDs were combined (Table 1). Of 114 invited, 77 participants completed the second Delphi (67.5%). Of 55 initial EPAs, 52 final EPAs met consensus. 4 SDs of a single CD (Applied Sciences) were reviewed and met consensus. Consensus on percent time allocated per CD and SD was reached (Table 1).

Conclusion: Deliberative curriculum inquiry was successfully used to develop a consensus on US RO CDs/SDs and EPAs. These data can guide educational time in training programs and help inform weighting for qualifying examinations. CDs are not exclusive; educators must ensure all CDs are considered when delivering curriculum content, regardless of the primary CD. RO-specific EPAs can guide clinical training and resident assessment. The Delphi should be used to reach consensus recommendations for SD content breakdown. Given the evolving nature of RO and the need for curriculum renewal, the Delphi process will be repeated on an interval basis.

Abstract 2357 – Table 1: Consensus of percent didactic time allocated to content domains

Content Domain	Percent
Clinical Oncology	63
Applied Sciences	16
Radiation Physics	40
Radiation and Cancer Biology	33
Biostatistics	15
Research Methods	12
Professionalism, Leadership and Interpersonal Communication Skills	8
Quality and Safety*	7
Bioethical and Legal Issues*	2
Diversity, Equity and Inclusion*	2
Personal Wellness	2

*These content domains should be integrated within other CDs. This represents additional dedicated curricular hours, independent of other content domains.

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