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## **Radiology Resident Education**

# **Cultivating Future Radiology Educators:**

## Development and Implementation of a Clinician-Educator Track for Residents

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Effective and dedicated educators are critical to the preservation and advancement of the practice of radiology. The need for innovative and adaptable educators is increasingly being recognized, with several institutions granting academic promotions through clinician-educator tracks. The implementation of resident "clinician-educator tracks" or "teaching tracks" should better prepare residents aspiring to become academic radiologists focused on teaching. In this work, we describe our experience in the development and implementation of a clinician-educator track for diagnostic radiology residents at our institution.

Key Words: Education; educator; path; radiology; resident; teaching; track.

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#### INTRODUCTION

xceptional clinical care, high-quality research, and transformative teaching remain at the crux of academic medicine and academic radiology. Underscoring the importance of dedicated and effective radiology educators, faculty clinician-educator tracks (CETs) for promotion are increasingly being recognized in many academic institutions (1). Faculty members on these tracks rely primarily on their recognized expertise as clinical radiologists and educators locally and beyond to qualify for academic promotion (1,2). At our institution for instance, clinician-educators are promoted through the Medical Educator and Service Track (for faculty hired before September 1, 2015), which requires teaching of medical students, residents, fellows, biomedical graduate students, and other trainees (3).

Reflecting the needs of aspiring academic radiologists, many radiology residency programs have also instituted pathways or tracks for residents to help focus on individual residents' academic interests and goals. Like many academic programs, our institution has a well-established resident research track (4). While we believe that research tracks remain the most common and most prominent track available for diagnostic radiology (DR) residents, radiology residency CETs have also

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been described (5). Similar teaching-centered tracks for residents have also been described in other subspecialties, including emergency medicine, internal medicine, and general surgery, among others (6–8).

In this communication, we discuss our experience with developing and implementing a CET for radiology residents.

#### **GUIDING PRINCIPLES AND GOALS**

Our CET curriculum was developed to complement and supplement, not supplant, traditional radiology residency educational objectives. Mirroring our institution's research track (4), the CET is anchored on three main operating goals: (1) to deliver uncompromised training in clinical radiology, (2) to provide a structured opportunity to excel in education in medicine in general and radiology in particular, and (3) to cultivate and develop proficiencies that will lead to a successful career in academic radiology that includes a focus on teaching.

#### IMPLEMENTATION AND ADMINISTRATION

The CET is steered and managed by the CET Committee, which consists of two faculty advisors and two senior CET residents, as chosen by the faculty advisors yearly. The CET Committee reports directly to both the DR residency program director and ultimately to the Vice Chair for Education of our department.

Administrative duties of the CET Committee, among others, include recruitment and selection of CET residents, speaker

recruitment for and scheduling of small group series (SGS) sessions, approval of requested academic days, approval of teaching and scholarly activities and Capstone Projects, and routine evaluation of CET residents.

#### **Recruitment and Admissions Process**

At its inception, the CET was opened to interested residents in their first (R1) and second (R2) years of radiology training. After this initial period, recruitment into the track was limited to R1 residents. The application process consists of submission of a current curriculum vitae, completion of the application form (Appendix S1), which consists of openresponse questions, and a brief interview with the CET Committee. These are used to gauge the applicant's level of interest and commitment to education. CET Committee members review the applications, which are rated based on the following criteria: prior academic performance, prior teaching experience, academic goals and interests, and commitment to academia. The applications of the highest ranking residents based on these criteria are then forwarded to the DR residency program director for final approval.

## CLINICIAN-EDUCATOR TRACK CURRICULUM STRUCTURE

To achieve the abovementioned goals, we provide CET residents with focused mentorship and formal instruction with

a structured curriculum while maintaining the rigorous clinical training afforded by our residency. The CET curriculum is longitudinal, designed to be completed through the 4 years of radiology residency (Table 1). The curriculum has three main components: (1) the small group series, (2) a teaching practicum, and (3) a Capstone Project.

#### **Small Group Series: Building on Theory**

Residents in the CET attend the monthly SGS sessions. SGS is an instructive forum designed to develop and build on skills that are, we believe, indispensable in becoming an effective educator. This series consists of a combination of didactic lectures, small group discussions, workshops, and skills sessions (Table 2). Each session is led either by a guest faculty or by a senior CET resident. SGS topics include adult learning and teaching theories, mentorship, education research, formative assessment and feedback, and leadership, among others. Past seminars and hands-on workshops have included creation of high quality lectures, preparation and review of manuscripts, and medical illustrations. During these monthly meetings, CET residents also update the group on future or ongoing projects, which allows residents to request feedback or invite collaboration and get more experience with creating and delivering presentations.

In addition to the SGS, resources inside and outside of our institution designed to build on knowledge and skills important

TABLE 1. Integration of Clinical and Academic Responsibilities within the Clinician-Educator Track (CET)			
Year 1 (R1)	Year 2 (R2)	Year 3 (R3)	Year 4 (R4)
CET responsibilities			
Select mentor(s) Organize teaching practicum experience	Start teaching practicum Start Capstone Project	Continue scholarly activities with priority focused on clinical responsibilities and preparation for the ABR Core Exam	Assumption of CET Committee membership (as appropriate) Continue scholarly activities
Begin to formulate Capstone Project	Complete annual CET Committee review	Complete annual CET Committee review	Prepare and submit manuscript(s) complete Capstone Project
Complete annual CET Committee review			Complete final CET Committee review
Clinical responsibilities			
Completion of first year core curriculum	Completion of second year core curriculum	Completion of third year core curriculum	Completion of individualized fourth year curriculum
Assumption of first year call responsibilities	Assumption of senior call responsibilities	Continuation of call responsibilities	Continuation of call responsibilities
ABR In-training Exam	ABR In-training Exam	Preparation and completion of ABR Core Exam ABR In-training Exam	ABR In-training Exam
Academic time		<b>G</b>	
1 d/mo during clinical rotations for SGS and scholarly projects	1 d/mo during clinical rotations for SGS, scholarly projects, and teaching activities	1 d/mo during clinical rotations for SGS, scholarly projects, and teaching activities	1 d/mo during clinical rotations for SGS, scholarly projects, and teaching activities
	Up to one 2-wk block of protected academic time with approved project	Up to one 2-wk block of protected academic time with approved project	Up to two 2-wk blocks of protected academic time with approved project

CET, clinician-educator track; SGS, small group series.

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