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Title: Challenging Advanced Learners through a Protected Longitudinal Curriculum: Innovations in Cardiology Fellowship Education

Category: Curricular innovation

Background: In clinical training programs involving complex intensive care and procedural rotations, patient care responsibilities are paramount, but can interrupt designated learning opportunities, and detract from direct supervision and mentorship. In the University of Cardiology Cardiovascular Diseases Fellowship, it was hypothesized that disrupted learning contributed to lower satisfaction, decreased focus on core cardiology topics, and higher risk of burnout among fellows.

Needs Assessment: In Spring 2020, an evaluation of the fellowship was conducted via structured, comprehensive and anonymous interviews. Data from these interviews highlighted that clinical duties, as well as deficits in faculty engagement and mentorship, detracted from fellows' ability to achieve the program's educational goals. There was consensus that a structured, longitudinal curriculum with protected educational time would be an optimal learning model; this inspired a curricular innovation of consolidating teaching conferences into a series of protected Academic Days (ADs).

Study innovation: Cardiology fellowship education was restructured into a longitudinal curriculum:

- Curriculum includes 20 topics, focusing on disease processes in cardiology, each with a dedicated monthly AD; selection of these core topics was in concordance with core educational objectives for the fellowship.
- During ADs, fellows are excused from all clinical responsibilities.
- Content, structure, and course faculty for ADs were determined by a collaborative team of faculty and fellows from multiple cardiac subspecialties.
- ADs integrate topics in cardiology, such as basic science and pathophysiology, imaging, interventional procedures, humanism and professionalism, and research.
- The AD series provides a platform for innovative teaching with simulation-based education, discussion of cutting-edge technologies with expert scientists, and incorporation of a professional development series.

Program Objectives:

- Creating a cohesive, longitudinal fellowship curriculum, with emphasis of high-yield topics.
- Integrating clinical cardiac subspecialties, basic science, and innovative research and new technologies.
- Incorporating simulation based experiences to facilitate learning and mastery of general cardiology skills as well as exposure to highly complicated subspecialty based procedures.
- Building highly engaging and safe learning environments that protect fellows from clinical duties.
- Cultivating intellectual curiosity, and supporting application of knowledge and skill to hypothetical scenarios.

- Encouraging opportunities for connection among fellows and faculty, including potential mentoring relationships.

Evaluation: During the 2021-2022 academic year, five ADs have been executed thus far. Following each AD, fellows submit an evaluation; based on feedback, modifications are made to future course content and structure. A global course assessment, with focused questions on satisfaction and burnout, will be performed at the end of the year.

Results: ADs have included 20 general fellows (required attendance), and 11 subspecialty fellows (optional attendance). AD surveys have been overwhelmingly positive, citing impact of dedicated time for learning, scope of content, enthusiasm and engagement of faculty, and chances to connect with co-fellows. Informal feedback from fellows and involved faculty have highlighted the program's innovation, and influence on fellowship culture.

Discussion: Implementation of protected ADs in a longitudinal curriculum has created new learning environments for expansion and application of knowledge, with positive impact on program culture. At the end of this academic year, formal evaluation of the curriculum will be conducted, with aims of assessing the effect of this innovation on fellows' professional development and fulfillment.