

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

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TAKE HOME POINT

A longitudinal cardiology curriculum prioritizes fellow education in a protected environment, and fosters community, curiosity and program culture.

Background		PROGRAM OBJECTIVES	DATA				
Needs Assessment	<ul style="list-style-type: none">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.	<ul style="list-style-type: none">Create a cohesive, longitudinal fellowship curriculum, with emphasis of high-yield topics.Integrate clinical cardiac subspecialties, basic science, and innovative research and new technologies.Incorporate simulation based experiences to facilitate learning and mastery of general cardiology skills as well as exposure to highly complicated subspecialty based procedures.Build highly engaging and safe learning environments that protect fellows from clinical duties.Cultivate intellectual curiosity, and supporting application of knowledge and skill to hypothetical scenarios.Encourage opportunities for connection among fellows and faculty, including potential mentoring relationships.	<ul style="list-style-type: none">During the 2021-2022 academic year, six ADs have been executed thus far.ADs have included 20 general fellows (required attendance), and 11 subspecialty fellows (optional attendance).Following each AD, fellows submit an evaluation; based on feedback, modifications are made to future course content and structure.Surveys include a summative question: “Overall, was today’s session helpful for your learning and clinical care?” (1-10, 10=best)<ul style="list-style-type: none">Ischemic Heart Disease, ACS Basics: 7 (<i>N</i> = 1)Electrophysiology Device Day: 9.1 (<i>N</i> = 11)Aortic Stenosis: 6 (<i>N</i> = 1)Heart Failure with Reduced Ejection Fraction: 8 (<i>N</i> = 2)Atrial Fibrillation: 8.7 (<i>N</i> = 6)New Frontiers in Basic and Translational Research: 4.5 (<i>N</i> = 5)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.Example quotes from feedback:				
	<ul style="list-style-type: none">Spring 2020: Evaluation of the fellowship was conducted via structured, comprehensive and anonymous interviews.Data highlighted that clinical duties, as well as deficits in faculty engagement and mentorship, detracted from fellows’ ability to achieve the program’s educational goals. Some quotes:						
	<p>The educational goals of the program, I think, are seldomly met because there’s so much clinical work to be done that it detracts from that avenue of the fellowship.</p> <p>I don’t think the majority of the faculty in this division is dedicated to fellow education. The reason I would say that is if you just look at our conferences, from top to bottom, there’s almost no faculty participation, except for whoever happens to be presenting.</p>	<table><tr><th colspan="2">Curriculum Sessions</th></tr><tr><td><ul style="list-style-type: none">Ischemic Heart Disease, ACS BasicsAortic StenosisAtrial FibrillationHeart Failure with Reduced Ejection FractionElectrophysiology Device DayAdult Congenital Heart Disease, Simple DefectsASCVD PreventionIschemic Heart Disease, Complex ManagementNew Frontiers in Basic and Translational ResearchPericardial Disease / Is that supposed to be there?</td><td><ul style="list-style-type: none">Cardio-OncologyWomen and Heart DiseaseSarcoidosisSudden Cardiac Death, Inherited Arrhythmia SyndromesAdult Congenital Heart Disease, Complex DefectsMarfan’s Syndrome, Peripheral Vascular DiseasePulmonary HypertensionAdvanced Heart FailureDyspneaMitral Stenosis, Mitral Regurgitation</td></tr></table>	Curriculum Sessions		<ul style="list-style-type: none">Ischemic Heart Disease, ACS BasicsAortic StenosisAtrial FibrillationHeart Failure with Reduced Ejection FractionElectrophysiology Device DayAdult Congenital Heart Disease, Simple DefectsASCVD PreventionIschemic Heart Disease, Complex ManagementNew Frontiers in Basic and Translational ResearchPericardial Disease / Is that supposed to be there?	<ul style="list-style-type: none">Cardio-OncologyWomen and Heart DiseaseSarcoidosisSudden Cardiac Death, Inherited Arrhythmia SyndromesAdult Congenital Heart Disease, Complex DefectsMarfan’s Syndrome, Peripheral Vascular DiseasePulmonary HypertensionAdvanced Heart FailureDyspneaMitral Stenosis, Mitral Regurgitation	<p>These dedicated academic days are amazing! This EP academic day was particularly high yield, I truly enjoyed every moment and learned so much.</p> <p>Really well put together academic day. Really enjoyed it.</p> <p>Overall really really great. I was never able to compartmentalize in the middle of the day on service. The zoom presentation would be on in the background and I wouldn’t be able to focus my attention. This is much better.</p> <p>Minor point, but since this is a breather education day, ending before 5pm would be a wonderful gift (allow chance to catch up on reading, exercise for once, etc).</p>
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	<ul style="list-style-type: none">There was consensus that a structured, longitudinal curriculum with protected educational time would be an optimal learning model. Feedback included:	<ul style="list-style-type: none">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.	<ul style="list-style-type: none">A global course assessment, with focused questions on satisfaction and burnout, will be performed at the end of the year.				
<p>I don’t think that we do a perfect job creating a systematic curriculum that goes throughout the year, that everyone can attend, that I think has very, very clear learning objectives, and this is what we should be learning in cardiology.</p> <p>I think that if we had some sort of structured curriculum, even if it’s just one half-day a week or something where we would go over some of the—maybe if it’s toward the end of the week, go over some of the interesting cases.</p>							
<ul style="list-style-type: none">This inspired a curricular innovation of consolidating teaching conferences into a series of protected Academic Days (ADs).							
		STUDY INNOVATION	DISCUSSION				
			<ul style="list-style-type: none">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.				