



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

FELLOWS-IN-TRAINING & EARLY CAREER SECTION

Reflections on the Fellows-in-Training and Early Career Section



Passing the Torch

Michael W. Cullen, MD,^a Garima Sharma, MD,^b Shashank S. Sinha, MD, MSc^c

When Dr. Fuster and his team launched the Fellows-in-Training (FIT) and Early Career (EC) Section in 2014, they took a chance. By inviting contributions by and for the FIT and EC community, the *Journal's* leadership broke new ground implementing a dedicated forum for FIT and EC cardiologists in a prominent scientific journal. As Dr. Fuster wrote in July 2014, he envisioned the FIT/EC Section as “a prominent forum to discuss the challenges and opportunities associated with being at an early stage of one’s career. I suspect we have much to learn from the distinctive insights of these thoughtful, young cardiovascular specialists” (1). Dr. Fuster and the editorial team later expanded the scope of the FIT/EC Section by incorporating a senior respondent into each publication, thus promoting intergenerational dialogue on these pages. These actions represented a significant investment from the *Journal* in the FIT and EC demographic. We had the distinct privilege of becoming FIT/EC Section Editors in early 2016. Dr. Fuster tasked us with executing his concept to provide compelling, high-quality content from the FIT and EC communities.

Over the last several years, we have witnessed remarkable submissions from our FIT and EC

colleagues. The FIT/EC Section published 136 articles from its inception in July 2014 through March 2020. Several themes emerged. The *Journal* published FIT/EC Sections on various aspects of mentorship, which speak to the ongoing appetite for developing broad and deep professional relationships among FITs, ECs, and our more seasoned colleagues (2-6). A number of FIT/EC Sections discussed international training or experiences (7-13). These pieces underscore the importance the FIT and EC communities place on crossing international boundaries, often to meet the needs of underserved populations. FIT/EC Sections frequently highlighted novel training pathways such as complex, higher-risk coronary interventions (14), critical care cardiology (15-17), sports cardiology (18), cardio-oncology (19), palliative care cardiology (20), and training in an integrated internal medicine/cardiology program (21). These papers showcase just a few of the innovative educational pathways the FIT and EC readership experiences on a daily basis.

As FIT and EC cardiologists build academic careers, these pages demonstrate involvement of burgeoning junior investigators in scholarly initiatives. Examples include clinical trials (22,23), big data and precision medicine (24,25), quality improvement (26-28), and medical education scholarship (29-31). Technology in clinical practice and education continues to advance. Discussions of text messaging (32,33), social media (34), and focused cardiac ultrasound (35,36) are just some of the innovations that this section has featured. These concepts will undoubtedly play a role in cardiology for years to come. Finally, several FIT/EC Sections addressed personal challenges. These include divorce (37), pregnancy (38-40), and parenting (41). These powerful pieces remind FIT and EC readers that no one should face struggles with work, personal, and family concerns in isolation. In keeping with the broader mission of the FIT/EC

From the ^aDepartment of Cardiovascular Medicine, Mayo Clinic, Rochester, Minnesota; ^bDivision of Cardiology, The Johns Hopkins Ciccarone Center for Prevention of Cardiovascular Disease, the Johns Hopkins University School of Medicine, Baltimore, Maryland; and the ^cInova Heart and Vascular Institute, Inova Fairfax Medical Center, Falls Church, Virginia. All authors have reported that they have no relationships relevant to the contents of this paper to disclose.

The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors’ institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the [JACC author instructions page](#).

Section, these personal challenges represent pervasive issues that we must address together.

In addition to acknowledging common themes, we would like to recognize our most cited papers in the *Journal's* FIT/EC Section. These include pieces addressing the growing field of cardio-oncology (19), the need for FIT and EC cardiologists to understand big data and health informatics (24), the importance of mentorship during fellowship (2), and the use of handheld ultrasound in the bedside diagnosis of cardiovascular disease (35). The most frequently viewed and downloaded FIT/EC Sections on the *Journal's* website also deserve recognition. They include “The Perfect ECMO Candidate” (42), “Women in Cardiology” (43), “The Emergence of Sports Cardiology as a Specialty” (18), and “International Medical Graduates in Cardiology Fellowship” (8).

This is certainly not an exhaustive list of the most influential FIT/EC Section papers. Publication of FIT/EC Sections addressing the themes above has been largely organic rather than intentional. These pieces all acknowledge prevailing challenges FIT and EC cardiologists face balancing clinical, scholarly, educational, and personal commitments.

It also became clear during our tenure as editors that the needs of FITs and EC cardiologists evolve (44-47). Earlier this year, we published 2 thematic series, the first on emerging specialties of cardio-metabolic disease, cardio-obstetrics, and cardio-rheumatology, and the second, most recently, on the impact of the coronavirus disease-2019 pandemic on FIT and EC professionals (48-54). These series epitomize the rapid changes in our field and emphasize the need for forums embracing the FIT and EC voice across academic cardiology journals.

Despite constant change and adaptation, the FIT/EC Section remains true to its mission: provide a forum for young cardiovascular specialists to discuss the early stages of one's career. The FIT/EC Section continues to seek submissions that are scholarly but not explicitly scientific. The page is not a forum for structured and formal presentation of novel scientific data, but we encourage authors to incorporate data from their own investigations into submissions. Authors must prepare submissions to the FIT/EC Section in an organized manner with a scholarly approach and sound theoretical or scientific foundation. We require meticulous attention to technically sound writing, a clear thesis statement, and organized supporting content. All FIT/EC Sections must offer a unique perspective relevant to the FIT and EC readership. They should acknowledge and build upon, not reiterate, prior FIT/EC Sections of a similar topic.

Finally, the *Journal* limits FIT/EC Sections to ≤ 3 authors and 1,500 words. All authors must be within 7 years of completion of their final stage of training. FIT/EC Sections may include a single table or figure, but we do not publish online-only or supplemental material.

Six years since inception, we hope that the FIT and EC communities demonstrated the value of the *Journal's* investment in their cultivation. We appreciate the willingness of the *Journal's* leadership to engage with FIT and EC cardiologists in this unique format. We hope our readers have found it successful.

After 4 years as section editors for the FIT/EC Section, change is due. Dr. Celina Yong, Assistant Professor at Stanford University School of Medicine and Director of Interventional Cardiology at VA Palo Alto Healthcare System, Dr. Jason Han, Cardiothoracic Surgery Resident at the University of Pennsylvania Perelman School of Medicine, and Dr. Muthiah Vaduganathan, cardiologist at Brigham and Women's Hospital and faculty at Harvard Medical School, will assume editorial responsibilities for the FIT/EC Section in July, 2020. You likely witnessed their excellent individual contributions on these pages to date. Our early experience with Drs. Yong, Han, and Vaduganathan as an editorial team and their record of publications reassures us that the FIT/EC Section remains in good hands.

We close with heartfelt gratitude. First, we thank Mrs. Justine Turco, Division Senior Director of Publishing for the American College of Cardiology. During our tenure, Mrs. Turco shepherded us through the submission review and manuscript publication processes. She ensured timely and accurate communication with corresponding authors and expanded our thinking about the scope of the FIT/EC Section. Most importantly, Mrs. Turco taught us much about the nature of scientific publications. We could not have done this without her.

We also offer our appreciation to Dr. Valentin Fuster for his commitment to our role as section editors. Dr. Fuster advocated for the FIT/EC Section as an outlet for novel ideas from its readership. He supported our editorial decisions and cultivated our academic and professional development. For this mentorship, we are grateful.

Finally, we thank you, our readers and authors. If our tenure as editors taught us nothing else, it demonstrated the creativity and ingenuity of the cardiology FIT and EC community, members of which we have been proud to call ourselves. We leave as FIT/EC Section editors secure in the knowledge that the FIT/EC Section of *JACC* remains capably lead.

To our FIT and EC colleagues, remember this: “The best way to predict the future is to create it.” As Dr. Fuster predicted 6 years ago, we still have much to learn from your thoughtful and distinctive insights. We eagerly anticipate reading your best work on these pages.

ADDRESS FOR CORRESPONDENCE: Dr. Michael W. Cullen, Department of Cardiovascular Medicine, Mayo Clinic, 200 First Street SW, Rochester, Minnesota 55905. E-mail: Cullen.Michael@mayo.edu. Twitter: [@mwcullen](https://twitter.com/mwcullen).

REFERENCES

- Fuster V. Lessons from the youth: simplicity and insightfulness. *J Am Coll Cardiol* 2014;64:111-2.
- Agarwal S. Mentorship During Fellowship. *J Am Coll Cardiol* 2014;64:1637-8.
- Sharma GV, Freeman AM. Mentoring: why it matters even after training. *J Am Coll Cardiol* 2014;64:1964-5.
- Sinha SS, Chazal RA, Cullen MW. Mentorship, leadership, and teamwork: harnessing the power of professional societies to develop nonclinical competencies. *J Am Coll Cardiol* 2015;66:1079-82.
- Flyer JN, Long A, Joong A. Improving peer mentorship: a novel fellow “house” program. *J Am Coll Cardiol* 2016;68:2907-10.
- Sperry BW, Valentine M, Grodin JL. Finding mentorship among your peers: sharing the wealth. *J Am Coll Cardiol* 2016;68:2585-7.
- Kalra A, Zoghbi WA. Organizing an international elective: a unique opportunity for cardiovascular fellows. *J Am Coll Cardiol* 2014;64:2429-31.
- Alsaied T, Baliga RR, Madueme PC. International medical graduates in cardiology fellowship: brain drain or brain gain? *J Am Coll Cardiol* 2015;65:507-10.
- Patel A, Vedanthan R. Organizing a career in global cardiovascular health. *J Am Coll Cardiol* 2015;65:2144-7.
- Albaghdadi M, Yacoub MH. Global cardiovascular health: a role for the interventionalist. *J Am Coll Cardiol* 2017;69:2461-4.
- Fabris E, Bode C, Kennedy MW. International subspecialty fellowship training, the path for cardiologists of tomorrow? A European perspective. *J Am Coll Cardiol* 2017;69:1200-3.
- Som S, Huffman MD. Deficiencies in global health training for cardiovascular fellows. *J Am Coll Cardiol* 2017;69:1748-52.
- Rubin G. Electrophysiology without borders. *J Am Coll Cardiol* 2018;72:693-6.
- Riley RF. Complex, higher-risk, and indicated PCI (CHIP) fellowship: putting training into practice. *J Am Coll Cardiol* 2020;75:980-4.
- Ramjee V. Cardiac intensivism: a view from a fellow-in-training. *J Am Coll Cardiol* 2014;64:949-52.
- Geller BJ, Fleitman J, Sinha SS. Critical care cardiology: implementing a training paradigm. *J Am Coll Cardiol* 2018;72:1171-5.
- Miller PE, Kenigsberg BB, Wiley BM. Cardiac critical care: training pathways and transition to early career. *J Am Coll Cardiol* 2019;73:1726-30.
- Afari ME, Molossi S. The emergence of sports cardiology as a specialty. *J Am Coll Cardiol* 2017;69:1509-12.
- Okwuosa TM, Yeh ETH, Barac A. Burgeoning cardio-oncology programs: challenges and opportunities for early career cardiologists/faculty directors. *J Am Coll Cardiol* 2015;66:1193-7.
- Crousillat DR, Keeley BR, Buss MK, Zheng H, Polk DM, Schaefer KG. Palliative care education in cardiology. *J Am Coll Cardiol* 2018;71:1391-4.
- Asad ZUA, Tunnell C. ABIM/ACC competency-based education pilot in internal medicine-cardiology: a fellow's perspective. *J Am Coll Cardiol* 2018;72:1422-6.
- Liu Y, O'Connor CM, Dai X. Fellow-initiated clinical trials: opportunities, challenges, and strategies. *J Am Coll Cardiol* 2015;66:324-7.
- Goyal P, Alpert C, Orkaby AR. Time to get going on involving FITs in clinical trials. *J Am Coll Cardiol* 2018;72:2802-5.
- Kim J, Groeneveld PW. Big data, health informatics, and the future of cardiovascular medicine. *J Am Coll Cardiol* 2017;69:899-902.
- Vaduganathan M, Ginsburg GS, Qamar A, Aragam K. Preparing fellows for precision cardiology: are we ready? *J Am Coll Cardiol* 2017;70:1675-9.
- Fleming LM. Subspecialist scholarship in quality improvement. *J Am Coll Cardiol* 2014;64:1064-5.
- Zhou W, Fonarow GC. Exploring opportunities in quality improvement during fellowship. *J Am Coll Cardiol* 2016;67:1859-62.
- Winchester DE. Quality improvement in cardiology practice: a fellows' program. *J Am Coll Cardiol* 2019;74:2533-7.
- Konerman MC, Smith SF, Alpert CM, Sinha SS, Fox KM. Learning to be a clinician-educator: a fellow-driven curricular reform. *J Am Coll Cardiol* 2016;67:338-42.
- Alpert CM, Sinha SS, Cullen MW. Teaching tomorrow's teachers: an innovative model of clinician-educator development for fellows-in-training. *J Am Coll Cardiol* 2019;73:2900-3.
- Cullen MW. Cardiovascular education science: a worthy pursuit for fellows-in-training and early career cardiologists? *J Am Coll Cardiol* 2019;74:2322-5.
- Frizzell JD, Steinhilb SR, Ahmed B, Topol EJ. Text messaging versus paging: new technology for the next generation. *J Am Coll Cardiol* 2014;64:2703-5.
- Kochar A, Rymer J, Samad Z, et al. Disrupting fellow education through group texting: WhatsApp in fellow education? *J Am Coll Cardiol* 2018;72:3366-9.
- Widmer RJ, Meier P, Larsen CM. Call for FITs/ECs to become engaged with social media. *J Am Coll Cardiol* 2016;68:422-5.
- Wiley B, Mohanty B. Handheld ultrasound and diagnosis of cardiovascular disease at the bedside. *J Am Coll Cardiol* 2014;64:229-30.
- Almufleh A, Di Santo P, Marbach JA. Training cardiology fellows in focused cardiac ultrasound. *J Am Coll Cardiol* 2019;73:1097-100.
- Daily JA. Divorce among physicians and medical trainees. *J Am Coll Cardiol* 2019;73:521-4.
- Moe TG. Pregnancy in fellowship: building a career and family. *J Am Coll Cardiol* 2014;64:734-6.
- Hauguel-Moreau M, Best PJM, Adjedj J. Managing pregnancy as an interventional cardiologist fellow-in-training: my experience with a simulator. *J Am Coll Cardiol* 2016;68:1916-9.
- Yong CM, Mehran R. Breaking the catheterization laboratory ceiling. *J Am Coll Cardiol* 2017;69:2668-71.
- Lee M, Lee MA. Father's day. *J Am Coll Cardiol* 2017;70:1417-9.
- Han JJ, Abrams D, Swain JD, Garan AR, Brodie D. The perfect ECMO candidate. *J Am Coll Cardiol* 2018;71:1178-82.
- Oza NM, Lewis S, Breathett K. Women in cardiology: fellows' perspective. *J Am Coll Cardiol* 2015;65:951-4.
- Sharma G, Fuster V, Cullen MW, Sinha SS. The evolution of the fellows-in-training and early career professionals' page: past, present, and future. *J Am Coll Cardiol* 2017;69:104-6.
- Cullen MW, Sinha SS, Sharma G. New beginnings, new transitions: a bold vision for the journal's fellows-in-training and early career page. *J Am Coll Cardiol* 2018;71:98-100.
- Sinha SS, Cullen MW, Sharma G. The 5-year anniversary of the fellows-in-training and early career page: reflections on a journey. *J Am Coll Cardiol* 2019;73:243-5.
- Cullen MW, Sinha SS, Sharma G. Fellows-in-training and early career section: emerging specialties for a new year. *J Am Coll Cardiol* 2020;75:1231-2.
- Almarzooq Z, Lopes M, Kochar A. Virtual learning during the COVID-19 pandemic: a disruptive technology in graduate medical education. *J Am Coll Cardiol* 2020:2635-8.

- 49.** DeFilippis EM, Stefanescu Schmidt AC, Reza N. Adapting the educational environment for cardiovascular fellows-in-training during the COVID-19 pandemic. *J Am Coll Cardiol* 2020;2630-4.
- 50.** McCarthy CP, Chang L-S, Vaduganathan M. Training the next generation of cardiometabolic specialists. *J Am Coll Cardiol* 2020;75:1233-7.
- 51.** Sharma G, Lindley K, Grodzinsky A. Cardio-obstetrics: developing a niche in maternal cardiovascular health. *J Am Coll Cardiol* 2020;75:1355-9.
- 52.** Sinha SS, Sharma G, Cullen MW. The crucible of crisis: fellows' in training and early career cardiologists' responses to the COVID-19 pandemic. *J Am Coll Cardiol* 2020:2627-9.
- 53.** Yong C. COVID-19: the isolation that has brought us together. *J Am Coll Cardiol* 2020:2639-41.
- 54.** Yoo BW. Embarking on a career in cardiorheumatology. *J Am Coll Cardiol* 2020;75:1488-92.