was partly funded by the Health Research Council of New Zealand (HRC13/556).

1. Babl FE, Borland ML, Phillips N, et al. Paediatric Research in Emergency Departments International Collaborative (PREDICT). Accuracy of PECARN, CATCH and CHALICE head injury decision rules in children. A prospective cohort study. *Lancet*. 2017;389:2393-2402.
2. Dalziel K, Cheek JA, Fanning L, et al. A cost-effectiveness analysis comparing clinical decision rules PECARN, CATCH, and CHALICE with usual care for the management of pediatric head injury. *Ann Emerg Med*. 2019;73:429-439.
3. Mower WR, Hoffman JR, Herbert M, et al. Developing a decision instrument to guide computed tomographic imaging of blunt head injury patients. *J Trauma*. 2005;59:954-959.
4. Kuppermann N, Holmes JF, Dayan PS, et al. Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study. *Lancet*. 2009;374:3-9.
5. Lyttle MD, Crowe L, Oakley E, et al. Comparing CATCH, CHALICE, and PECARN clinical decision rules for paediatric head injuries. *Emerg Med J*. 2012;29:785-794.
6. Babl FE, Oakley E, Dalziel SR, et al. Accuracy of NEXUS II head injury decision rule in children. A prospective PREDICT cohort study. *Emerg Med J*. 2019;36:4-11.

Transesophageal Echocardiography Use During Cardiopulmonary Resuscitation

To the Editor:

We congratulate the authors of the well-done and important study showing the benefits of transesophageal echocardiography (TEE) during cardiopulmonary resuscitation (CPR) and would like to make some comments.[1]

The utility and accuracy of diagnosis using TEE during CPR has been known for greater than 20 years.[2] In addition to shortening the pauses in CPR to maximize the compression fraction, TEE has the additional benefits of giving real-time feedback on cardiac compression, improving hand positioning on the sternum to optimize blood flow and limit left ventricular outflow obstruction.[3] It also can detect subtle ventricular fibrillation that was thought to be asystole, resulting in defibrillation's being applied.[4] We applaud the authors for avoiding the usage of the term "resuscitative" to describe TEE, which, although appearing often in recent publications, is inaccurate and misleading because the TEE is purely diagnostic but obtains vital information that allows appropriate resuscitation strategies and procedures, the therapies that are the actual resuscitation. Because there are already several terms in current use for augmented CPR, such as extracorporeal-CPR for use of extracorporel membrane oxygenation during CPR and telemedicine-CPR for telephone operator instructions during CPR, we suggest TEE-CPR or alternatively the broader term "TEEGR" for TEE–guided resuscitation.[5]

Last, we would like to highlight that successful practice integration of newer technologies, such as point-of-care TEE, can be difficult for postgraduate physicians. Significant institutional and group support, such as compensation for credentialing, has been shown to be effective in implementing point-of-care ultrasonographic programs.[6]

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1. Fair J, Mallin MP, Adler A, et al. Transesophageal echocardiography during cardiopulmonary resuscitation is associated with shorter compression pauses compared with transthoracic echocardiography. *Ann Emerg Med*. 2019;73:610-616.
2. Van der Wouw PA, Koster RW, Delemarre BJ, et al. Diagnostic accuracy of transesophageal echocardiography during cardiopulmonary resuscitation. *J Am Coll Cardiol*. 1997;30:780-783.
3. Hwang SO, Zhao PG, Choi HJ, et al. Compression of the left ventricular outflow tract during cardiopulmonary resuscitation. *Acad Emerg Med*. 2009;16:928-933.
4. Teran F, Dean AJ, Centeno C, et al. Evaluation of out-of-hospital cardiac arrest using transesophageal echocardiography in the emergency department. *Resuscitation*. 2019;137:140-147.
5. Birkenes TS, Myklebust H, Neset A, et al. Quality of CPR performed by trained bystanders with optimized pre-arrival instructions. *Resuscitation*. 2014;85:124-130.
6. Budhram G, Elia T, Rathlav N. Implementation of a successful incentive-based ultrasound credentialing program for emergency physicians. *West J Emerg Med*. 2013;14:602-608.

What We Consider Emergency Medicine Research and Promoting Success of Aspiring Researchers of New Areas

To the Editor:

Consecutive articles addressing paths of research pioneers by Coates et al[1] and fragility of randomized controlled trials in emergency medicine by Brown et al[2] in the June 2019 edition of *Annals* illustrate a major hurdle for aspiring researchers of new areas of

emergency medicine research–overcoming limits on how we define emergency medicine research in the first place.

The intent of the former article was to inform conditions that would promote success of researchers of a new area of emergency medicine study (ie, medical education). The latter article reported results of a systematic review of randomized controlled trials in emergency medicine. In terms of my own focus, I noted that neither study mentioned research of infectious diseases in emergency departments (EDs) as emergency medicine research. Perhaps missing the covered wagon period, this work still represented 3 decades of ED-based investigations, including multiple randomized controlled trials that are the basis for current treatment guidelines.[3-8]

I recall in the 1980s when I met with my new department chair, who was a toxicologist, and he asked about my goals. I said I wanted to study the intersection of infectious diseases and emergency medicine. His response was something like, "That's the stupidest idea I've ever heard," or at least that's what I remember hearing. He explained that, unlike toxicology, infectious diseases was not encompassed by emergency medicine, there already being infectious disease specialists in the Department of Medicine. Talk about feeling like an underdog, the term Coates et al used to describe a common feeling among our research pioneers. But for me, it was not only that federal granting agencies doubted whether clinical trials could be conducted in EDs, which were viewed as chaotic and frequented by patients not easy to follow, but also that there was doubt about the core value of my type of research within my own specialty. In the June issue, we see the more typical focus on topics such as cardiac arrest and trauma. Aspiring emergency medicine medical education researchers may face the same type of rejection that might have stopped me in my tracks. Instead, I proceeded to get more training, find mentors, and network, the same steps identified by the interviewed research pioneers pursuing the authors' more limited definition of emergency medicine research in 2019.

The point is that among our biggest challenges to promoting success of new investigators of new disciplines is expanding how we think of the bounds of emergency medicine research, from emergency medicine researchers of research to department chairs to emergency medicine professional society grant committee members to journal editors. Any area that could importantly affect care of ED patients is a legitimate research priority that should be supported, including the education of those who provide it. If we thought appendicitis research should only be done by surgeons, then we'd have missed the emerging realization that peritonitis and not appendicitis is a surgical emergency, as well as the potential for ED management and discharge on antibiotics.[8] Similarly, we shouldn't assume that medical education research is the exclusive domain of nonclinicians in the Dean's office. We need education researchers from our specialty to help us know how best to teach unique simultaneously applied skills of efficiency, pattern recognition (and how not to impose one that doesn't fit), and rapid and accurate decisionmaking and procedural competence.

A broader vision of the scope of our research agenda has already allowed leadership in research and its clinical application for other areas (eg, ultrasonography) once considered solely within the realm of other specialists blind to the unique needs of patients in our setting. This broader vision will be increasingly important in promoting our specialty's advancement.

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1. Coates WC, Yarris LM, Clarke SO, et al. Research pioneers in emergency medicine—reflections on their paths to success and advice to aspiring researchers: a qualitative study. *Ann Emerg Med*. 2019;73:555-564.
2. Brown J, Lane A, Cooper C, et al. The results of randomized controlled trials in emergency medicine are frequently fragile. *Ann Emerg Med*. 2019;73:565-576.
3. Santibanez S, Fisher LS, Krishnadasan A, et al. EMERGEncy ID NET: review of a 20-year multi-site emergency department emerging infections research network. *Open Forum Infect Dis*. 2017;4:ofx218.
4. Talan DA, Stamm WE, Hooton TM, et al. Comparison of ciprofloxacin (7 days) and trimethoprim/sulfamethoxazole (14 days) for acute uncomplicated pyelonephritis in women: a randomized trial. *JAMA*. 2000;283:1583-1590.
5. Moran GJ, Krishnadasan A, Gorwitz RJ, et al. Methicillin-resistant S *aureus* infections among patients in the emergency department. *N Engl J Med*. 2006;355:666-674.
6. Talan DA, Mower WR, Krishnadasan A, et al. Trimethoprim-sulfamethoxazole versus placebo for uncomplicated skin abscess. *N Engl J Med*. 2016;374:823-832.
7. Moran GJ, Mower WR, Krishnadasan A, et al. Effect of cephalexin plus trimethoprim-sulfamethoxazole vs cephalexin alone on clinical cure of

uncomplicated cellulitis: a randomized clinical trial. *JAMA*. 2017;317:2088-2096.
8. Talan DA, Saltzman DJ, Mower WR, et al. Antibiotics-first vs surgery for appendicitis: a US pilot randomized controlled trial allowing outpatient antibiotic management. *Ann Emerg Med*. 2017;70:1-11.

In reply:

In his Letter to the Editor,[1] Dr. Talan echoed the most prevalent themes we identified during our interviews with research pioneers in emergency medicine.[2] To establish the now-recognized field of emergency care research, the pioneers we interviewed recounted similar frustrations of gaining respect for their research, in which emergency care intersected with more established disciplines and their funding agencies. Two examples that were new to our pioneers decades ago are traumatic brain injury research and cardiovascular diseases research, both of which have a high prevalence of patients in emergency medicine and were noted by Dr. Talan to be common topics in the June 2019 issue of *Annals*.

We reported that the pioneers took a systematic approach to improve their scientific skills through formal training programs (degrees or postresidency fellowships), and many partnered with successful non–emergency medicine research mentors, who brought them up to speed in their methodology and facilitated their assimilation into the larger scientific research community, including the opportunity to interact with funding agencies at the federal level. As a specialty, emergency medicine's organizations (Society for Academic Emergency Medicine and American College of Emergency Physicians) supported the mission by building an infrastructure of training and networking and provided seed funding to fledgling researchers. We can see today that these were effective strategies and propose that for nascent areas of research in emergency medicine, researchers can adopt similar strategies to streamline success.

We chose one newer research area in emergency medicine (medical education) to serve as an example for the pioneers to consider. Their advice, however, is relevant to any emerging research area and to new researchers in established disciplines. Emerging researchers should find appropriate mentors within and external to emergency medicine to guide them toward mastery of their subject matter and the appropriate methodology needed to study it. Emergency medicine organizations should continue to facilitate networking so that new researchers can find their community and engage in self-advocacy. Appropriate seed funding is beneficial for career development and to create a critical mass of experts within a given subspecialty research field. It is likely that we are not yet even aware of future important research areas in our specialty, much the same as currently popular fields, such as simulation and ultrasonography, were not prevalent 25 to 30 years ago when our pioneers were novices. Forging the way for a new type of research is hard. There are common barriers and cornerstones to success that the pioneers identified. We agree with Dr. Talan's overall message that any research that has implications for emergency medicine and the practicing physicians and trainees of the specialty should be valued, fostered, and supported.

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