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## Editorial

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# Educating the educator in clinical and translational research

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In order to sustain and advance a vibrant and innovative field of inquiry, educators of clinical and translational science (CTS) need to be continuously informed and embrace evolving best practices in learning science and evidence-based pedagogy. Our experience during the last 2 years has highlighted the importance of adaptability in teaching methods to ensure we optimally meet the needs of a vast and increasingly diverse learner community. An assessment of educational content in the Journal of Clinical and Translational Science (JCTS) revealed that the Journal has served as a rich repository of novel and impactful programmatic efforts in CTS education. Similarly, it also revealed an opportunity to enhance the content focused on optimal pedagogical frameworks and strategies for CTS educators. As current and prior members of the ACTS Education Committee, we proposed an Education Themed Issue to address this observation that is intentionally designed to focus on teaching best practices relevant and tailored to the education of our CTS learning community. In consultation with the JCTS Editorial team, we agreed as a group that this was a novel, timely and important mechanism to advance best pedagogical practices for CTS science education.

We designed the issue to be comprised of three types of submissions. The first category, which focuses on the "Fundamentals of Educating Others," includes both competency and noncompetency-based approaches. The invited authors of these papers provide an overview of the principles of pedagogy, best practices to frame educational initiatives and goals to achieve competency, and best practices for approaching specific types of learners and learning environments. The second type of submission focuses on select novel educational approaches, tools, or methods that render challenging topics more digestible and, in doing so, enable clinical and translational scientists to be more effective and innovative educators and communicators of their science. Following an internal review process, the group selected five evidenced-based reviews and special communications that describe best practices for: (1) the use of gamification in CTS education; (2) the use of storytelling to communicate CTS to a broad audience of learners; (3) the use of online learning/instructional technology techniques to advance learning; (4) addressing and diversifying the CTS pipeline; and (5) education focused on dissemination and implementation science. In selecting topics for inclusion in this second category, we were mindful to reflect the diversity of scientific perspectives, disciplines, and geographic regions. Additionally, we encouraged coauthorship where appropriate to align similar domains and extend opportunities for authorship. The third category includes eight Brief Reports resulting from a "Call for Submissions" sent to the CTS community seeking exemplars that illustrate best practices currently in action.

There are topical connections between submissions that provide readers with both overarching reviews of topics complemented with brief reports that delve deeper into specific examples of a teaching method. For example, a brief report focused on the use of storytelling as a mechanism to train CTS scientists how to disseminate scientific information is included, together with a broad overview of the use of storytelling in science. Innovative teaching methods such as the use of gamification and un-meetings highlight the benefits of deploying novel teaching strategies to training translational scientists and research professionals, respectively. The manuscript on the use of un-meetings could not be more timely given the attrition rate of clinical research professionals. There are four additional subject matter areas for readers to enjoy that could not be more prescient, educating scientists on (i) how team science can promote inclusive excellence, (ii) how to engage with the communities we serve throughout the scientific process, (iii) novel approaches to ensure we train a diverse and inclusive workforce, and (iv) optimizing the impact of discoveries through approaches to implementation science education.

We hope that the readers enjoy the papers included in this thematic issue. We also hope the overall impact of the themed issue informs and provides a framework for educational practices across the CTSA consortium and beyond. We believe the content will stimulate educators to use and continue to develop best practices in creating and implementing training efforts based on

theoretical educational frameworks with the overall goal to improve learning and practice of rigorous and reproducible research that impacts the health of diverse populations. Finally, we would like to thank all the authors who rose to the challenge of contributing to this issue and thank the editorial staff of JCTS for their assistance.

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