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4531

Setting the Stage for Research Success: Creation of Standardized Physician-Scientist Training Program Guidelines to Facilitate Research During Clinical Training

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OBJECTIVES/GOALS: To ameliorate the leaky pipeline of physician-scientists, we must address the factors that cause medical trainees to disengage from research. Here we describe the development of standardized Physician-Scientist Training Program guidelines that may be implemented across disciplines to address these challenges. METHODS/STUDY POPULATION: Maintenance of a robust pool of physician-scientists is critical to meet the rapidly growing need for novel therapeutics. A variety of factors contribute to the decline of this pool. Key among these are a lengthy training period that segregates research from clinical training, thus impeding research progress and milestones that allow for a successful research career. Through engagement of residency program directors and Vice Chairs of Research, we have created a series of guidelines that promote residency research tracks and enable better integration of research and clinical training time. Guidelines have been piloted in the Departments of Pediatrics, Medicine and Surgery in the context of 2 new R38-supported programs. RESULTS/ANTICIPATED RESULTS: Our physician-Scientist Training Program (PSTP) guidelines were developed by our central Office of Physician-Scientist Development (OPSD) after a successful pilot of an integrated research residency program in the Department of Pediatrics [Duke Pediatric Research Scholars (DPRS); Hurst, et al, 2019], which has included 36 resident and fellow scholars over 3 years. To date, eight clinical departments have adopted our PSTP guidelines as part of their R38-supported or pending programs. The OPSD has recently created a tracking database for scholar metrics, which will further promote PSTP development by enabling centralized reporting on scholar success to individual programs. DISCUSSION/SIGNIFICANCE OF IMPACT: PSTP guidelines enable effective implementation of new programs by sharing best practices and lessons learned, standardizing expectations, and defining metrics of success. By promoting proven strategies for integrated clinical and research training, PSTP guidelines may aid in retaining trainees pursuing research careers.

4443

Tailoring Professional Development to CTS Trainees

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OBJECTIVES/GOALS: Penn instituted a Professional Development Core (PDC) to complement existing CTS education programs. Sessions were designed to advance participant knowledge and skills in key competency areas including communication, expectation setting, implicit bias and organizational structure, self-efficacy and resilience in order to enhance abilities to successfully execute career and research goals. METHODS/STUDY POPULATION: The PDC enrolled 4 cohorts totaling 87 trainees and scholars from 2016-2019. This included 35% predoctoral trainees (27 MD, 3 PhD), 39% postdoctoral trainees (29 MD, 3 PhD, 2 VMD/DVM), and 26% junior faculty (16 MD, 6

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MD/PhD, 1 PhD). The two-year curriculum consists of 14 lunch-time sessions held bimonthly during academic terms. Session structures include a variety of interactive presentations, activities and facilitated discussions as well as reading material, assessment tools, and case studies. Facilitators include topic experts in academia, entrepreneurship, communications, and professional and personal development. The program is evaluated qualitatively through student satisfaction surveys after each session. RESULTS/ANTICIPATED RESULTS: Of the 2018-2019 participants, 90.8% rated the overall quality of PDC sessions as Very Good (56.05%) or Outstanding (34.75%). DISCUSSION/SIGNIFICANCE OF IMPACT: Feedback indicates that the group benefited from combining predoctoral and postdoctoral trainees, although not all content was immediately relevant to early stage trainees. Trainees appreciated the opportunity to engage with experts in disciplines typically considered outside of traditional science but critical to CTS career success. The flexibility of the curriculum allowed for inclusion of timely topics, newer suites of sessions focus on the multiple dimensions of valuing your science.

4039

The Development of a Mentored Writing Workgroup

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OBJECTIVES/GOALS: The purpose of the mentored writing workgroup developed at The CCTS at the Rockefeller University (CCTS RU) was to promote scholarship among clinical research nurses (CRN). The goal was to publish and/or present their projects at national professional association meetings. METHODS/STUDY POPULATION: A two-part writing workshop was presented at RU in December 2018 and January 2019. Members of the RU nursing staff and CRNs from local institutions were invited to attend. Twenty-four CRNs participated in the workshops. The first workshop focused on the writing process, styles of writing and how to get started. The second concentrated on components of a manuscript, categories of papers, selection of the journal, and communications with the editorial team. After the workshops, the CRNs from RU was offered the opportunity to participate in the mentored writing workgroup. To participate, the CRN had to agree to attend scheduled writing meetings and submit written work for each session. The scheduled submission of written materials ensured the CRN was committed to completing their manuscripts or presentations. RESULTS/ANTICIPATED RESULTS: Three CRNs from RU participated in the writing workgroup. Two papers were accepted for publication, and one manuscript is under-review, two abstracts accepted by an international professional organization, and two presentations conducted at an area nursing school and medical center. DISCUSSION/SIGNIFICANCE OF IMPACT: A mentored writing workgroup wherein participants commit to attend writing meetings and to submit written materials in a scheduled-matter can promote scholarship. CONFLICT OF INTEREST DESCRIPTION: NA.

4484

The Entrepreneurship for Biomedicine (E4B) Training Program

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OBJECTIVES/GOALS: Regardless of their career choices, today's biomedical researchers need to blend great science with core skills ininnovation and entrepreneurship (I&E). The objective of this NIH-funded education program was to develop and test a pragmatic training program to teach relevant I&E skills. METHODS/STUDY POPULATION: We used a modified Delphi approach to identify 15 relevant competencies for I&E and the essential topics to include in the program. Learner interviews identified preferences for online training programs (short, high-quality audio-visual content, ability to self-navigate, peer and instructor interactions). The inaugural program included 7 short, online courses that addressed how to identify and validate opportunities for innovation, sell your innovation to diverse audiences, assess its ethical consequences, work in teams, and develop resilience as an innovator. It also included mentor support, a team-based capstone project, and an optional in-person boot camp. RESULTS/ANTICIPATED RESULTS: 51 students enrolled and 41 participants from 9 institutions completed the program, including pre- and post-doctoral students and junior faculty. They organized into 10 teams to complete the capstone project, with 6 teams pitching their innovation to fellow students and mentors at the boot camp. Students rated satisfaction with courses highly overall, with 79% stating they would be disappointed if the program was no longer available. Preliminary results suggest participants increased their knowledge about and ability to perform tasks taught throughout the program. Suggestions for improvement included providing more practical advice and real-world examples to complement educational videos. DISCUSSION/SIGNIFICANCE OF IMPACT: The inaugural E4B program was well received and effective in increasing I&E skills. Improvements will include increased opportunity for mentor interactions and for advanced entrepreneurial training. The program is open for biomedical research trainees from all institutions with a CTSA award.

4515

The Impact of First Level Training Cycles (FLTCs) on Clinical and Translational Research (CTR) in knowledge and interest in CTR of students (S) and faculty (F) from health professions and basic science programs island wide in Puerto Rico (PR)

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OBJECTIVES/GOALS: To assess the impact of FLTCs on CTR on S and F from health professions and basic science academic programs island wide in Puerto Rico. Cycles supported by the Title V Cooperative Project at University of Puerto Rico-Medical Sciences Campus (UPRMSC) and Universidad Central del Caribe (UCC)(Title V). METHODS/STUDY POPULATION: After offering FLTCs in CTR to S and F from UPRMSC and UCC, Title V expanded it to S and F from other institutions island wide in PR. These FLTCs

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