

evaluate pre-to-post participation changes and reviewed free responses for additional context. **RESULTS/ANTICIPATED RESULTS:** From June 2023 to September 2024, 21 people (12 post-docs/1 research assistant professor/7 tenure-track assistant professors/1 other; 13 female) were enrolled in 4 sessions. Seven people did not finish the sessions and were lost to follow-up. For the 14 participants who completed both the entry and exit survey, perceived preparedness for grant submission increased from 30.1 ± 23.5 to 67.1 ± 24.6 ($p = 0.001$). Funding confidence in securing funding also increased from 40.8 ± 19.1 to 64.0 ± 20.7 ($p = 0.003$). Participants valued the structure and accountability of the groups and reported other benefits, such as improved writing skills. Opportunities for feedback were also appreciated, with one participant stating, “I learned to face my fear of constructive criticism.” **DISCUSSION/SIGNIFICANCE OF IMPACT:** Coaching improved perceived preparedness for grant submission and confidence in securing funding for participants’ current submissions and provided potentially durable benefits such as receiving and positively responding to constructive feedback. The impact of such programs likely exceeds the short-term financial return on investment.

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Empowering future healthcare leaders and clinical researchers across a decade: UCLA’s Clinical and Translational Science Institute – Research Associates Program[†]

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OBJECTIVES/GOALS: To assess the impact of UCLA’s Clinical and Translational Science Institute Research Associates Program (CTSI-RAP), a student-led undergraduate clinical research initiative, on current members’ career interests and development. **METHODS/STUDY POPULATION:** To evaluate CTSI-RAP’s impact, we surveyed students using the REDCap platform between May and June 2023. The survey captured data on demographics, academic background, motivations for joining, and engagement in clinical research activities. Students also provided self-assessments of how the program influenced their career interests. Both descriptive and qualitative analyses were then used to assess key factors influencing students’ experiences, including the program’s impact on career decisions in healthcare and clinical research. **RESULTS/ANTICIPATED RESULTS:** Out of 43 students surveyed, 40 responded (93%). Before entering, 84.2% of students had less than one year of research experience, and most students (73.6%) did not have family members in healthcare or research professions. Top reasons for joining were gaining clinical research exposure, healthcare setting experience, and pursuing healthcare careers. Overall, 97% of students stated CTSI-RAP “definitely” or “most probably” confirmed their interest in medicine and 76% of students reported CTSI-RAP has “definitely” or “most probably” solidified their interest in clinical research. 100% of students who have applied for a job, professional school, scholarship, or internship included CTSI-RAP as a meaningful experience, reflecting the program’s mission to provide motivations for a career in medicine and science. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Since its establishment in 2013, CTSI-RAP has expanded from 15 students to more than 50 annually, providing hands-on clinical research and professional development opportunities. The program’s peer-mentorship

and student-led approach have proven effective in preparing students for diverse healthcare and research pathways.

[†]This abstract has been updated since the original publication. A corrigendum detailing these changes has been published (doi: [10.1017/cts.2025.75](https://doi.org/10.1017/cts.2025.75)).

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The effects of micro credentials in training clinical research professionals at a National Cancer Institute

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OBJECTIVES/GOALS: Micro-credentialing programs provide a rapid solution to the growing shortage of clinical research professionals (CRPs) by expanding the applicant pool and improving training efficiency. This study evaluates the impact of a micro-credential course on CRP education and its potential to reduce staffing shortages. **METHODS/STUDY POPULATION:** To address the CRP staffing shortage, new and existing clinical research staff at the Rutgers Cancer Institute of New Jersey (CINJ) participated in a micro-credential badging course developed by NJ ACTS and Rutgers’ Master’s in Clinical Research Management Program. The course focused on key clinical research topics designed to equip participants with foundational knowledge. Post-completion, surveys were administered to both participants and CINJ management to assess the program’s effectiveness. The survey measured perceived knowledge gains, interest in further opportunities, and the program’s potential to alleviate staffing shortages. Survey results were analyzed to determine the program’s overall impact on CRP education and staffing challenges. **RESULTS/ANTICIPATED RESULTS:** Survey results demonstrated significant knowledge gains among participants, with 85% reporting increased confidence in clinical research topics after completing the micro-credential course. Additionally, 70% of participants expressed interest in pursuing further opportunities in the field. CINJ management reported smoother onboarding processes and noted an improvement in job readiness among new hires. The CRC Badge has since been integrated into CINJ’s formal onboarding process. Overall, the micro-credential program contributed to expanding the CRP applicant pool, improving training efficiency, and offering a short-term solution to alleviate staffing shortages. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This research demonstrates the effectiveness of micro-credentialing in addressing the critical shortage of CRPs. By rapidly equipping staff with essential knowledge, the program broadens the applicant pool, enhances onboarding, and offers an immediate solution to workforce gaps.

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A customizable training curriculum for developing and enhancing clinical research professional expertise and performance across a five-state region

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OBJECTIVES/GOALS: The Competency-Based All-Level Training (COBALT) curriculum standardizes learning for clinical research coordinators (CRCs) across multiple institutions within Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI), with flexible, topic-specific training at all experience levels, in both academic and industry-sponsored research. **METHODS/STUDY POPULATION:** The COBALT curriculum was developed in collaboration with subject matter experts, managers of CRCs, and other clinical research professionals from institutions across the WWAMI region. A thorough assessment of existing training programs within the region helped identify gaps and unmet needs. The curriculum was designed within a user-friendly learning management system that can be accessed across institutions. It has been piloted with diverse groups and committees of CRCs, professionals, and institutional leaders in clinical and translational science. Ongoing evaluation is being conducted qualitatively using built-in assessment surveys, demonstrations, and interviews. **RESULTS/ANTICIPATED RESULTS:** The anticipated outcome is the creation of a highly standardized and efficient training program for clinical research professionals across multiple institutions in the WWAMI region. This program will be carefully tailored to each professional's level of experience, ensuring personalized skill development. By aligning training with diverse expertise levels, the initiative aims to significantly elevate the quality, consistency, and overall performance of clinical research efforts across the regional research community. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The COBALT curriculum provides a vetted learning curriculum for CRCs, with a tailorable training plan that helps them collaborate with their supervisors to tailor training to their career goals. This ensures that the curriculum is not only comprehensive but also adaptable to individual needs.

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An algebra assessment and primer for future clinical and translational scientists entering training

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OBJECTIVES/GOALS: Trainees in clinical and translational science (CTS) take courses in biostatistics, epidemiology, and other quantitative areas. To be most successful, trainees require competency in algebra. We developed a quantitative assessment and study guide to assess trainee's quantitative skills and provide review material to address weaknesses. **METHODS/STUDY POPULATION:** The Tufts CTS Graduate Program is the training core of the Tufts CTSI and its associated pre- and post-doctoral T32 awards. Approximately 10 trainees with a range of backgrounds (e.g., physicians, medical students, master's-level researchers, and basic science PhDs) and varying math education experiences matriculate each year. We wanted to address the resulting range of quantitative skills to help students succeed in our program. In Spring 2023, we met with faculty teaching quantitative courses to identify core algebra concepts needed to succeed in their classes. A graduate student in computational mathematics with extensive tutoring experience then

drafted assessment questions, a comprehensive study guide, and brief cheat sheet. The material was reviewed and revised with input from quantitative faculty. **RESULTS/ANTICIPATED RESULTS:** We developed a 20-item quantitative assessment covering properties of operators; identity elements and inverses; simplification of arithmetic and algebraic expressions; solving algebraic equations; functions; equations of a line; and exponents/logarithms. A cheat sheet provided trainees with a brief refresher for these topics. A study guide provided more detailed instruction, example exercises and solutions, and referenced publicly available, online resources (e.g., Khan Academy). During the introductory summer course for the Tufts CTS Program, trainees were allowed to use the cheat sheet and were given 1 hour to complete the assessment. Trainees who got questions incorrect were directed to relevant sections in the study guide. We anticipate collecting formal feedback to evaluate the material. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Trainees must have adequate foundational algebra skills to succeed in CTS graduate programs and as future researchers. Developing a quantitative assessment allowed us to identify areas of weakness resulting from educational disparities or reflecting other aspects of their backgrounds and to provide material to reinforce their preparation.

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Development of science communication rubrics for trainees in clinical and translational science

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OBJECTIVES/GOALS: Trainees in clinical and translational science (CTS) must learn to effectively communicate their research ideas and findings to a range of audiences. As part of our science communication curriculum, we developed ORAL and WRITTEN science communication rubrics for our trainees to use across their courses and research activities. **METHODS/STUDY POPULATION:** The Tufts CTS Graduate Program is the training core of the Tufts CTSI and its associated pre- and post-doctoral T32 awards. Approximately 10 trainees with a range of backgrounds (e.g., physicians, medical students, master's-level researchers, and basic science PhDs) matriculate each year. Faculty members and staff with expertise in science communication and pedagogy formed a committee to develop the rubrics. Because oral and written communication require different skills, we developed separate rubrics for each. We reviewed our current science communication curriculum, reviewed existing communication rubrics, and identified common mistakes students make. Following pilot testing by students and faculty pilot for one semester, we modified the rubrics based on informal feedback. **RESULTS/ANTICIPATED RESULTS:** Both rubrics include a section to identify the target audience and specific items organized by theme. Oral rubric themes include presentation content, slides, verbal communication, nonverbal communication, and following instructions. Written rubric themes include overall, manuscript/proposal sections, and following instructions. The rubrics serve as feedback tools for faculty and students to evaluate work others produce and as self-evaluation tools. Feedback elements include a 4-point