rating for each rubric item, open text feedback for each theme, and an open text holistic assessment. We now use the rubrics in our study design course, which features student presentations of planned research, and in our writing course. We anticipate collecting formal student feedback to further evaluate the rubrics. DISCUSSION/SIGNIFICANCE OF IMPACT: Our rubrics can supplement existing science communication training and can be integrated into all CTS coursework and research activities. For future clinical and translational scientists to have the greatest impact, they must learn to effectively communicate findings to multiple audiences, ranging from experts in their field to the general public.

166

Individual Retention Conversations (IRC): Unlocking clinical research professional engagement

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OBJECTIVES/GOALS: The clinical research professional (CRP) workforce suffers from high turnover. Stay interviews have led to increased satisfaction and reduced turnover in other industries. We describe a multi-institutional project to develop, disseminate, and evaluate a CRP-tailored Stay Interview tool reimagined as the Individual Retention Conversation (IRC) toolkit. METHODS/STUDY POPULATION: In August 2022, following on the heels of a series of un-meeting conversations focused on CRP workforce development, the CRP taskforce initiated a working group to tackle issues related to CRP workforce retention. As a first initiative, this multi-institutional working group set out to develop, disseminate, and evaluate a Stay Interview tool tailored for a CRP audience and reimagined as the IRC toolkit. A 2-phase pilot study was initiated across six academic medical centers (AMCs: ASU, Duke, MUSC, UAB, UPenn, VCU) to: 1) optimize the toolkit for the CRP audience and 2) evaluate the impact of the toolkit using a standardized CRP satisfaction survey. Quantitative and qualitative data were collected via surveys using the REDCap platform. RESULTS/ANTICIPATED RESULTS: The optimization phase of the pilot included 69 participants (16 managers and 53 of their CRP team members) from 6 AMCs. Respondents identified most and least useful questions for stimulating meaningful conversations regarding job satisfaction and retention issues with additional feedback on the IRC experience and tools. CRPs and managers represented a variety of roles, with 77% patient facing. The majority were satisfied with the IRC experience (82%) and found the experience personally beneficial (76%). Managers were satisfied with the manager's guide (90%). Quantitative and qualitative feedback was used to optimize the toolkit prior to launch of phase 2 in September 2024, which includes a longitudinal survey-based assessment of CRP job satisfaction and IRC-consequent work environment changes. DISCUSSION/SIGNIFICANCE OF IMPACT: CRP retention is impacted by complex factors, many related to job satisfaction, supervisor /employee relationships, and beneficial work environments. Initial evaluation of the IRC suggests that this intervention fosters positive supervisor/employee relationships and beneficial work environment changes, which may lead to improved retention.

167

Attitudes toward bioethical issues in the applications of big data and artificial intelligence in clinical and translational research in underrepresented populations: A qualitative assessment

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OBJECTIVES/GOALS: We designed a forum to educate participants about bioethical issues in the application of big data (BD) and artificial intelligence (AI) in clinical and translational research (CTR) in underrepresented populations. We sought to determine changes in participants' interests in ethics, bias, and trustworthiness of AI and BD. METHODS/STUDY POPULATION: 141 individuals registered for the forum, which was advertised to our partner institutions, minority-serving institutions, and community organizations. Registrants received email instructions to complete an AI Trustworthiness (AI-Trust) survey, a questionnaire with integrated qualitative and quantitative measures designed to better understand learners who engaged with the institution-specific AI/Data Science curriculum. Respondents completed the survey using personal devices via a link and QR code, with anonymized responses and enhanced privacy features. 82 people attended; 22 responded to the survey pre-forum and 22 post-forum. Pre- and post-forum responses were qualitatively compared to assess shifts in attitudes toward AI and BD and related interests in ethics, bias, and trustworthiness. RESULTS/ANTICIPATED RESULTS: We found increased interests post- vs. pre-forum in the use of AI for CTR, AI bias and its effects on underrepresented populations, and ethical risk assessment and mitigation strategies for the use of BD to empower research participants. In contrast, trust in AI was lower post- vs. pre-forum. Moreover, respondents also indicated that the current application of AI in healthcare practice would result in increased racial, economic, and gender bias. In comparison, interest in ethical challenges, bioethical considerations, and trustworthiness regarding use of BD and AI in health research and practice did not differ pre- vs. post-forum. DISCUSSION/SIGNIFICANCE OF IMPACT: Interest in the application of BD/AI in CTR increased post-forum, but AI distrust and bias expectations also increased, suggesting that learners become more skeptical and discerning as they become more knowledgeable about the complexity of the ethics of AI and BD use in healthcare, especially its application to underrepresented populations.

168

Modeling biomedical graduate student career development needs and training contexts

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OBJECTIVES/GOALS: To design and implement programming that better prepares graduate students for diverse roles in a variety of workforce environments, our study models the training landscape and programming needs of graduate students in behavioral, clinical, and biomedical graduate programs at a large Midwestern school of medicine and public health. METHODS/STUDY POPULATION:

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We conducted six focus groups (two graduate program manager focus groups and four graduate student focus groups), to assess the programming, career development, and training needs of graduate students. Using a grounded theory approach, we first engaged in open coding of a sample of transcripts. After developing a codebook, we continued with an iterative coding process interspersed with coder meetings to discuss emerging and changing codes. Using the framework of landscape analysis allowed our coding and modeling to go beyond graduate student needs and study the varying relationships and contexts that impact graduate students throughout their training, such as relationship to supervisor or institutional policies. RESULTS/ANTICIPATED RESULTS: Preliminary results indicate that students wrestle with their status as both students and workers. Specifically, conflict arises between graduate and supervisor expectations around time spent in class, lab, and other career development activities based on these divergent roles. Students and program managers also note the disparities that arise from the university's lack of standard, formalized policy on labor issues, such as paid leave. Data also suggest that students on training grants note the difference in access to career development resources compared to colleagues. In many cases, students themselves coordinate ad hoc programming to better suit their career and professional development needs, although this work is not a required aspect of their training. DISCUSSION/SIGNIFICANCE OF IMPACT: We characterize current graduate training landscapes, which continue to shift as graduate student bodies diversify, unionize, and express interest in increasingly varied biomedical careers. Data from multiple perspectives facilitate creating, implementing, and evaluating supportive training programs that meet identified student needs.

169

Removing roadblocks to training: Reimagining resources to support career development grant writing

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OBJECTIVES/GOALS: In this project, we set out to supplement our existing grant writing workshops with targeted, learner-centered, multimodal training. This method will assist us in moving toward a more equitable training landscape, reaching a wider variety of learners, by freely disseminating these resources. METHODS/STUDY POPULATION: To increase access and impact of training materials for our career development grant writing workshops, we restructured our pre-workshop training videos. We culled expert advice from lengthy recorded lectures into brief (less than 5 minute) how-to videos that target instruction to writing specific sections of an NIH K grant. We then coupled these how-to videos with easy-to-navigate, open access online courses that further illustrate best practices for writing key sections of NIH K grants. These resources were given to registered workshop attendees and made available through a public Canvas course, the Diamond portal, MICHR website, and U-M Innovation Partnerships to disseminate the materials through multiple channels. RESULTS/ANTICIPATED RESULTS: Four online courses and complementary videos were developed over six months, each focusing on a specific section of the NIH K grant proposal. These resources provide targeted instruction for writing the Specific Aims, Candidate Background, Career Development Plan, Career Goals and Objectives, and Mentor Letter. Learners accessed all four of the online courses. Released in January 2024, we continue to gather data on whether learners believe their knowledge about writing successful K grants has increased after using the resources, if they believe the courses have prepared them to write the section of the grant covered, and whether learners would recommend the courses. We will analyze these results to better understand how learners are using and responding to these new resources. DISCUSSION/SIGNIFICANCE OF IMPACT: These how-to videos and online courses provide targeted, learner-centered training and fill an important gap by meeting learners where they are and extending the impact of our training beyond our institution. Widely disseminating online interactive training resources is a model we are applying beyond grant writing to other projects.

170

Role-based approach in REDCap training

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OBJECTIVES/GOALS: REDCap is a popular electronic data capture tool. However, training users in how to best utilize REDCap can be a challenge for many institutions. The Clinical and Translational Science Institute (CTSI) strives to setup a self-service training program that takes the day to day roles of users into account. METHODS/STUDY POPULATION: Our new training curriculum is a collaboration with our Workforce Development team and our REDCap Support Team. The REDCap team functions as the subject matter experts and generate a training outline based on a certain feature or topic. The Workforce Development team transform that outline into an LMS style course that's available online. In order to organize the courses for maximum relevance to user, we engaged with various REDCap training and regulatory experts around the globe. Based on their input, we organized the various training courses into a role-based schema. The training courses are freely available online and contain an optional test and completion certification in order to comply with regulatory standards like 21 CRF part 11 or GDPR. RESULTS/ANTICIPATED RESULTS: We released the first 17 training courses in July 2024 with another 20 courses planned in the near future. Responses to the courses have been overwhelmingly positive from users and the greater REDCap community. Our collection of training courses won the best website award at the yearly REDCap conference in 2024. To date we have had 137 people go through a training course with the optional test and completion certificate. While the majority have been from the USA, a significant portion hails from other countries. We believed these people only represent a small subset of users due to the optional nature of the test and accreditation section. DISCUSSION/SIGNIFICANCE OF IMPACT: Our new role-based training curriculum is crucial in giving REDCap users the training tools they need for their particular role. The certification option fills a niche for professionals to demonstrate their REDCap proficiency to further their careers. Overall, this user training should increase the utilization of REDCap in all research endeavors.

171

Rural health: Building capacity to conduct translational research across the Mayo Clinic Health System (MCHS)

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OBJECTIVES/GOALS: This proposal outlines the successful deployment of a research training initiative to support the formation of a Learning Healthcare System. Mayo Clinic Health System (MCHS) rural providers were offered the opportunity to the fundamentals

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