discussions. Participants came from the fields ranging from basic chemistry and drug development to infectious disease and pediatrics and represented both methodological and topical experts. Focus groups lasted, on average, 1 hour, were audio recorded. Interviews lasted ~30 minutes. Audio recordings were transcribed and deidentified, and transcripts were coded using Dedoose™. We used a deductive-inductive procedure to develop the framework for stakeholder engagement in T1 research. A deductive codebook was development from the focus group and interview guides; emergent themes were added and the codebook was revised after preliminary inductive analysis. Two coders analyzed all transcripts using a constant comparison approach. We used an inductive process to identify themes and form them into a framework that could be used by T1 researchers in their work. The framework was developed through sequential reviews with coauthors and research participants. RESULTS/ANTICIPATED RESULTS: Preliminary findings suggest that stakeholders in early stage translational research (T1) do not fit into the same framework as those further down the translational spectrum (T2-T4). Basic scientists can identify stakeholders, however, and would like more guidance on who, how, and when to engage them in their research. DISCUSSION/SIGNIFICANCE OF IMPACT: By showing T1 researchers how to identify and involve their stakeholders in (1) defining research questions, (2) carrying out research activities, and (3) disseminating research evidence, this work has the potential to improve the use of basic science evidence in latter stages of translation from bench to bedside.

2292

Implementation and dissemination of a unique training program in stem cell biology and regenerative medicine

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OBJECTIVES/SPECIFIC AIMS: Provide an innovative, integrative, and inter-disciplinary training program which will leverage a unique and internationally recognized strength of BU and establish an environment that facilitates translational team science interactions with MD scientists and clinicians, thereby synergistically bridging research strengths with interdisciplinary approaches. METHODS/STUDY POPULATION: This overall mission of the RMTP is pursued through 2 independent aims. Aim 1: Provide an innovative, integrative, and interdisciplinary training program which will leverage a unique and internationally recognized strength of BU. Aim 2: Establish an environment that facilitates translational team science interactions with MD scientists and clinicians, thereby synergistically bridging research strengths with interdisciplinary approaches. To achieve these aims, we have developed a specialized didactic curriculum that is fully integrated in graduate school training and can be shared for the benefit of others outside of the BU community. We are also developing online iPSC practicum workshops for more efficient distribution of didactic content. Interdisciplinary team science approaches to stem cell research related to cures for human diseases are fostered across investigators across diverse hubs at BU, BU Medical Center, the Charles River Campus and the Framingham Heart Study. All methodology, data and materials are provided in a transparent and open-source manner to benefit the greater scientific community and ensure rigorous reproducibility. RESULTS/ANTICIPATED RESULTS: As a nascent TL1 training program, we are just arriving at the end of our second year. At this point, 5 out of a total of 11 appointed trainees have concluded RMTP support, all of whom have transitioned into biomedical science-related pursuits; 2 predoctoral trainees were awarded F31 fellowships, 2 postdoctoral trainees were awarded career transition grants (K99/R00 and LERN fellowship), and 1 postdoctoral trainee became a Senior Scientist at a Biopharmaceutical company. Given the quality of our trainees and their RMTP mentors, we anticipate that close to 100% of those supported by this mechanism will continue their career development in the biomedical sciences. DISCUSSION/SIGNIFICANCE OF IMPACT: Implementation of the RMTP TL1 would not only serve to increase the capacity of trainees within the CReM, but would also extend the scope of regenerative medicine research to other CTSI-participating hubs and more broadly to other scientific disciplines.

2305

Advancement of translational sciences: Development of an interprofessional program and outcome measures for foundational, clinical, and health care researchers

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OBJECTIVES/SPECIFIC AIMS: To improve translational research, we have developed a program called Duke Multidisciplinary Education and Research in Translational Sciences (Duke MERITS). Duke MERITS will facilitate cross-disciplinary collaboration among faculty involved in foundational, clinical and/or health care research and in turn also prepare them to train the next generation of translational researchers. METHODS/STUDY POPULATION: The program aims are (1) to define metrics and outcomes measures so faculty can track their progress and identify impact of their collaborative research in translational sciences; (2) to offer a multi-modal faculty development series to promote team science, improve didactic teaching, and incorporate innovative resources to promote interdisciplinary approach to translational research; (3) to provide module-based hands-on-training sessions in bench to bedside research and training in translational grant writing to facilitate the development of multidisciplinary research collaborations. The present study describes results from Aim 1 and includes (a) development of baseline outcome assessment tools necessary to gauge the impact of our programs on both the participating faculty and the research culture within Duke University, (b) impact of a specific course offering in Translational Medicine. In order to achieve this, we conducted multiple focus group sessions with faculty self-identified as junior-, mid-, or advanced-career, a mixed group at any career level and included a group of graduate students and postdoctoral trainees to study the impact of a graduate level course in Translational Aspects of Pathobiology. The activities during these translational science focus groups were designed to define what successful translational science is, to determine what resources support translational Science at Duke, and to decide what resources we need in order to enhance Duke's position as a leader in research and scientific education. RESULTS/ANTICIPATED RESULTS: We identified that translational science is changing standards while incorporating leadership, teamwork, collaborations, and movement primarily focusing on the overall goal of improving all aspects of health. Participants categorized their field of study and the fields of their coparticipants most frequently as basic discovery and a combination of intervention and health services. The most frequently identified pros/benefits of performing translational science at Duke include industry connections, collaborations with other departments resulting in disciplines being bridged, improving patient care, and access to resources as well as money. The most frequently identified cons/barriers of performing translational science includes the expensiveness, silos, and lack of resources willing to absorb risks. DISCUSSION/SIGNIFICANCE OF IMPACT: The identification of these defined factors from the focus groups has allowed us to issue a comprehensive, sliding Likert scale-based anonymous survey from the secure RedCap system and is being rolled out throughout Duke University, including schools of medicine, nursing, Trinity, biomedical engineering. We envision that Duke MERITS education program will facilitate interprofessional efforts, which we define as a team science approach to identify the clinical "roadblock" and then seek an innovative approach or technology to help overcome this "roadblock"? It can facilitate institutional and departmental recognition in faculty career development. The common goal is to gain fundamental new insights that will result in significant improvement of the existing "standard of care" and meet the challenges of dwindling extramural support.

2315

Documenting ADAPT (Addressing Disparities in Asian Populations through Translational research): The growth of a community-research collaborative

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OBJECTIVES/SPECIFIC AIMS: Addressing Disparities in Asian Populations through Translation research (ADAPT) is a community-research partnership funded by the Tufts Clinical Translational Sciences Institute (CTSI). Founded in 2011, this collaborative brings together 7 Chinatown-serving community-based organizations and academic researchers with the goal of improving health for the local Chinatown community and beyond. The goal of this research project was to document the best practices, lessons learned, and process through which ADAPT has developed and grown. The aim of this project is to disseminate the model to other CTSAs who are currently engaged in METHODS/STUDY POPULATION: We used a combination of qualitative interviews and content analysis to gather data on the evolution of ADAPT over the last 5 years. Current members from both community organizations and the university/medical center were interviewed about their experiences participating in ADAPT. When possible, interviews were recorded and transcribed verbatim. Deidentified transcripts and administrative documents including meeting minutes, conference summaries, bylaws, and mission statements were coded using Dedoose analytic software. RESULTS/ANTICIPATED RESULTS: Established community-based participatory research (CBPR) principles, including mutual respect, transparency, and commitment, are viewed as necessary, but not sufficient. Patience—both with other members and with the group as a work in progress—is highlighted as being a necessary characteristic of

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participants. Time and funding are 2 of the most important resources, and the majority of members agree that there is no substitute for "skin in the game." Attempts at last minute, opportunistic engagement were provided as examples of what had not worked. One ongoing tension is the balance between process and product. Individual members are beholden to organizations to different degrees, and the need to produce something in the form of publications or grant money can limit the amount of time members can commit to the collaborative. At the same time, these products are unlikely to materialize if members are not invested in the process of growing and sustaining the collective. DISCUSSION/SIGNIFICANCE OF IMPACT: Out of the 7 community organizations who currently participate in ADAPT, only 1 is explicitly focused on health in the traditional sense. The others are primary service organizations, but because they understand the impact of the social determinants of health on the local community—including housing, employment, education, nutrition, among other factors—the research collaborative is able to leverage the knowledge and expertise of the academic researchers and the community partners to focus on health topics most salient to the local Chinatown community.

2348

Collaborative translational workforce development: Standardizing clinical research nursing education in good clinical practice

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OBJECTIVES/SPECIFIC AIMS: The proposed pilot study seek to enhance the network of CTSAs at Rockefeller University, NYU, ISMMS, and other community members to support translational workforce development of clinical research nurses and establish a standardized nurse-specific training curriculum in GCP for use within the CTSA network, in other research centers, and in nursing school curricula. This will be coupled with a rigorous evaluation study to test the impact of the training and a comprehensive dissemination plan to make the training available to all nurses and nursing students via modern e-learning method. Aim 1. To create an integrated network of local CTSAs and community partners to develop, validate, and refine a pilot e-learning GCP educational and training program and content and outcomes dissemination plan. It is vital to integrate the efforts of CTSA leaders, community partners, and nursing educators to develop a pilot e-learning nurse workforce training curriculum and the associated evaluation measures and assessment plan. Delphi methods will be employed, coupled with rigorous assessment of face validity, content validity, and item reliability. The resulting educational training program will then be used for an e-learning educational intervention study in CTSAs, other sites, and nursing schools. Aim 2. To test the effect of the pilot GCP education and evaluation program for practicing clinical research nurses (CRNs) within the collaborating CTSAs and community partners, we will perform a randomized controlled trial using a Solomon 4 group design. For the student nurse population, we will develop a randomized control trial using a Solomon 4 group design blocked on course section. As this is a pilot study, descriptive statistics and confidence intervals around parameter estimates will be constructed. In addition, inferential statistics will be calculated on primary outcome of interest (change scores in knowledge of GCP) and measures of heterogeneity of data, patterns of missing data, and reliability of evaluative tools will be analyzed. Aim 3. To implement a dissemination plan to reach both nurses practicing the CRN specialty within CTSAs and other community settings. We will disseminate the program to other CTSAs through the CTSA network communication resources. To broaden the reach to a population of nurses and student nurses with limited prior education or training in nurse-specific GCP competencies, but who provide care to research participants in nontraditional research settings, we will craft a novel set of dissemination methods, including the CITI Program electronic platform that can be accessed by nurses and nursing students across settings. In addition, dissemination will be at nursing education meetings and in nursing journals.METHODS/STUDY POPULATION: There are several components to this pilot program. The component that includes a research strategy is the testing of the effectiveness of the training and educational interventions on GCP knowledge and efficacy. Study cohort: Recruitment of study subjects will be in coordination with 3 CTSA collaborators and community partners for 2 samples: (1) nurses who provide care to clinical research participants across a variety of settings (health care systems, research hospitals, and care provider networks) and who are already trained according to current standard in GCP, (2) nursing students from the collaborative network of the 3 CTSAs, NYU School of Nursing has agreed to pilot test the introductory student module. The methodological approach will be a random assignment control trial Solomon 4 group design for practicing CRNs within the collaborating CTSAs and community partners. For student nurse population, the methodological approach will be a randomized-control trial Solomon 4 group design blocked on course section. Survey measures of CRN GCP knowledge and efficacy will be obtained pre and post educational intervention. RESULTS/ANTICIPATED RESULTS: Aim 1. Expected outcomes are pilot e-learning nurse workforce training modules curriculum, and evaluation measures and plan appropriate for CTSAs, community sites, and nursing schools. Specifically, 14 modules (averaging 30 minutes each) for practicing CRNs, and one 45 minute module for nursing students. The significance of these findings will provide a framework for the e-learning educational intervention study. CITI Program is enthusiastic about the module development and refinement and will provide direction for consistency in formatting with current CITI Program modules, set-up of learner groups for comparison, and evaluative measures such as completion data and scoring. Aim 2. Expected outcomes are an effective pilot educational intervention for practicing nurses and students and valid and reliable evaluation tools and plan that can be generalized to the larger CRN and nursing community. Aim 3. Expected outcomes are an enhanced CTSA dissemination plan that includes non-CTSA resources and reaches non-CTSA employed nurses and nursing students. DISCUSSION/SIGNIFICANCE OF IMPACT: The expected outcomes of this pilot study are: (1) an enduring GCP education that can be continually updated and training structure for CRNs, and nurses and nursing students throughout the United States; (2) a reproducible effective standardized basic nurse-specific GCP curriculum for dissemination; (3) assessment tools to evaluate programmatic success, nurse and nursing student knowledge and efficacy on nurse-specific GCP; (4) and a CTSA dissemination plan that to reach non-CTSA nurses and nursing students. Our ultimate goal is the development of a translational workforce educated and competent in GCP at CTSA sites, at non-CTSA sites, and in nursing schools so as to improve the quality of clinical research.

2353

Competency-based training program for Research Professionals

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OBJECTIVES/SPECIFIC AIMS: To increase knowledge and application of clinical research coordinator competencies among Research Professionals at the University of Minnesota. METHODS/STUDY POPULATION: The UMN's CTSI developed and piloted a Foundations for Research Professionals training program comprised of: a baseline assessment, 7 online modules, 4 in-person training sessions, video and reading assignments and a post assessment, which totaled 30–35 hours of training and covered the following topics: preparing for a study, study management, participant recruitment and engagement, assessing capacity to consent and the informed consent process. This course also provides valuable resources and connections to online references and materials. The competencies for this program were based on work of the Joint Task Force for Clinical Trial Competency. RESULTS/ANTICIPATED RESULTS: 30 clinical research professionals completed the pilot program and averaged an increase of 6.5% from baseline assessment to post assessment. Participants were asked to rate their confidence on a variety of role-based competencies at the time of preassessments and postassessments. Trends show an increase in confidence for all competency areas after completion of the training program. DISCUSSION/SIGNIFICANCE OF IMPACT: Developing a workforce of competent research professionals is integral to improve the efficiency, quality, and ethics of research. The Foundations for Research Professionals training program increased knowledge of clinical research coordinator competencies. We will assess impact on application of the competencies 6 months after completion of the program. Our next steps include offering the training program as a 2-week session on an ongoing basis for new coordinators at the University of Minnesota.

2376

Best practices for social and behavioral research: Developing a competency-based elearning course in good clinical practice

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OBJECTIVES/SPECIFIC AIMS: Existing GCP training is geared primarily towards researchers conducting drug, device, or biologic clinical trials, and largely ignores the unique needs of researchers conducting social and behavioral clinical trials. The purpose of this project was to develop a comprehensive,

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