best practices and use of the IDP over the CTS academic life-course. METHODS/ STUDY POPULATION: To accomplish our goal, we propose the following methods: (1) an online survey, using a convenience sample of the 24 KL2 CTSA IDP Collaborative members (conducted in 2017), to assess perceived needs for a universal CTS-IDP, current IDP practices, barriers to IDP use, and to discern and align each CTSA Hub's interests, expertise and commitment to specific areas of the study; (2) A scoping narrative literature review, utilizing the Arksey and O'Malley framework covering the time period corresponding to the initiation of funding (1999) of the original K30 Clinical Research Curriculum Awards through to the present CTSA funding period, incorporating Medical Subject Heading (MeSH) keywords (career development; career development plan; employee plan; mentoring plans; compacts; research contracts; career planning; mentor guide), initially delineated by USC reference librarian and to be expanded by reference librarian services from the Icahn School of Medicine at Mount Sinai and University of Rochester, and performed on NIH searchable databases including NCBI PubMed, Central and Medline & Worldwide Science; Web of Science, ProQuest, ProQuest Abi/Inform, Google Scholar, Cochrane, Ovid MEDLINE databases, as well as Google for published papers in English and Spanish. For this portion of the work, we will describe and characterize (1) research career development or progression constructs, domains, and milestones; (2) establish the presence or absence of defined and/or pre-specified timed milestone objectives and inclusion of SWOT analytics (strengths, weaknesses, opportunities, and threats) and/or Gantt chart approaches; (3) delineate IDPs structure, toolkits and their key features (competencies, skills acquisition and processes utilized); (4) and identify specific gaps to best address the need for personalized career development education. Based on this review, we will synthesize CTS milestones, develop a time frame for meeting RCD expectations, and establish RCD benchmarks for achieving these milestones, all in consensus with the IDP Collaborative Workgroup. RESULTS/ANTICIPATED RESULTS: Seventy-seven percent of the IDP CTSA's responded to the online survey, led by University of Rochester, and the results can be summarized as follows: (1) 100% agreed that the IDP process is important and should be considerably improved to optimize effectiveness; (2) a range of diverse IDP formats are utilized, making comparisons across programs difficult; (3) 50% of CTSA hubs report only fair to good compliance with the IDP process; (4) a major barrier to the IDP process is lack of instruction regarding how best to utilize; (5) poor alignment of currently available IDPs designed for basic science PhDs with CTS investigators; (6) an absence of a CTS specific IDP to best foster RCD for this specific career trajectory. When asked: What are the barriers to writing a detailed and thoughtful IDP, responses in order of agreement from greatest to least were: No verification of acquired competencies, beyond self-report (56%), Static platform (38%), Not constructed for clinical and translational researcher (31%), No analytical or documentation on use (31%), No instruction given to scholars on how to use it effectively and efficiently (31%), The IDP we are using is more constructed for PhD students and postdoctoral fellows (25%), No instruction given to the scholars on why it is important as adult learners (19%), and Not constructed for early career physicians/scientist (13%). Additional progress has been made on our Scoping review: An initial ABI/Inform and PubMed USC research librarian conducted search using Author names yielded 72 articles, of which only 2 were relevant to the topic at hand. A ProQuest™ search yielded 19 potentially relevant articles, 11 of which were of relevance to the topic of IDPs; and a Google Scholar search yielded 18 and 25 on career development and self-management, respectively. This has enabled us to put forth an initial model of factors that impact the purpose and design of IDPs that includes? DISCUSSION/ SIGNIFICANCE OF IMPACT: Discussion: Our initial data suggests that many CTSA institutions see the need to further enhance the mentoring process with a more informed and personalized IDP template and process. Furthermore, our initial scoping review suggests a framework upon which to build specific components of a more ideal and useful IDP to best guide mentored research career development of CTS trainees. Significance: Developing and evaluating collaborative evidence-based CTS IDP and corresponding e-Learning Guide could potentially prevent or reduce important delays in RCD, a common roadblock for the translation of clinical interventions. Ultimately, the CTS-IDP serves not only to support and frame a scholar's RCD "habits of mind" during training and early career development but to also to achieve a sustainable long-term career at a CTS researcher equipped to meet the ever challenging and dynamic research landscape.

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TL1 team approach to social and genetic determinants of nocturnal blood pressure

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OBJECTIVES/SPECIFIC AIMS: The TL1 Team approach aims to train translational investigators capable of tackling complex and multifaceted diseases, such as hypertension, by beginning multidisciplinary, team-based training early in their graduate programs. METHODS/STUDY POPULATION: Leanne Dumeny is a graduate student in Genetics and Genomics studying how pharmacogenomics can be applied to improve clinical care and cardiovascular outcomes. Chu Hsiao is a graduate student in Anthropology studying how sociocultural experiences become biologically embodied. Both are in the Ph.D. phase of M.D.-Ph.D. training. Joining the seemingly disparate but complementary fields of anthropology and genomics facilitates understanding of the intersection between socially driven experiences and genetics on nocturnal blood pressure. Understanding both social determinants, such as racial discrimination, and biological determinants, such as genetics, is important because an interplay of gene-environment interactions influences many complex diseases. Rarely can 1 individual, or 1 discipline, tackle all the perspectives necessary to answer these types of complex questions. The TL1 Team curriculum teaches students to navigate the spectrum of translational research as a team, reflect on disciplinary limitations, and embrace collaborative research. RESULTS/ANTICIPATED RESULTS: This team project will investigate the relationship between racial discrimination and genetics using a large epidemiological cohort of African Americans in Mississippi. The data request application is currently under review. By the project's end, the team anticipates their investigation will reveal novel associations between racial discrimination, genetic polymorphisms, and nocturnal blood pressure measurements. The investigators will have gained experience obtaining and analyzing large external data sets, working in diverse team settings, collaborating across state-lines, and publishing articles. Through this team approach, the students will also understand the barriers to working in multidisciplinary groups, and develop a foundation for approaching future collaborations. DISCUSSION/SIGNIFICANCE OF IMPACT: By joining anthropology with genomics, it becomes possible to understand the intersection between socially driven experiences of racial discrimination and genetics on nocturnal blood pressure. The successful training of this first cohort of team-applicants to the TL1 funding mechanism can impact how graduate education will be structured and could reframe graduate education to emphasize a team-based approach.

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Training cycle in clinical and translational research (CTR) for undergraduate health sciences programs (HSUP) at University of Puerto Rico-Medical Sciences Campus (UPR-MSC) and Universidad Central del Caribe (UCC): Pathway for students and faculty

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OBJECTIVES/SPECIFIC AIMS: Responding to the need and interest of students and faculty of the UHSP in learning about CTR, the Title V Cooperative Project between UPR-MSC and UCC, developed and offered a training cycle (TC) in CTR. METHODS/STUDY POPULATION: Undergraduate students (US), undergraduate faculty (UF), and graduate students (GS) were invited to register in: Research Education Towards Opportunities (RETO) and Mentorship Offering Training Opportunities for Research (MOTOR), which consisted of 20 hours of training in CTR, with interdisciplinary sessions in: Introduction and preparation of a presentation in CTR; Identify, interview and share a presentation of a CT researcher; participation in conferences and a summer camp in CTR. At the end of the TC, surveys—satisfaction and needs assessment—for training in CTR were administered. RESULTS/ANTICIPATED RESULTS: Thirty-three (33) registered in the TC, distributed: 13 (39.39%) US in RETO, 12 (36.36%) GS and 8 (24.24%) UF in MOTOR. Of these, 25 (75.75%) answered and submitted the on-line surveys and received a completion certificate. All (100%) were satisfied with the TC, and for 96% of the respondents, their expectations were fulfilled, and will continue in the TC. They selected critical review, scientific communication, and cultural diversity as thematic areas of interest. In addition, 60% of them selected neuroscience, cancer and medical imaging as main research areas of interest. DISCUSSION/SIGNIFICANCE OF IMPACT: The TC demonstrated to be an effective strategy to provide new knowledge, experiences, and interest in CTR. It also established a pathway for future engagement in CTR.

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Utilizing a reviewer database to facilitate integration of an investigator-focused translational research and career development program across the state of Indiana

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OBJECTIVES/SPECIFIC AIMS: The Indiana CTSI is investigating innovative approaches to integrate resources that will enrich scientific investigators. Our

goals are to enhance the availability and communication among CTSI resources, for example internal funding, and to expand existing mentorship. METHODS/STUDY POPULATION: Developed a reviewer database that serves to streamline reviewer identification, decrease reviewer fatigue, and promote collaboration among disciplines. We started with a pool of NIH-funded investigators from across the Indiana CTSI core institutions and merged this list with previous CTSI reviewers and internal funding awardees. To expand this list, names and expertise from new faculty hires were added. RESULTS/ANTICIPATED RESULTS: Though this tool is relatively new, we have already observed an increase in junior faculty awareness and engagement with the CTSI. This database allows for increased opportunities of junior faculty to serve as reviewers and to refine grant writing skills and provides a platform for networking and collaborating across disciplines. It also allows for increased integration of programs with a shared reviewer database and promotes grant review standardization. DISCUSSION/SIGNIFICANCE OF IMPACT: Our database utilization seeks to decrease the time for junior faculty to obtain their first extramural grant, to enhance promotion and tenure packages, strengthen integration among CTSI programs, increase interactions between clinical and basic science investigators, and promote team science.

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Utilizing digital pedagogy to build communication skills in predoctoral training programs

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OBJECTIVES/SPECIFIC AIMS: A key factor for success in science is the ability to communicate clearly and succinctly using language appropriate to the audience. Most predoctoral training programs offer opportunities for students to build oral and written communication skills at local and national conferences. However, this rarely provides specific feedback and tends to be episodic. The Mayo Clinic Center for Clinical and Translational Science (CCaTS) has developed an environment for deliberate practice of presentation skills within a weekly Works in Progress and Journal Club session using a learning management system, Blackboard Collaborate. The learning management system captures the presentation that can then be viewed by the student. Watching yourself give a presentation is a powerful learning tool. The learning objectives of the sessions provide students deliberate practice to: (1) Build critical presentation skills for a 1-minute elevator talk, a 2-minute poster overview, a 10-minute oral presentation of your science to a science audience and to a non-science audience. (2) Develop constructive reviewer skills by completing peer reviews of presentations. (3) Develop critical thinking skills to ask thought provoking questions during presentations. By utilizing a curriculum that offers video-recording for reflection and self-evaluation, Mayo Clinic CCaTS has developed an environment in which predoctoral students are encouraged and supported to constantly hone their presentation skills. METHODS/STUDY POPULATION: All CCaTS predoctoral students are asked to prepare presentations in several formats for the weekly 1-hour session. The students' presentations of their science or journal articles are recorded and saved within Blackboard; a link is provided for the student to review personally, with a mentor, and with the Education Coordinator to discuss the strengths and weaknesses of the presentation. During each session, faculty facilitators encourage students to ask thought provoking questions, and student reviewers are assigned to provide critical and constructive written feedback to the presenter. Sessions providing tools and guidelines for constructive feedback and developing critical and constructive questions are regularly interspersed. RESULTS/ANTICIPATED RESULTS: By reviewing a video recording of their presentations, CCaTS predoctoral students get the opportunity to self-evaluate their performance as an audience member. By going through this process of preparing, presenting, reflecting on their presentations, and discussing their strengths and weaknesses with mentors and classmates, the students gain both powerful presentation skills and methods to improve their delivery and reviewer skills. DISCUSSION/SIGNIFICANCE OF IMPACT: Successful scientists, whether in academia or industry, have the ability to communicate their science clearly using appropriate and common language specific to each audience they present to. By utilizing a curriculum that offers video-recording for reflection and self-evaluation, Mayo Clinic CCaTS has developed an environment in which predoctoral students are encouraged and supported to constantly hone their presentation skills.

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The extra-territorial translational team: Advances in multi-faceted community engagement

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OBJECTIVES: We developed the concept of the *extra-territorial translational team* (ETTT) in 2014 as a more inclusive revision and extension of the *team science* concept. Translational thinking is largely marked by the perception of the team as a thing-like structure at the center of the scientific activity. Collaboration accordingly involves bringing external others (e.g., scientists, community members, and clinicians) into the team through limited or dependent participation. The ETTT is intended to frame the team as an *idea*: a schema for assembling and managing *relationships* among otherwise disparate individuals with vested interests in the problem at hand. Thus, the ETTT can be seen as a *process* as well as an *object*. Our initial focus was on the very successful *SCI Café* program (where Science and Communities Interact) conducted through the Institute for Translational Sciences and the Center for Translational Sciences Award at UTMB. We found that by looking beyond the taken-for-granted features of translational research teams, we are free to discover new ways of organizing research and community engagement that are innovative yet productive. The major area of growth, however, has been the Research, Education, And Community Health Coalition (REACH). The purpose of the current study is to outline strategies for inventorying and evaluating the emerging programs that are the major components of REACH and the SCI Café and to suggest implications for the extra-territorial translational team concept. METHODS/STUDY POPULATION: The assessment of the extraterritorial team concept in REACH and SCI Café is primary a process of qualitative content analysis. We use semi-structured interviews with project leadership, observations of the actual performance of the REACH teams, and the review of REACH and SCI Café documents, for example, Quantitatively, we have conducted a Community Health Needs Assessment (CHNA) to better understand community health and resource needs. RESULTS: Both the SCI Café program and the REACH initiative follow the principles of the ETTT concept for assembling and managing research and community outreach. The following are several key principles shared by both programs: (1) The importance of creative, applicable, and inclusive mission statements: (a) REACH seeks to facilitate communication, collaborative research, and service efforts between UTMB and Institute for Translational Sciences investigators and Galveston County community leaders; (b) The SCI Café hosts interactive dialogs that serve as a medium for priming, organizing, communicating and strategizing among the individuals involved in team science via community-based research projects. (2) Increasing scientific and health literacy: (a) REACH seeks to increase literacy through both short-term and long-term interactions; (b) The SCI Café focuses on short-term yet intensive interaction through conversations among researchers, clinicians, and the public. (3) Sharing timely scientific public health information with the community: (a) REACH seeks information from community leaders on relevant topics; (b) The SCI Café can mobilize quickly to respond to timely topics by direct communication with a wide range of stakeholders, academic as well as community based. (4) Sharing leadership with the community: (a) REACH establishes formal relationships with 23 UTMB units and 39 broad-based, high impact Galveston County organizations. (b) The SCI Café works primarily with "grass roots" community-level groups and organizations. (5) Creating resources and strategies for expansion: (a) REACH is working to expand its activities to other counties in the Gulf Coast area of Texas (e.g., Brazoria and Matagorda Counties); (b) The SCI Café is expanding its program to comfortable locations accessible to local residents (e.g., schools and libraries). (6) The value of regular and systematic scientific and evaluation: (a) REACH is conducting a Community Health Needs Assessment (CHNA) that has already discovered major issues of relevance to community leaders including mental health, vaccination rates, food security, disaster preparedness, and caregiving. (b) The SCI Café conducts an evaluation survey at the conclusion of every event to stay current with participants interests and needs. DISCUSSION/SIGNIFICANCE OF IMPACT: (1) In order to maintain the ability to operate extra-territorially (i.e., beyond the safe organizational confines of the University), the 2 programs discussed here must maintain a fluid team structure. Different projects require different types of leadership, grass roots participation, university resources, communications/public relations, etc. (2) The strategy of accumulating and disseminating best practices appears to be one of the most valuable products of the extra-territorial team. (a) REACH's "Offer and Ask" practice by which information of university and community resources (skills and expertise) are shared makes cooperation and shared leadership explicit. (b) The SCI Café's interactional strategies for encouraging and enabling café participants to join the discussion/conversation are wonderful ways to convert an otherwise unidirectional lecture into a vibrant conversation. (3) Although the scope of these 2 programs is quite different, the message from both is that the principles of extra-territorial translational teams are application to all such endeavors to improve scientific and health literacy.

HEALTH EQUITY & COMMUNITY ENGAGEMENT

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A community-academic partnership to understand the correlates of successful aging in place (year 2)

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