

2468

CTSI 500 Stars Initiative (CTSI of SE-Wisconsin)

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OBJECTIVES/SPECIFIC AIMS: Our Goal is to enroll 500 students over 10 years into the CTSI 500 Stars Initiative. Student family members and community members are essential to career achievement and success; as such, the program also engages student families, along with key community members, as part of an Advisory Group, throughout the entire student experience. Besides programmatic and planning activities, students, family, and community members participate in our CTSI Community Engagement Science Café monthly series, where students may also present on a number of research and health-related topics of interest. The Advisory Group meets every 3–4 months in ensuring continuous engagement and overall program success. **METHODS/STUDY POPULATION:** Our Initiative takes both direct and supportive roles in offering 2 educational and training pathways; namely, our Summer Internship Program (6–8 wk duration) and our Students Modeling a Research Topic (SMART) Year-round Education Program (usually offered in Fall and Spring academic semesters) for high school students only. In the SMART Teams program, we work with regional public and private school districts to train science teachers, and assist them in developing and/or enhancing their science curriculum, thus creating pathways towards careers in translational science settings. Our aim is that students who participate in the year-round program (along with additional students) subsequently participate in our summer program. Therefore, overall program engagement is continuous throughout the year. In Summer, 2017 we engaged with well-established regional partners and collaborators (CTSI affiliated numerous public school districts, and community-based organizations) to move the translational workforce along existing regional diversity education and training pipelines. A Kick-off event was held on June 15, 2017 and attended by students and family members. We offered 6–8 weeks of hands-on experiences working with faculty researcher mentors and their research teams conducting real-life studies, in addition to professional experiences in research “support” settings, as well as in the community. We also developed established a “Summer” SMART (Students Modeling a Research Topic) Teams Program and a Summer “Advanced” SMART Teams Program, where a number of students were placed at 2 CTSI partner and collaborator institutions. The primary goal of the SMART Teams experience is to introduce students to translational science by building upon laboratory research to better understand clinical and community impact of disease within a patient population. Overall, internship sites included research labs, protein modeling labs, numerous research support settings, clinical care settings, and community sites for those students who were interested in population health sciences. In addition, students were offered career enrichment and professional development lunch and learn sessions, career panel sessions presented by long term, expert professionals in various fields translational science, and confidence building and networking sessions. Students also participated in a community volunteer day activity, a trip to the Chicago Science Museum, and numerous CTSI engagement activities (Science Cafés, simulation lab tours, etc.). **RESULTS/ANTICIPATED RESULTS:** The 2018 year-round program will initiate in the Fall. Our 2017 Summer Internship Program received 192 students/trainees applications of whom 133 were underrepresented minorities (URMs). We enrolled 109 participants, including 83 URMs (84 high school students and 25 college students). A total of 53 Wisconsin high schools and 19 colleges and universities (local and out of state) participated. Students engaged in all activities as outlined in the Methods section. At the end of the summer program, students created and presented posters as part of the closing ceremony. Certificates of completion were given to the students by program leadership and the AI Hurvis/ADAMM leadership (program funding agency). Students wore white lab coats to create an atmosphere of cohesion and accomplishment. Parents and other family members attended the closing ceremony, demonstrating strong support for students and the program. Our anticipated results for CTSI 500 Stars Initiative is to increase diversity in the Translational Science Workforce via education and training of 500 high school and college students over 10 years. We will also remain engaged and track student’s various venues for at least 10 years to determine the outcome of their experiences towards careers in Translational Science settings. We will continue to engage community members and community-based organizations as collaborators and advisors to participate in every stage of our activities. Moreover, we plan to broaden our reach by establishing additional relationships with additional high schools and middle schools to further enhance the 500 Stars Initiative. In addition, we will develop metrics by which to measure the validity and success of our program. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The aim of the CTSI 500 Stars Initiative is to provide real-life, practical experiences in translational science settings as a part of our efforts to train and cultivate the translational science workforce, while also engaging patients, families and community members in every phase of the translational process. Targeting under-represented minority

students contributes towards increasing diversity in the workforce. It is also our hope that by increasing URMs in the workforce, there will be positive impact on communities of color, with respect to increasing participation in their health care decision making and in clinical/translational research; thus, ultimately leading to better health outcomes in the communities we live and serve. Our overall framework is to engage, educate, enrich, empower, elevate, enable students towards careers in clinical and translational settings.

2515

Cure Quest: Teaching the complexities of drug discovery and development through an adventure gameBenjamin Chang, Shawn Lawson, Kathleen Ruiz, Mei Si, Jeremy Stewart, Emilia Bagiella, Janice L. Gabrilove and Emma K. Benn
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OBJECTIVES/SPECIFIC AIMS: “Cure Quest” is an adventure quest game for mobile tablets that aims to teach the player about the complexities of discovery and development of new medicines. The game instills a sense of wonderment into the learning process, taking the player to a world of magic where a mysterious condition has affected the land and they must follow the steps of the discovery and development process to find a treatment. **METHODS/STUDY POPULATION:** The game is being developed through a collaboration between faculty and students at ISMMS and the Games and Simulation Arts and Science Program at Rensselaer Polytechnic Institute. The first target audience is 2nd–3rd year medical students, with the future goal of adapting the game to a broader population. **RESULTS/ANTICIPATED RESULTS:** The game is currently in development, but the project has yielded insight into the design process for serious games in medicine. We found that for a game of this type it is essential not just to have both designers and subject matter experts, but to enable cross-pollination of modes of thinking. Through multiple design iterations and focus groups, we found that a game design approach rooted in narrative and allegorical abstraction would have a better ability to engage the target audience than one focused only on realistic simulation. When complete, we anticipate that the game will improve understanding of the core concepts in drug discovery. **DISCUSSION/SIGNIFICANCE OF IMPACT:** If successful, the game-based learning approach can help fill key gaps in current formal medical and scientific training, as well as gaps in understanding among the general public. The design process serves as an informative model of evolving collaborative team science.

2234

Developing the future translational science workforce at the University of IowaJames Torner, Beth R. Knudson and Kimberly Dukes
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OBJECTIVES/SPECIFIC AIMS: To evaluate the extent to which the curriculum delivered via an innovative program, the Early Scholars Certificate in Clinical and Translational Science (CCTS) at the University of Iowa (UI), develops a translational science workforce pipeline by increasing awareness of and interest in translational science as a career goal for highly prepared undergraduates. **METHODS/STUDY POPULATION:** The CCTS’s objective is to increase the awareness of the philosophy and tools of translational science and to incorporate critical evaluation and self-appraisal of the translational aspects of a scholar’s own research. CCTS is a 16-semester-hour (sh) academic certificate program introducing translational science concepts and careers to undergraduate students. The CCTS is a selective program with requirements including a minimum GPA, minimum sh completed, completion of course prerequisites, and already engaged and supported by mentored research. The curriculum includes electives in the area of their research interests (6 sh); graduate level Epidemiology (3 sh); Biostatistics (3 sh); and 2 core Translational Research courses (4 sh total). The first core course, an Introduction to Translational Research, is a survey course providing students the opportunity to learn how translational research is conceived and developed. It is designed to instruct the student how to interpret their research in a translational T1 to T4 paradigm. The program’s capstone course, Practicum in Translational Research, provides undergraduate students the opportunity to address how their research experience translates into clinical practice. Student’s spend the majority of this course’s contact hours in a shadowing experience with a clinician in the area of their research. Students reflect on this shadowing experience and its relevance to their academic and professional goals. The students also spend time developing skills in peer review—not only learning to