

The course is listed in the Communitary catalogue which is distributed in hardcopy (over 30,000) and email each semester. The course will be taught by a longstanding community member and research coordinator at the University of Cincinnati. Each session will be highly interactive including videos, role-play, and discussion of the presented research topics. Evaluation will occur both pre and post-session, along with pre and post-course. RESULTS/ANTICIPATED RESULTS: We anticipate 20–30 participants at each of the 4 sessions. We anticipate that we will learn current perceptions of clinical research and barriers to their participation to enable improved research recruitment. In addition, we will gain new insights into clinical research needs of the community. DISCUSSION/SIGNIFICANCE OF IMPACT: Through these interactive sessions, we will learn why community members participate in research and their barriers to participating. Understanding the perception of research by the target community is critical when developing clinical research recruitment strategies. We will also be developing a more educated community towards clinical research. We will also gain great insight into new clinical research directions as indicated by community members.

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Mentor training for KL2 Scholars through vertical integration

Angela Merrifield, Michelle Lamere, Kelvin Lim, Megan Larson and David H. Ingbar

CTSI, University of Minnesota, Minneapolis, MN, USA

OBJECTIVES/SPECIFIC AIMS: The NIH states, “The training of the biomedical workforce has always been an integral part of the NIH mission... It takes just one good mentor to influence the career of a new investigator; it takes a robust culture of mentorship across the research community to strengthen, sustain and diversify the entire biomedical research enterprise.” The University of Minnesota’s CTSI-Education core strives to build and maintain a strong culture of mentoring by providing CTSI KL2 scholars an opportunity to mentor an undergraduate student participating in the Pathways to Research Program (PReP). Using this mentoring model, participants gain valuable benefits and CTSI’s culture of mentoring is strengthened. METHODS/STUDY POPULATION: Participating KL2 scholars are matched with a promising PReP scholar for a 12-week mentored research project. The PReP program selects top candidates through a highly competitive application process. Students work in their mentor’s lab full-time, funded by CTSI-Ed. They engage in additional activities together including a mentor/mentee, an interview activity and 2 social events. Junior faculty scholars are asked to participate as judges at CTSI’s Poster Session and are invited to present at PReP seminars. The program culminates with the announcement of the Junior Mentor of the Year, in which scholars nominate their mentors for the award. Junior faculty mentors receive support through a training course, Optimizing the Practice of Mentoring, mentor orientation and a roundtable discussion with the program director and other mentors. The program’s infrastructure is designed to foster mentee/mentor relationships through faculty and staff support. Junior faculty receive one-on-one coaching when faced with difficult mentoring situations and are recognized for their mentoring successes. RESULTS/ANTICIPATED RESULTS: Junior faculty mentors highly rate the program on the following points; the experience was a good use of time, I am satisfied with my experience, I would recommend this program to faculty colleagues and students. Undergraduates and Professional students rated their mentoring relationship as 1 of 3 best outcomes of the program. In exit surveys, their highly rated program successes include having a network that helps move their career forward, and confidence to persist through training to become a successful researcher. DISCUSSION/SIGNIFICANCE OF IMPACT: Creating a culture of mentoring is important to the strengthen, sustain and diversify the biomedical research workforce. This mentoring model contributes to the mission while vertically integrating CTSI-Ed’s KL2 and PReP programs. On an individual level, junior faculty improve communication and management skills, develop leadership qualities, increase their network, provide a sense of fulfillment and personal growth, and reinforce their own skills and knowledge of subject. They are also provided a top undergraduate student worker fully funded by the program.

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Sinai MedMaker Challenge: A model of experiential team science education

Peter Backeris, Janice Lynn Gabrielove, Caroline Eden, Crispin Goytia and Kevin Costa

Icahn School of Medicine at Mount Sinai, New York, NY, USA

OBJECTIVES/SPECIFIC AIMS: Innovation in healthcare is increasingly dependent on technology and teamwork, requiring effective collaboration among

diverse disciplines. However, large knowledge barriers exist between these diverse disciplines which hinders effective communication and the innovation processes. We organized an intensive team-based competition event, Sinai MedMaker Challenge, that engaged individuals with a wide range of backgrounds in medicine, biomedical research, computers science, and engineering to collaborate in solving medical problems with technology-based solutions. The learning objectives were to: enable participants to identify healthcare problems which lend themselves to technology-based solutions; delineate key behaviors critical to multidisciplinary team success; identify optimal strategies for communicating in teams; engage and inspire participants to apply knowledge of technology to meaningfully impact clinical care and well-being. METHODS/STUDY POPULATION: The Sinai MedMaker Challenge was a 48-hour team-based competition, modeled after previously held health “hackathons.” Adapting from guidelines provided by MIT Hacking Medicine, the event gathered participants from diverse backgrounds (clinicians, medical students, graduate students in biomedical science and humanities, software developers, engineers, and others), for the purpose of utilizing technology to address pressing problems in the diagnosis, management and/or treatment of pain and/or fatigue. The event flow can be outlined as follows: Phase 1—pre-event brainstorming via Slack and Sparkboard online platforms; Phase 2—problem review with clinical experts; Phase 3—solution pitches, formation of teams, development of prototype solutions; Phase 4—presentations and prizes awarded. The event was sponsored by ISMMS Institutes and Technology Companies. Mentors roamed throughout the event to support the teams in the technical, clinical, and business development aspects of their solutions. RESULTS/ANTICIPATED RESULTS: In total, 78 participants forming 14 teams, worked on the development of software and hardware prototypes (apps/websites, devices, wearables) to address a variety of pain and fatigue problems, culminating in final pitch presentations to a panel of judges comprised of academic experts; innovators and entrepreneurs in the technology start up space. Award recipients were: (1) PT partners, a wearable device for monitoring physical therapy post knee replacement; (2) SickMeNot, an interactive, multimodal website/app for children designed to assess, monitor and manage pain; and (3) Biolumen, a functional biofeedback system, to treat chronic back pain. Evaluations revealed a high-degree of satisfaction with the event. Several teams continue to develop their prototypes. DISCUSSION/SIGNIFICANCE OF IMPACT: The Sinai MedMaker Challenge (1) was a compelling and productive forum to bring together students, trainees, faculty and other stakeholders to explore tech-based solutions for management, monitoring, and treatment of pain and fatigue; and (2) can be repeated annually, fostering a “Community of Practice,” and expanded to offer pre and post event opportunities to encourage iterative learning and ongoing creative output.

ETHICS

2030

“Understandable to the subject”: Plain language IRB informed consents

Tina Moore, Laura P. James, Jennifer Holland, Edith Paal and Kristie Hadden

Translational Research Institute, University of Arkansas, Fayetteville, AR, USA

OBJECTIVES/SPECIFIC AIMS: Develop a plain language informed consent template that met IRB and regulatory requirements. Evaluate the effectiveness of the template at improving the readability of informed consents. Field test the informed consent with low health literacy. METHODS/STUDY POPULATION: We conducted a retrospective analysis of over 200 UAMS IRB approved, investigator initiated informed consents from 2013 to 2015 to determine the readability before intervention. The mean grade level readabilities were derived from the results of 3 readability formulas (Flesch-Kincaid, SMOG, and Fry) using open-source readability tools. A plain language informed consent template that meets IRB and regulatory requirements was developed, adhering to health literacy best practices for written communication. The template was made available to investigators as an optional resource, and IRB committees were trained on use of the template. In addition, a focus group will be conducted to qualitatively assess understandability of the template with study participants identified as having inadequate health literacy. Data analysis will include readability assessment of IRB approved informed consents post intervention with and without use of the plain language template, as well as qualitative feedback from focus group participants. RESULTS/ANTICIPATED RESULTS: The retrospective analysis revealed a mean readability of 10th grade for IRB approved informed consents from 2013 to 2015 (n = 217). The readability of the developed plain language template was 5th grade. Preliminary post-intervention results show adoption of the template by investigators (n = 16)

resulted in informed consents with a mean readability of 7th grade (range 6–9th grade), compared to a mean of 10th grade (range 7–11th grade) for the comparator (“no adoption” group, $n=24$). Data collection will continue through May 2017. The focus group is forthcoming and results will be included in the poster. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Low health literacy is common in individuals with healthcare disparities and can limit their participation in clinical research. Few studies have examined interventions to address this barrier to research. Preliminary results of this study support the utilization of a plain language informed consent template in investigator-initiated research. Moreover, this study demonstrates the importance of stakeholder engagement among CTSA leadership, health literacy experts, the institutional review board, investigators, and research subjects in the development and testing of this intervention to make informed consents “understandable to the subject” while containing all required elements.

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Empirical assessment of a theatrical performance on attitudes and behavior intentions toward research: The informed consent play

Erin Rothwell, Gretchen Case, Sydney Cheek-O'Donnell, Bob Wong, Erin Johnson, Trent Matheson, Alena Wilson, Nicole R. Robinson, Jared Rawlings, Brooke Horejsi, Jeffrey R. Botkin and Carrie L. Byington School of Medicine, The University of Utah, Salt Lake City, UT, USA

OBJECTIVES/SPECIFIC AIMS: Exposure to theatrical performances holds promise for addressing bioethical issues, but there has been little empirical examination of the impact of dramatic presentation on audiences' attitudes. This study assessed the short-term impact of the play, *Informed Consent*, on perceptions of trust, willingness to donate biospecimens, attitudes toward harm and privacy among the general public and in faculty, medical and undergraduate students within an academic medical center in the intermountain west. **METHODS/STUDY POPULATION:** Surveys were administered before and after a staged reading of the play by professional actors. Pre and post survey responses were linked for each participant. Survey items included the short form Trust in Medical Researchers, and single item questions about group identity, of genetic testing in children, and willingness to donate biospecimens. In total, 3 additional questions about harm, consent, and ethical investigator behavior as represented in the play were asked in the post survey. In addition, respondents were given the option to answer open-ended questions through email. **RESULTS/ANTICIPATED RESULTS:** Out of the 481 who attended the play, 421 completed both the pre and post surveys, and 166 participants completed open-ended questions online ~1 week after the play. Across all participants, there were significant declines for Trust in Medical Researchers and for the survey item “is it ethical for genetic testing in children for adult onset conditions,” ($p < 0.001$ for both) following the play. There was a significant increase in agreement to improve group identity protections ($p < 0.001$) and no differences on willingness to donate biospecimens to research ($p = 0.777$). When differences were analyzed by race of the participant, non-White participants ($n = 68$) compared with White participants ($n = 344$) were less willing to donate biospecimens in general ($p < 0.001$). Further, non-White participants' willingness to donate biospecimens decreased ($p = 0.049$) after viewing the play while the white participants' willingness to donate was unchanged. Qualitative data provided extensive contextual data supporting these perspectives. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This is one of the first studies to empirically examine the impact of a theatrical performance on both attitudes and behavioral intentions toward research and clinical research participation. Some attitudes changed following the play performance, but there were no significant differences on intention to donate biospecimens for research overall. Future research can further address the value and impact of theatrical performances and other creative arts as tools to engage the public and investigators in dialogue about the ethical issues and complexities in clinical research and further evaluation of the impact of performances on attitudes about research and ethics. Creative arts may be used to motivate investigators and study participants to confront fundamental questions about research participation and trust.

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Knowledge, attitudes, and experiences towards genetic research among persons of African descent

Jane Otado, Veronica Thomas, Shawneequa Callier, Faun Rockcliffe, Dietrich Johnson and Denise Scott

OBJECTIVES/SPECIFIC AIMS: The purpose of this descriptive study is to explore knowledge, attitudes, and behaviors related to genetics and genetic research in a sample of persons of African descent. **METHODS/STUDY**

POPULATION: Data were generated using a cross-sectional survey design. A nonprobability sample of 272 persons of African descent, ages 18 and older, were recruited from the Washington, DC metropolitan area through public advertisement and word-of-mouth. Participants had diverse backgrounds with most born in the United States (93%), female (71%), some college or above education (57%), household income under \$40,000 (54%), and some with a reported disability (38%). Before survey recruitment and administration, this study was reviewed and approved by the Howard University Institutional Review Board. **RESULTS/ANTICIPATED RESULTS:** The majority (79.8%) of the participants considered themselves as having a “fair” to “good” knowledge of genetics. The sample had a 2.24 ($SD = 77$) mean score on the 5-item genetics knowledge questionnaire with total possible mean scores ranging from 0 (no correct responses) to 5 (all correct responses). Most (53.3%) participants believe it is important for persons of African descent to participate in genetic research. However, almost one-half (46.7%) felt that information from genetic research can be used to discriminate against minorities. In terms of behaviors, 83.4% of the participants never had genetic testing conducted. However, an overwhelming majority reported that they would be willing to participate in a genetic research project specifically for detection of risk factors such as cancer (87%), diabetes (89.3%), Alzheimer disease (88.6%), and alcohol use disorder (75%). **DISCUSSION/SIGNIFICANCE OF IMPACT:** This investigation suggests that persons of African descent generally view participation in genetic research as important and are willing to have their genetic profile analyzed to detect susceptibility to certain diseases. However, ethical issues, such as misuse of genetic research to discriminate against minorities, remain a prominent concern. Further studies are needed to illuminate KABEs and to help identify the role these factors may play in this population's willingness to participate in testing and research. Such information could provide invaluable insight to the development and implementation of more ethical and culturally competence strategies for recruiting minority participants into genetic research.

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Satisfaction and perceptions of research participants in Clinical and Translational Studies

Jane A. Otado, John Kwagyan, Debra Ordor, Sarah Vittone and Priscilla Adler Georgetown – Howard Universities, Washington, DC, USA

OBJECTIVES/SPECIFIC AIMS: The objectives of this study were (1) to examine research participant levels of satisfaction, experiences, and perceptions; and (2) to determine best practices for researchers for engaging research volunteers in clinical trials, and thereby reducing barriers to participation. **METHODS/STUDY POPULATION:** A self-administered IRB approved survey on satisfaction and perceptions of research participants in clinical and translational studies was developed. The study questions were validated by 5 key informants from each of the 3 research centers who were asked to provide constructive feedback on the clarity and relevance of the questions. The final survey was a 25-item questionnaire that used a Likert scale and focused on 5 domains to reflect satisfaction with “Staff delivery of care,” “Environment,” “Center Operations,” “Study specific questions,” and “overall experiences.” Questions to reflect participant perceptions were open ended. A convenience sample of all participants currently enrolled in research studies at CTSA institutions (GU, HU, and MHRI) was obtained. In total, 131 participants completed the survey. Of these, 15 were “surrogate” partners. **RESULTS/ANTICIPATED RESULTS:** Eighty-two (60%) of the participants were African Americans, 40 (29%) were Whites; 94 (67%) were first time study participants. Over 90% of those surveyed strongly agreed that they were “treated well,” that their “privacy was respected,” and that they “felt comfortable asking questions of the staff.” Eighty-four percent indicated they would participate in future studies while over 91% indicated they would recommend a family member or a friend. Only 46% of participants coming for their first research visit strongly agreed that the “compensation received was satisfactory.” However, 74% of participants returning for follow-up or who had been enrolled in a previous study felt the compensation was appropriate. Seventy-four percent of those enrolled for the first time indicated “knowing the duration of this study” as compared with only 38% of repeat visitors. When asked what they liked most about participating in a research study their primary responses were “contribution to science” and “knowledge about their diseases.” Conversely, when asked what they liked least about the study they responded that the blood draws were uncomfortable and there were often barriers to transportation and parking. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The results of this survey demonstrated that the majority of research participants rate their experience as highly favorable even among those who had never participated in clinical research previously. In some existing literature, it has been reported that financial compensation was a major