METHODS/STUDY POPULATION: Among 5 pilot clinical sites, 40 physicians and front-line providers consisting of medical assistants and receptionists were trained on the RxUniverse platform. They were instructed on the platform's purpose, were shown a demonstration of the functionality, and were observed in a trial process of prescribing an app. Specific implementation plans were designed with the help of the clinic staff in order to best fit in with their present workflows. The well-validated System Usability Score (SUS) was used to assess the usability of the platform. Prescriptions of 100 relevant app prescriptions within a 8-week pilot period was set as the adoption goal. RESULTS/ANTICIPATED RESULTS: Within the pilot period, greater than 2000 apps were prescribed across all users. Of the 40 providers trained on the RxUniverse platform, 26 prescribed >5 apps during the trial period. Of these 26 individuals, 18 prescribed >20 apps, 14 prescribed >50 apps, and 5 prescribed >80 apps; 58% of users reported frequent use (weekly or daily) of the platform. In total, 19 responses were received for the SUS survey. The RxUniverse platform received a usability score of 82%. DISCUSSION/SIGNIFICANCE OF IMPACT: As the pace of innovation continues to accelerate, health care providers will need to quickly integrate new digital-based tools into their workflows, and patients will need to be able to easily and readily access these tools. RxUniverse provides the necessary mechanisms, user-friendly interface, and EHR integration functionality to accomplish this. The total number of apps prescribed surpassed 2000, which far exceeded the initial target of 100 apps. The platform also scored an 82% on the SUS, which is considered an "A" by industry standards. By comparison, other health apps considered to have to be in the highest-rating groups have reported scores of 77.5% and an overall average of 68% among all systems. These outcomes demonstrate the high adoption and usability of the RxUniverse platform, an important platform that can be used to prescribe the latest technologies directly to patients.

2546

Mobile use patterns among low-income parents and teens enrolled in outpatient substance abuse treatment

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OBJECTIVES/SPECIFIC AIMS: This study sought to determine the accessibility, utilization, and preference for mobile phone use among a marginalized population of teens enrolled in an adolescent substance abuse treatment program and their parents. Specific study aims were to: (1) characterize mobile phone use, (2) assess the accessibility and reliability of mobile phone usage, (3) determine specific barriers to mobile phone use, and (4) examine parent and teen perceptions of the utility of integrating communication technology in substance use treatment. METHODS/STUDY POPULATION: In total, 103 (78.6% female; 75.7% Hispanic) parents of teens participating in an outpatient substance abuse treatment program with an average age of 42.60 (SD = 9.28) participated in our study. Upon enrollment in a substance abuse treatment program between October 2014 and July 2016, parents completed a technology use survey as part of program development and a chart review of clinic outbound calls to parent mobile phones was completed to evaluate reliability of parent mobile phone access throughout treatment. Survey collection among teens is ongoing. Study population information for teens will be presented at the conference. RESULTS/ANTICIPATED RESULTS: The vast majority of parents owned a cell phone and used it as their primary phone (97.1%); 83% of parents owned smart phones in particular, with the majority being Android phones (68.7%). Parents were more likely to have pay-as-you-go (41.4%) and yearly (32.3%) contracts, and only 15% of the sample endorsed changing their phone number more than once in the past year (64% = never; 21% = once). Parents reported using several of the phone features: text (97%), email (76%), pictures (93%), and accessing the internet (92%); 92% reported they did not have a texting limit; and the most popular use of the mobile phone was to send and receive text messages (58.6%), followed by accessing the internet (19.2%). During the course of a 10-week treatment program, the clinic made 2776 confirmation phone calls to parents who completed surveys. Report of accessibility matched the clinic's ability to reach parents. Of the 2776 calls, 97.2% were made to the original number provided, which was in service. Only 2.7% were determined to be disconnected, with the median number of days for disconnected service being 2 days with no voice and no texting capabilities (range = 14) and 2 days with no voice, but with texting capabilities (range = 28). In terms of parent perceptions of the utility of integrating communication technology in substance use treatment, 91% of parents reported they would be receptive to receiving text messages with parenting tips as aftercare support. Preferred content areas included: strategies for monitoring teen substance use (56%), strategies for using consequences (62%), suggestions for encouraging positive activities (62%), and ways to improve parent-child communication (63%). Accessibility, utilization, and preference for mobile phone use in a treatment program among teen respondents will be presented at the conference. DISCUSSION/SIGNIFICANCE OF IMPACT: This study characterized both subjective and objective mobile phone accessibility and usability among teens participating in an adolescent substance abuse treatment program and their parents. This study also provides information on teen and parent perceptions of using mobile phones during the aftercare period and ratings of acceptable messages following treatment. This data will help researchers design mobile-based interventions both during and after treatment, which is the future direction of our research group.

EDUCATION/MENTORING/PROFESSIONAL DEVELOPMENT

2018

The translational integrator: Facilitating collaboration and bridging the "Valley of Death"

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OBJECTIVES/SPECIFIC AIMS: Translating conventional and regenerative medicine strategies from the research laboratory into the clinic is a complex process that can delay bringing novel therapies to the patient. Navigating the increasingly complex regulation surrounding cell-based and combination product technologies is a major challenge for the translational biomedical scientist. To this end, Mayo Clinic created a new position, the "Translational Integrator," as part of the cGMP Biomaterials Facility in the Center for Regenerative Medicine. METHODS/STUDY POPULATION: The Translational Integrator educates investigators about FDA standards and regulatory pathways; determines where the product is on the translational spectrum; works to understand the science behind the product; determines what additional studies may be needed; supports investigators in preparing for FDA communications and submissions; and educates researchers about institutional resources and funding mechanisms needed to move their product into manufacturing and trials. A primary objective is to meet investigators at an early stage in product development to avoid conducting potentially redundant work to meet regulatory requirements. RESULTS/ANTICIPATED RESULTS: Robust training in clinical and translational research methodology enables the integrator to facilitate the collaboration necessary between investigators, clinicians, institutional resources, regulators and funders to move products towards FDA IND/IDE approval and first-in-human trials. It is an iterative process using technology/translational readiness criteria, project management and review by subject matter experts that is highly interactive and customized to each project. Current projects include topics in orthopedic surgery and ENT. In creating and refining this position, several key lessons have been learned. DISCUSSION/SIGNIFICANCE OF IMPACT: First, the Translational Integrator must undergo constant reflection and assessment of investigator needs, which requires flexibility and understanding that their role may change in the context of each product. Second, the support that the Translational Integrator provides can shift the mindset of the investigator from being averse to engaging in the translational process to eager to move their product forward. Finally, for the investigator who does not personally want to move their work into first-in-human trials, establishing connections to intellectual property generation and licensing may support movement of their findings into patients.

2050

Improving evidence synthesis: Partnering with the Center for Clinical & Translational Science to build a Systematic Review Core

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OBJECTIVES/SPECIFIC AIMS: To improve the quality of evidence synthesis projects, including systematic reviews and other comparative effectiveness reviews, at the University of Utah. METHODS/STUDY POPULATION: Systematic reviews

https://doi.org/10.1017/cts.2017.155 Published online by Cambridge University Press

and other types of evidence syntheses are best when collaborative teams with expertise in multiple disciplines participate, including content experts, librarians and information specialists, systematic review methodologists, and statisticians. The Center for Clinical & Translational Science (CCTS), due to its interdisciplinary nature, connectivity to clinical experts, and existing Cores of methodologists, presented an opportune location for a Systematic Review Core. We designed the Systematic Review Core to focus on 2 primary aspects of evidence synthesis support: overall systematic review methodology guidance and in-depth information retrieval planning and execution. After establishing a conceptual partnership, a new position, Evidence Retrieval and Synthesis Librarian, was created to build capacity within the Core. RESULTS/ANTICIPATED RESULTS: Close connections with the CCTS's Population Health Research Foundation have led to better interdisciplinary coverage of systematic reviews and other evidence syntheses produced by the University of Utah. We are able to partner with statisticians and clinical experts from formulating the question to completing the final manuscript. Hourly rates charged through a cost recovery model have enabled us to grow our staff able to work on the Core, as well as offset costs for major databases and resources these bibliographic data-heavy research methods require. After 1 year of existence, the Core is already at maximum capacity, with no sign of slowing. Projects have ranged from brief consultations to highly intense interactions for the duration of the research spectrum. We have also been added as key personnel to grants with systematic review components. DISCUSSION/SIGNIFICANCE OF IMPACT: Systematic reviews and other evidence syntheses are a labor-intense, interdisciplinary team effort that fit well within the scope of CTSA's. They are a key component of the translation of science to practice, and can be used at all stages of the translational science spectrum. Quality of systematic reviews remains poor, particularly surrounding protocol development, sensitive search strategy design and reporting, and overall reporting. Librarians and information specialist involvement has been shown to positively correlate to the search strategy design and reporting aspects of systematic reviews, and librarians and information specialists increasingly act as systematic review methodologists. By including librarians and information specialists as part of the CTSA's official Core structure, these systematic review methodologists are able to connect with statisticians, other methodologists, and clinical experts in a nexus of interdisciplinarity. At the University of Utah, the visibility and structure provided by the CCTS helps the Systematic Review Core with promotion, creating connections and opportunities for collaboration across the campus. This partnership has already led to increased uptake in services, and over time, we believe it will increase the quality of the science produced. CTSA's have a natural partner with their health science library colleagues in translational science, as shown by this model.

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Evaluating impact of CTSA usage on research productivity outcomes

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OBJECTIVES/SPECIFIC AIMS: In this study, we propose to investigate effectiveness of 2 core services provided by the Center for Clinical and Translational Science (CCTS), home for CTSA program in the School of Medicine at the University of Utah. METHODS/STUDY POPULATION: We will apply a longitudinal database of research and tenure track faculty ($n > 600$) in the School of Medicine at the University of Utah from 2006 to 2016 to estimate the effect of initial usage of the biostatistics and clinical services cores of the University of Utah CCTS on the probability of (a) ≥ 1 peer reviewed publication, (b) external grant funding, and (c) academic promotion within 1, 2, and 3 years after the initial contact. We will apply a "new users" design (Hernan *et al.*, *Epidemiology*, 2008; 19: 766–779) to compare the outcomes of faculty initiating use of the 2 CCTS cores Versus faculty without prior use of these cores in a series of cohorts defined by the calendar year of initial contract with the
2 cores, with covariate adjustment performed within each cohort to account for measured confounders. Separate outcome models will be specified for each cohort, but the statistical models will be fit to stacked augmented data sets which include the data from each cohort. Using the stacked data set, results will be pooled across each of the cohorts to increase statistical power. Robust sandwich estimates of standard errors will be used to account for the inclusion of multiple assessments for each faculty member. RESULTS/ANTICIPATED RESULTS: Estimates of the effect of initiation of new CTSA usage on academic productivity outcomes will be obtained, and provided in conjunction with sensitivity analyses to address the potential impact of uncontrolled confounding. DISCUSSION/SIGNIFICANCE OF IMPACT: The proposed evaluation strategy should overcome some of the biases inherent in typical metrics for effectiveness of CTSA programs, and will be applied to evaluate success of future initiatives.

2068

Expanding capacity for Clinical and Translational Science by investing in research staff through the strategic teamwork for effective practice-mentor development program (STEP-MDP)

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OBJECTIVES/SPECIFIC AIMS: Skillful research staff members are critical to productive translational research teams and yet their ongoing professional development is rarely formally addressed. Through the Strategic Teamwork for Effective Practice-Mentor Development Program (STEP-MDP), we aimed to both create a community of practice (COP) for research staff and build the skills needed to enhance research team performance. METHODS/STUDY POPULATION: We selected 16 participants of 32 staff-level applicants from among the NYU Schools of Medicine, Social Work and Nursing for the first STEP-MDP cohort. Participants included research assistants, coordinators, managers, and directors. We delivered 3, two-hour workshops, scheduled 3 weeks apart, focused on team communication, identifying team areas for improvement, and mentorship/coaching skills. Peer-Coaching Teams (PCTs) were created by pairing participants at the same position level, and PCTs worked together at each session to explore and practice learned skills. Sessions featured brief didactics, group-based learning and exercises based on participants' real issues. A variety of active learning techniques such as brainstorming, role-playing, problem solving, and peer coaching were used. Practical core readings, worksheets, and summary cards were provided. PCTs met between sessions to practice coaching skills, and troubleshoot problems. RESULTS/ANTICIPATED RESULTS: Participants ($n = 16$) completed a 37-item retrospective pre/post self-assessment of team behaviors and skills, and a STEP-MDP evaluation survey at the end. We saw pre-post improvements in each of 5 self-assessment domains: Communication (4 items, pre-mean 2.66, post mean 3.36, $p \leq 0.001$), Leadership (8 items, pre-mean 2.76, post mean 3.55, $p \leq 0.001$), Empowerment and Motivation (12 items, pre-mean 2.86, post mean 3.51, $p \leq 0.001$), Coaching (6 items, pre-mean 2.40, post mean 3.58, $p \leq 0.001$), and Community (3 items, pre-mean 2.33, post mean 3.76, $p \leq 0.001$). On average, PCTs met twice (range 2–4 times) between workshop sessions. Learners valued the PCTs, and 1 commented on the value of working with peers in PCTs, having no one in a similar position within his immediate work environment. Participants' written comments strongly endorsed the value of the workshops for their work, with the coaching skills session seen as the most valuable. Some participants worry that skills will decrease over time without continued reinforcement. All but 1 participant reported that they planned to continue with the PCT. DISCUSSION/SIGNIFICANCE OF IMPACT: The number of applicants to our program suggests a need and motivation for staff to participate in the STEP-MDP. Participants' reported improved skills and sense of community. To maintain the COP and address worry about degradation of skills we are planning to remind PCTs to meet once a month and will follow-up with them 3 and 6 months post intervention to evaluate their continued development. This spring a second cohort will receive the training. We believe developing these core teamwork skills will lead to more collaborative, efficient, and innovative research. We have implemented a successful program targeting critical members of research teams with potential to facilitate expansion of institutional capacity for translational research. It will be important to understand the long-term impact of the program on individuals, on team science, on research, and ultimately on the health of the public.

2069

Competency indices for clinical research professionals

Carlton Hornung, Carolyn Thomas Jones, Terri Hinkley, Vicki Ellingrod and Nancy Calvin-Naylor

OBJECTIVES/SPECIFIC AIMS: Clinical research in the 21st century will require a well-trained workforce to insure that research protocols yield valid and reliable results. Several organizations have developed lists of core competencies for clinical trial coordinators, administrators, monitors, data management/informaticians, regulatory affairs personnel, and others. While the Clinical Research Appraisal Inventory assesses the self-confidence of physician scientists to be clinical investigators, no such index exists to assess the competence of clinical research professionals who coordinate, monitor, and administer clinical trials. We developed the Competency Index for Clinical Research Professionals (CICRP) as a general index of competency (ie, GCPs) as well as sub-scales to assess competency in the specific domains of Medicines Development; Ethics and Participant Safety; Data Management; and Research Methods. METHODS/STUDY POPULATION: We analyzed data collected by the Joint Task Force on

https://doi.org/10.1017/cts.2017.155 Published online by Cambridge University Press