

were barriers for eHealth engagement (23% and 15%). Most (92%) patients reported their therapist reviewed eHealth progress, although one-third of patients wanted more discussion and feedback on eHealth content. PTs felt the eHealth program was valuable (67%), user-friendly (56%), and took minimal effort to support (78%). Some (44%) therapists felt more confident after MI training to support patient engagement. PTs recommended offering patients tablets (i.e., iPads) for clinic or home use and additional therapist training in MI. **DISCUSSION/SIGNIFICANCE:** PTs and patients valued a clinician-supported eHealth program, suggesting an acceptable option for PIPT. Future implementation work aims to identify optimal therapist training in MI and additional strategies to overcome time or technology barriers.

513

Towards Obtaining One Billion Recordings Per Cubic Millimeter for the Validation of Focused Ultrasound Transducers: How Can Robust Systems Help With Translational Activities?

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OBJECTIVES/GOALS: The first aim was to construct a controlled and high resolution FUS water tank characterization system with 1 micron step-sizes. The second aim was to create two unique standardized protocols for mapping the generated acoustic field from FUS transducers; protocol one maps the full 3D field while protocol two rapidly detects changes to the original plot. **METHODS/STUDY POPULATION:** To accomplish aim one, the focused ultrasound mapping platform was constructed with a water conditioning unit for water degassing and temperature control, a three-axis stage with 1 micron step-size capabilities, and a data plotting software. To measure the outcomes of aim one, the water temperature was monitored, and axis step sizes were measured through ten independent axis translation recordings. To accomplish aim two, FUS acquisitions were executed at different resolutions. For FUS localization at the cellular level, a 1-5 micron step size is required. Once the initial scan was performed, duplicate scans were executed to detect inherent perturbations or errors in the system. Once calculated, the best methods of detecting true changes to FUS signals are proposed. **RESULTS/ANTICIPATED RESULTS:** The FUS characterization system maintained water temperature and performed 1 micron step-sizes. While pre-existing platforms have demonstrated a resolution of one thousand recordings per cubic millimeter, the proposed system (time and computing power willing) can record one billion recordings per cubic millimeter. In practice, a resolution of 20 micron was sufficient for non-cellular level FUS characterizations. Successive 2D scans were reliably stacked to form a 3D rendering of the generated acoustic field with the average focal point intensity yielding a 1% coefficient of variation between identical scans. This inherent variation can be used as the threshold of significance for true change detection; to rapidly detect changes to the FUS signal, sampling can be performed at regions of high baseline values. **DISCUSSION/SIGNIFICANCE:** Focused ultrasound medical devices are gaining popularity for treatments including tumor ablation, neuromodulation, and drug delivery; however, the field lacks a standardized method to characterize these FUS transducers. The presented platform and protocols enable a rigorous and high quality translation through verification and validation.

514

Using text mining approaches to identify research trends – an exploratory analysis of Miami Clinical and Translational Science Institute publications from 2013-2021

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OBJECTIVES/GOALS: The goal of this project was to perform an exploratory analysis of the research themes of scientific publications from the Miami Clinical and Translational Science Institute using text mining techniques and using bibliometric characterization and network analysis to further assess research trends. **METHODS/STUDY POPULATION:** Publications were identified from the Web of Science database using Miami CTSI grant numbers as search criteria for the period 2013–2021 and KL2 scholar publications. Following data pre-processing, topic modeling was performed using the Latent Dirichlet Allocation algorithm and cluster analysis in the R programming language. The resulting themes will be further analyzed by employing a citation-based impact assessment approach to identify trends over time. Network analysis of publications will be performed using the VOSviewer package to visualize publication networks using citation and co-authorship relations within each major theme and their evolution over time. Findings will be evaluated for alignment with institutional research strategy. **RESULTS/ANTICIPATED RESULTS:** About 400 CTSI publications from 2013-2021 to date were used for analysis. Twenty topics and five major research themes were identified among the Miami CTSI publications – neuroscience, cancer, community and public health, metabolics, and HIV/infectious diseases. Top keywords within each topic were aligned with the most frequent author-assigned keywords for that topic. The CTSI research themes were also well-aligned with the institutional vision for research and focus areas. Trends using citations and networks for each research theme are currently being analyzed and results will be included in the overall findings post analysis. **DISCUSSION/SIGNIFICANCE:** Text mining was successfully used in identifying topics and research themes for clinical and translational research publications of the Miami CTSI, and in combination with bibliometric characterization, will be helpful in shaping CTSI strategy and alignment with the university's research priorities.

Health Equity and Community Engagement

515

Development of an online intervention prototype for gestational weight management in rural women

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OBJECTIVES/GOALS: Despite the importance of addressing maternal weight to promote healthy pregnancies, previous gestational weight management programs have overlooked rural women. Accordingly, this study used an optimization framework to develop and refine a prototype for an online gestational weight management intervention targeting rural women. **METHODS/STUDY POPULATION:** Methods were guided by the Obesity-Related

Behavioral Intervention Trials (ORBIT) model, an optimization framework focused on intervention development and refinement. In line with this framework, three major steps were followed. First, qualitative interviews were conducted with 16 rural women who were currently or had recently been pregnant to identify barriers, facilitators, and desired resources for gestational weight management. A template analysis approach was applied to the resulting interview transcripts to identify pertinent themes. Second, themes derived from the initial interviews were used to inform the development of an online intervention prototype. Third, feedback on this prototype was sought from an additional sample of 15 rural women who were currently or had recently been pregnant. **RESULTS/ANTICIPATED RESULTS:** Themes from the initial interviews highlighted numerous barriers, facilitators, and desired resources for rural gestational weight management that aligned with common social determinants of health (e.g., neighborhood and built environment, social and community context) and pregnancy-specific factors. Women also described wanting an online gestational weight management program that included a user-friendly interface, psychoeducation, tailored health recommendations, accountability, and simple behavior-logging tools. Using this feedback, an online intervention prototype was developed. Results from the feedback interviews are currently being qualitatively analyzed for themes and will be used to further refine the prototype prior to feasibility testing. **DISCUSSION/SIGNIFICANCE:** This study used an optimization framework to develop an online intervention aimed at supporting healthy maternal weight outcomes in rural communities. Because rural women experience notable weight disparities compared to their urban peers, this intervention has the potential to promote more equitable maternal health outcomes in rural areas.

Regulatory Science

LinkedIn Marketing Strategies to Drive NJ ACTS Regulatory Core Engagement

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OBJECTIVES/GOALS: Our purpose is to promote traffic toward the NJ ACTS Regulatory Cores recently launched website and increase investigator engagement through marketing strategies on LinkedIn. Landscaping to characterize the profiles of researchers on LinkedIn was also completed to estimate the feasibility of engaging with a target population on LinkedIn. **METHODS/STUDY POPULATION:** Insight gathering was performed to analyze what percentage of researchers possessed a LinkedIn profile and actively used their accounts. A sample population consisting of 284 NJ ACTS members were analyzed to summarize the type of researchers on LinkedIn, and their likelihood of responding to LinkedIn marketing campaigns. Efforts to launch a company LinkedIn page and collect followers were completed. Different methods of promotion were evaluated, including direct vs. mass email outreach to over 600+ researchers at Rutgers. Effectiveness of our platform was measured by comparing/overlying Regulatory website traffic with LinkedIn traffic, as well as tracking the metrics of LinkedIn posts. **RESULTS/ANTICIPATED RESULTS:** Among 284 NJ ACTS members, 76% (n=215) possess a LinkedIn profile, but only 21% (n=59) are actively

interacting with material on LinkedIn, such as creating, commenting, or sharing posts. Among the NJ ACTS LinkedIn users, 27% of individuals (n=57/215) responded to a direct outreach. Retention of the created organizational page was strong, as most users who visited the Regulatory Core page were likely to become followers. Massive email outreach to 600+ researchers within RBHS did not yield a strong LinkedIn following, however it did result in strong signals of website traffic during the days after the promotion was sent. Engagement with posts on LinkedIn can also be amplified and messaging proliferated when colleagues reshare Regulatory posts on their personal feeds. **DISCUSSION/SIGNIFICANCE:** 3/4 of academic researchers are likely to be on LinkedIn but may not be active users of the platform. The most effective outreach is through direct messaging as opposed to broader, less individualized tactics (including mass email outreach). Evidence suggests potential to utilize LinkedIn to proactively engage in regulatory-related activities.

Research Management, Operations, and Administration

517

Understanding Distinctions in the Implementation of Learning Health System (LHS)

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OBJECTIVES/GOALS: The LHS concept has been promoted as a means for health systems to improve quality, safety, efficiency and equity. NAMs definition has been widely adopted, but is broad and has led to variation in how LHS is operationalized. Drawing on a taxonomy developed through a review of literature, we developed a tool that shows how LHSs are implemented in practice. **METHODS/STUDY POPULATION:** The LHS Implementation Assessment Tool (LHS-IAT) will indicate which forms of work are being carried out by a health system that purports to operate a LHS. LHS-IAT is based on the LHS Consolidated Framework (LHS-CF); which was developed through a qualitative analysis of LHS literature. LHS-CF contains 38 primary elements⁷ and 56 secondary elements⁷ that have been associated with the LHS construct. These elements are organized into 5 bodies of work• (e.g.; translating evidence into practice) and 4 enabling conditions• (e.g.; supportive culture). LHS-IAT assesses whether a health system operating as an LHS is implementing each of the key elements in LHS-CF. The usefulness of LHS-IAT will be demonstrated by applying the tool to 5 LHSs that have been described in the literature. **RESULTS/ANTICIPATED RESULTS:** LHS-IAT produces a quantitative profile for any given health system operating as a LHS; each LHS element is assessed as either emphasized; otherwise present; or absent. With this information, we create profiles for each implementation of LHS, using spider graphs. Systems that emphasize different elements will have different shapes for their spider graphs. Based on our initial coding of publications, we expect at least 4 distinct profiles within our sample, reflecting differences in emphasis on factors such as: continuous improvement practices, adoption of internally and externally tested interventions, research conducted to address patient care issues prioritized by institutional leaders, investigator-initiated research, clinician-engaged research, and engagement of patients and families. **DISCUSSION/SIGNIFICANCE:** The LHS-IAT will show differences in how health systems are translating the LHS concept into practice. This will allow for a shared language for those studying and/or implementing LHS. With the ability to map out an approach, health system

516