via AI prompts will likely result in optimized, error-free data, ensuring compliance with regulations. The use of genAI for creating IRB consent forms from grant documents should significantly streamline the IRB approval process, reducing preparation time and administrative burdens. Thematic analysis of CTSA aims by AI will provide deep insights into historical trends and recurring themes, aiding in strategic planning. AI-assisted study design tools are anticipated to optimize sample estimation, protocol development, and advance the quality of clinical research administration. DISCUSSION/SIGNIFICANCE OF IMPACT: The significance lies in enhancing efficiency, accuracy, and quality in clinical research administration. By streamlining processes, reducing errors, and providing strategic insights, AI supports the CTSA mission to accelerate translational research, thus improving public health outcomes and scientific innovation.

557

Uncovering bias in digital recruitment for neurologic research: Demographic and socioeconomic influences on participant engagement

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OBJECTIVES/GOALS: Digital recruitment can improve participant engagement in medical research, but its potential to introduce demographic and socioeconomic biases is unclear. This study investigates pathways participants took during a digital recruitment workflow in neurology, examining potential associations with socioeconomic and demographic factors. METHODS/STUDY POPULATION: As part of an ongoing study aiming to remotely capture speech from patients with neurologic disease, most participants seen in neurology on our campus are invited to complete a self-administered speech examination. We exported participant data from Epic (semi-automated identification and invitation), Qualtrics (eligibility screening), the participant tracking database (consent), and the recording platform (completion) for March to July 2024. Data visualization was performed using a Sankey diagram. Socioeconomic status was assessed using the housing-based socioeconomic status (HOUSES) index and area deprivation index (ADI) national rank. Kruskal–Wallis and Wilcoxon rank-sum tests were used to compare the median age, socioeconomic indices, and time taken to reach different steps of the study. RESULTS/ANTICIPATED RESULTS: Of the 5846 invited participants, 57% were from urban areas, 23% from rural areas, and 20% from urban clusters. Most did not read/respond (2739) or declined (1749) the initial invitation via Epic. Of the 1358 interested participants, 415 completed the study. Participants from urban areas completed enrollment steps faster than those from rural areas and urban clusters, though the variance was large (42.6 ± 41.4 days vs. 50.6 ± 42.2 days and 50 ± 43.9 days, respectively; $p = 0.030$). Female participants took longer to complete enrollment than males (48.7 ± 44 days vs. 40.5 ± 38.8 days; $p = 0.026$). Participants who successfully finished the study had significantly lower ADI national ranks compared to other common pathways (40.6 ± 19; $p = 0.0021$). No associations were found with the HOUSES indices. DISCUSSION/SIGNIFICANCE OF IMPACT: Our findings support differences in participant engagement, with urban participants and males more likely to complete enrollment steps. Those who finished the study were less disadvantaged suggesting potential bias in digital recruitment. These findings can inform strategies to improve digital recruitment in neurology research.

558

Translational science in practice: A case study of the clinical research support center's collaborative model

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OBJECTIVES/GOALS: Conduct an evaluation of the Clinical Research Support Center (CRSC) model using a structured methodology, leverage insights to drive continuous improvement and evolution, and broadly disseminate outcomes to promote knowledge sharing and best practices for similar translational science initiatives. METHODS/STUDY POPULATION: We will utilize a structured case study approach, including adapting a translational science case study evaluation approach to assess impact as well as support practices, barriers, and facilitators that influence research translation. We will collect data from diverse sources. Primary data will come from structured interviews with stakeholders and a survey of a random sample of faculty and research staff. Secondary data includes grant applications, reports, and publications; public stories/media related to research supported by CRSC; scientific publications; and organizational documents. RESULTS/ANTICIPATED RESULTS: The case study will identify the CRSC model's impact on the research enterprise. Findings will articulate the specific strategies and practices the CRSC implemented to support clinical research; key factors, people, and resources that helped develop, improve, and promote CRSC services; significant milestones in evolution of the CRSC; and specific ways in which support services impact clinical research infrastructure and outcomes. The findings will highlight both strengths and areas for improvement. Early results show historical challenges with operational silos and resource limitations. Findings suggest CRSC facilitators include a team science approach with institutional support. DISCUSSION/SIGNIFICANCE OF IMPACT: This case study will provide insights related to benefits, challenges, and facilitators of a translational science support model. Insights will guide the CRSC's evolution and be broadly disseminated to promote knowledge sharing and best practices for future translational science applications.

559

Improving social media advertising campaigns for participant recruitment for clinical trials and other health research studies

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OBJECTIVES/GOALS: This continuous quality improvement project focuses on the efficiency and effectiveness of social media campaigns for clinical trials and other health research. We analyzed data from 160 studies that recruited via social media campaigns on Meta and used the results to make improvements to MICHR's Participant Recruitment social media campaigns. METHODS/STUDY POPULATION: Data on 440 ad buys purchased for Meta

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advertising campaigns designed for 160 studies were collected from U-M's Research Data Warehouse, Meta, and other administrative sources. MICHR's participant recruitment team systematically reviewed these data and rated the relevance and effectiveness of the recruitment strategies for each study. Stepwise linear regressions were used to test predictors of the efficiency and effectiveness of social media campaigns on Meta, as measured by the 1) total reach, 2) total clicks, 3) the "click-through rate," and 4) cost per "click" of the campaign over time. Differences between the impact of campaigns for clinical trials and other clinical and translational research were found. Improvement initiatives informed by these results are underway and their impact is being evaluated. RESULTS/ANTICIPATED RESULTS: 64 clinical trials and 94 non-trials were identified, with an average of $1,635 spent on social media campaigns for trials and $950 spent on non-trials. Across all social media campaigns, an average of 121,500 people were reached at a total cost of $1,220 per campaign, returning 4,288 clicks (4% click through rate) at $0.38 per click. The campaigns for trials reached more people than non-trials (152,998 vs. 101,261) and they attracted a larger number of clicks (6090 vs. 3106). The resulting average click-through rate was higher for clinical trials (4.9% vs. 3.7%), and the cost per click was lower ($0.35 vs. $0.39). Campaigns for clinical trials cost significantly more (Mean = $1,635, SD = $1,473, p = .020) but returned more clicks (Mean = 6,090, SD = 5,105, p = .007), and higher click-through rates (Mean = 4.9%, SD = 2.2%, p = .017). DISCUSSION/SIGNIFICANCE OF IMPACT: There is great variation in the efficiency and effectiveness of social media advertising campaigns for recruitment into clinical trials and other clinical and translational studies. While the size and cost of these campaigns were found to be higher for clinical trials than for non-trials, the effectiveness of trials' campaigns can also be greater.

560

Defining, prioritizing, and solving problems in translational science: An innovative framework for community-driven strategic investment

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OBJECTIVES/GOALS: Clinical and Translational Science Award hubs will be the primary investors in advancing translational science until academic reward structures and funding agencies incentivize these efforts. As such, hubs will benefit from systematic methods to strategically identify and efficiently solve challenges in the translational process. METHODS/STUDY POPULATION: Translational science (TS) problems are abundant, complex and typically reside within systems of interconnected processes and people. These characteristics are informing efforts at the Michigan Institute for Clinical & Health Research (MICHR) to create a framework that guides how we select the right translational science problems to invest in solving and how we solve these problems in user-centric, efficient, and effective ways. Our framework leverages methods from the fields of design and systems thinking. Design thinking is a human-centered approach to problem solving and innovation that is ideal for tackling ill-defined and complex problems. Systems thinking methods help us situate and analyze problems within broader dynamics, structures, and perspectives, ultimately informing key levers for change. RESULTS/ANTICIPATED RESULTS: Applying design and systems methods, we created an eight-step TS framework that centers on the diverse perspectives of those experiencing a TS problem and those implementing solutions. The first four steps guide in defining the TS problem within its context, understanding why previous solutions have not worked, and determining the value and generalizable knowledge that a solution would create. The last four steps are solutions-focused, with iterative brainstorming, testing, and refining of potential solutions before they are implemented locally and disseminated widely. Each step is underpinned by guiding questions, methods, outputs, and metrics to ensure a scientifically rigorous approach to defining, prioritizing, and solving TS problems. We are currently prototyping the framework with various case studies. DISCUSSION/SIGNIFICANCE OF IMPACT: A framework that guides strategic investment in TS should ensure resources are allocated to the most well-defined and pressing problems that are important to the community and should speed up the process of creating solutions. Engaging myriad viewpoints leads to more viable solutions that foster a commitment to real change within the research ecosystem.

561

Research operations dashboard: Developing a shared data infrastructure for multisite quality improvement

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OBJECTIVES/GOALS: Lack of comparative data limits research operations quality improvement (QI). The Northwest Participant and Clinical Interactions (NW PCI) Network, a group of 17 unaffiliated university and health system-based research centers, built an operations dashboard to track efficiency and enable multisite QI projects. METHODS/STUDY POPULATION: A Data Governance Working Group was assembled to establish shared data governance, draft nondisclosure (NDA), and data transfer and use agreements (DTUA) suitable across organizations and standardize research operations metric definitions. Sites in the NW PCI Network were recruited to participate in a pilot program to assess data sharing and governance infrastructure, data collection, upload procedures, and data visualization tools. The NW PCI Coordinating Center developed an analytical data dashboard of research operations metrics and conducted semi-structured interviews with participating sites to understand barriers and facilitators of program success. RESULTS/ANTICIPATED RESULTS: Four sites (2 health systems, 2 universities) were recruited for the pilot and reviewed and executed NDAs and DTUAs. Three of the sites have submitted data for a total of 1,405 studies. Of the 24 requested data operations metrics (e.g., study startup, recruitment, implementation, and basic study information), 71% of the metrics were submitted by all three sites (n = 17), 25% were submitted by at least one site (n = 6), and 4% were not submitted by any site (n = 1). Interviews with sites after data submission found areas for improvements (clarification of data definitions, efficiency of data upload process) and positive effects for sites (e.g., process improved insight into own data operations). DISCUSSION/SIGNIFICANCE OF IMPACT: Unaffiliated research centers created data governance procedures to enable sharing of operations data. Pilot sites successfully loaded most but not all operations data to the dashboard. Interviews identified process limitations and opportunities for improvement to inform expansion to all NW PCI sites.

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