University. Participants were recruited through Upstate's Family Medicine and OB/GYN practices via a MyChart invitation sent by the practices. Participating patients will be asked to complete a survey, through MyChart, every 3 months for 18 months. Participating health providers will be trained to use the decision support tool and participate in 3 interviews with the researchers to gain insight into the usefulness and effectiveness of the tool. RESULTS/ANTICIPATED RESULTS: Of the 465 eligible women, 117 women responded to our MyChart invitation to join our study. Of these, 105 agreed to participate and 98 met eligibility criteria. Only half of the women currently enrolled in our study had spoken to a provider about menopause related symptoms (56.1%) prior to study enrollment. DISCUSSION/SIGNIFICANCE OF IMPACT: The goal of this study is to improve menopause related symptoms in women, thus increasing their quality of life, but it will also provide important process evaluation for using EPIC and MyChart for future research studies.

2506

Using Amazon's Mechanical Turk as a tool for a global survey: Lessons learned from a large-scale implementation

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OBJECTIVES/SPECIFIC AIMS: To share lessons learned from implementing a health survey to a global sample of mTWs. METHODS/STUDY POPULATION: mTWs were paid $0.50 for taking a 15 minute survey to ascertain attitudes and intentions toward participating in genetic research. Two phases included: pilot survey targeting 7 global regions and a large-scale implementation in English in United States, India, and other countries and in Spanish in Spanish speaking countries. Administrative and descriptive information were collected and analyzed by region/country including: completions by location, demographics, time to complete, and survey satisfaction. RESULTS/ANTICIPATED RESULTS: There are 4 key lessons: (1) MTurk is fast. The US sample (n = 505) accrual took <2 days and the Indian sample (n = 505) took 11 days, while the response from other countries (n = 118) generally exceeded 30 days. (2) Using Amazon country specification was the best way to ensure responses from specific countries and regions. (3) Demographic differences exist in mTWs between countries. For example, US mTWs were significantly more likely female (60.1%) compared with India (30.2%) and other countries (34.2%). (4) mTWs found the survey understandable/ acceptable. mTWs reported high understandability and acceptability of the survey, which did not vary significantly across countries or by language. DISCUSSION/ SIGNIFICANCE OF IMPACT: mTurk provides an efficient platform for survey research from diverse US and Indian samples. In other countries and in Spanish, the mTurk mechanism yielded a smaller sample more slowly but was still effective.

2507

Towards a scalable informatics platform for enhancing accrual into clinical research studies

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OBJECTIVES/SPECIFIC AIMS: Issues with recruiting the targeted number of participants in a timely manner often results in underpowered studies, with more than 60% of clinical studies failing to complete or requiring extensions due to enrollment issues. The objective of this study is to develop and implement a scalable, organization wide platform to enhance accrual into clinical research studies. METHODS/STUDY POPULATION: We are developing and evaluating an informatics platform called Utah Utility for Research Recruitment (U2R2). U2R2 consists of 2 components: (i) Semantic Matcher: an automated trial criterion to patient matching component that also reports uncertainty associated with the match, and (ii) Match Delivery: mechanisms to deliver the list of matched patients for different research and clinical settings. As a first step, we limited the Semantic Matcher to utilize only structured data elements from the patient record and trial criteria. We are now including distributional semantic methods to match complete patient records and trial criteria as documents. We evaluated the first phase of U2R2 based on a randomized trial with a target enrollment of 220 participants that compares 2 treatment strategies for managing back pain (physical therapy and usual care) for individuals consulting a nonsurgical provider and symptomatic <90 days. RESULTS/ANTICIPATED RESULTS: U2R2 identified 9370 patients from the University of Utah Hospitals and Clinics as potential matches. Of these 9370, 1145 responded to the Back Pain study research team's email or phone

communications, and were further screened by phone. In total, 250 participants completed a screening visit, resulting in the current study enrollment of 130 participants. Forty-three of 1145 patients refused to participate, and 50 participants no-showed their screening visit. DISCUSSION/SIGNIFICANCE OF IMPACT: A recruitment platform can enhance potential participant identification, but requires attention to multiple issues involved with clinical research studies. Clinical eligibility criteria are usually unstructured and require human mediation and abstraction into discrete data elements for matching against patient records. In addition, key eligibility data are often embedded within text in the patient record. Distributional semantic approaches, by leveraging this content, can identify potential participants for screening with more specificity. The delivery of the list of matched patient results should consider characteristics of the research study, population, and targeted enrollment (eg, back pain being a common disorder and the possibility of the patient visiting different types of clinics), as well as organizational and socio-technical issues surrounding clinical practice and research. Embedding the delivery of match results into the clinical workflow by utilizing user-centered design approaches and involving the clinician, the clinic, and the patient in the recruitment process, could yield higher accrual indices.

2510

QIPR: Creating a Quality Improvement Project Registry

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OBJECTIVES/SPECIFIC AIMS: To create a searchable public registry of all Quality Improvement (QI) projects. To incentivize the medical professionals at UF Health to initiate quality improvement projects by reducing startup burden and providing a path to publishing results. To reduce the review effort performed by the internal review board on projects that are quality improvement Versus research. To foster publication of completed quality improvement projects. To assist the UF Health Sebastian Ferrero Office of Clinical Quality & Patient Safety in managing quality improvement across the hospital system. METHODS/STUDY POPULATION: This project used a variant of the spiral software development model and principles from the ADDIE instructional design process for the creation of a registry that is web based. To understand the current registration process and management of quality projects in the UF Health system a needs assessment was performed with the UF Health Sebastian Ferrero Office of Clinical Quality & Patient Safety to gather project requirements. Biweekly meetings were held between the Quality Improvement office and the Clinical and Translational Science – Informatics and Technology teams during the entire project. Our primary goal was to collect just enough information to answer the basic questions of who is doing which QI project, what department are they from, what are the most basic details about the type of project and who is involved. We also wanted to create incentive in the user group to try to find an existing project to join or to commit the details of their proposed new project to a data registry for others to find to reduce the amount of duplicate QI projects. We created a series of design templates for further customization and feature discovery. We then proceed with the development of the registry using a Python web development framework called Django, which is a technology that powers Pinterest and the Washington Post Web sites. The application is broken down into 2 main components (i) data input, where information is collected from clinical staff, Nurses, Pharmacists, Residents, and Doctors on what quality improvement projects they intend to complete and (ii) project registry, where completed or "registered" projects can be viewed and searched publicly. The registry consists of a quality investigator profile that lists contact information, expertise, and areas of interest. A dashboard allows for the creation and review of quality improvement projects. A search function enables certain quality project details to be publicly accessible to encourage collaboration. We developed the Registry Matching Algorithm which is based on the Jaccard similarity coefficient that uses quality project features to find similar quality projects. The algorithm allows for quality investigators to find existing or previous quality improvement projects to encourage collaboration and to reduce repeat projects. We also developed the QIPR Approver Algorithm that guides the investigator through a series of questions that allows an appropriate quality project to get approved to start without the need for human intervention. RESULTS/ANTICIPATED RESULTS: A product of this project is an open source software package that is freely available on GitHub for distribution to other health systems under the Apache 2.0 open source license. Adoption of the Quality Improvement Project Registry and promotion of it to the intended audience are important factors for the success of this registry. Thanks goes to the UW-Madison

and their QI/Program Evaluation Self-Certification Tool (https://uwmadison.co1.qualtrics.com/SE/?SID=SV_3IVeNuKe8FhKc73) used as example and inspiration for this project. DISCUSSION/SIGNIFICANCE OF IMPACT: This registry was created to help understand the impact of improved management of quality projects in a hospital system. The ultimate result will be to reduce time to approve quality improvement projects, increase collaboration across the UF Health Hospital system, reduce redundancy of quality improvement projects and translate more projects into publications.

2514

Governance for a decentralized informatics academic environment

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OBJECTIVES/SPECIFIC AIMS: Due to scope and breadth of research activity and infrastructure capacities at academic medical centers, the discipline of Biomedical Informatics is often deployed in a decentralized manner through geographically dispersed and unrelated organizational units. As a result, without a conscious strategy, an academic medical center risks redundant effort and gaps in resources, and perhaps poor coordination. A mechanism to bring together disparate organizational entities to identify, discuss, and negotiate Informatics-related concerns may produce a better institutional research environment. The University of Rochester (UR) has implemented such a strategy of Informatics governance, adapting tactics from team science, diplomacy, and deliberative engagement. METHODS/STUDY POPULATION: Based on current needs and institutional Informatics priorities, the UR's Clinical and Translational Science Institute (CTSI) established 6 Informatics "clusters" in distinct but deliberately overlapping focal areas: (1) Data—capture, management, and analysis of all types of data for research. (2) Analytics—quantitative research across the spectrum of translational research. (3) Infrastructure—technical and computing infrastructure to support informatics. (4) Electronic health records (EHR)—(i) features within the EHR explicitly designed to address the needs of research; (ii) accessing and procuring EHR data for research. (5) Population health—Informatics design and systems expertise relevant to population health research (a key CTSI focus area). (6) Education—development, deployment, and assessment of Informatics learning opportunities for learners at all levels. Each cluster facilitates access to expertise and resources around the institution, promotes collaboration, identifies redundancy, and serves as a forum to strategize regarding institutional needs related to Biomedical Informatics. A CTSI faculty or staff member leads each cluster. To maximize effectiveness of the cluster, other members are decision-makers in the organizations they represent, or serve in a critical staff function. Clusters meet in person on a quarterly basis with more frequent electronic interaction. The clusters share documents via Box, a secure online file sharing app. The cluster coordinators meet as a group on a biweekly basis to monitor progress and make plans. RESULTS/ANTICIPATED RESULTS: There were 45 different people representing 46 distinct centers, departments or offices, and 2 outside agencies agreed to participate in the clusters. In total, 20 people represented a single organizational unit; 15 represented 2 units; 8 represented 3 units, and 2 represented 4 units. The richness and complexity of these organizational linkages illustrates the decentralized nature of Informatics at the institution and the promise of the cluster approach. DISCUSSION/SIGNIFICANCE OF IMPACT: Adapting to a decentralized Informatics environment, the CTSI established clusters that recognize and respect autonomy and capacity of a wide range of units throughout the university, creating a collaborative atmosphere for steering and implementing an overall Informatics vision. As Informatics capacity rapidly expands throughout growing biomedical research institutions without a centralized Informatics hub, this distributed, deliberative approach could offer an effective governance solution that promotes cooperation. In this model, the CTSI provides the leadership and staffing necessary to ensure progress at the institutional level around Informatics and creates a venue for communication and coordination on Informatics-related topics.

2527

Citation network towards faculty development inside and outside of CTSAs

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OBJECTIVES/SPECIFIC AIMS: (1) Obtain publically available citation data, funding data, and generate multiple networks topologies based on dynamic queries of individual faculty. (2) Determine successful pathways that lead to tenure, and career advancement, in addition to determining the effect of CTSA programs on

faculty collaboration. (3) Develop publically available commercial interface for the study of faculty networks METHODS/STUDY POPULATION: For our study we included all available citation and funding data publically available on all CTSA programs (as of 2015) with historical data dating back to 2005. We then included the top 25 collegiate institutions who may not have had a CTSA program (eg, Princeton University). We then developed network topologies for each university network, and explore the evolution of individuals in these networks, and the effects of faculty development—as an example in the University of Rochester network, we singled out the directors of the CTSA program there to understand their level of centrality and overall impact on network development, with key observations being that early publications across varying domains lead to stronger network performance. Although individuals who did not benefit from such development, may have succeeded but if they did were likely to leave the institution for elsewhere. RESULTS/ANTICIPATED RESULTS: A secondary goal of this project is to evaluate the effectiveness of the Clinical & Translational Science Institute (CTSI) since its inception in 2006. The mission of CTSI is to advance the field of translational science and research, to link other departments at URMC and community stakeholders by research collaboration, publication, and goals to improve population health, and provide translational education and training to students, researchers, and physicians. To determine how the induction of CTSI affects collaboration within the URMC network, we examined the role of funding in the CTSI network. This was done around the second successful funding around 2013. In doing so we can see that not only did the funding request affect the network topology, but opened new collaborations which were not present prior to the request. DISCUSSION/SIGNIFICANCE OF IMPACT: We have developed an automated method, which is superior to manual methods necessary for citation generation and funding data analysis of faculty growth in citation networks. This technique is applicable to all institutions, not just those in a CTSA environment, but demonstrates the benefit of cross-collaborative efforts, in the case of the URMC network we can state the following. The key takeaway is for individuals to succeed in the URMC collaborative environment they should create their own network and expand it and eventually rise to prominence. There are 2 pathways to this you can take the Dewhurst approach which is to seek out collaborations among internal peers and scale up. Or you can take the Nedergaard approach which is develop the special network, and gain enough public recognition outside of the network that you are capable of leaving it (Fig. 2d). In either case, collaborations among communities and diverse out-degree networks allow faculty to succeed in their given field. Given the wealth of data which has been curated in this fashion, there are numerous explicit questions that can be asked of the data. One of the unique approaches of this data is that is highly reproducible, which allows various questions to be asked. Future work would try to determine what optimal pathways are in a given network to success, and who are ideal collaborators, and collaborations to avoid. Given this information, custom pathways to career success for individual faculty can be developed, moving beyond purely institutional level co-citation networks, which do little to advance faculty development at scale. In Figs 1c and d, the network increased by 75% in terms of graph density (0.007) and decreased by 18.8% (16) in terms of diameter. What this suggest in that the interconnectivity of the network grew dramatically, while the ability for new members to integrate into it increased. This also apparent when one examines the modularity of the network down by 3.6% (0.857), this suggest that the network has as many communities but these communities are less isolated that those in the previous funding year, meaning fields are becoming more transdisciplinary in their collaborations. This was the result of the presence of a CTSA program, thus demonstrating the effectiveness of such institutions, however, our analysis also lays the framework for applying this to other institutions which may be considering a CTSA. Or maintaining the success of a given CTSA program, and ultimately determining where faculty should place their efforts and choose which programs to pursue career advancement.

2545

Integration of HMIS and UI Health Cerner Clinical System to enable data sharing about homeless individuals

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OBJECTIVES/SPECIFIC AIMS: This research project envisions the integration of Homeless Management Information System (HMIS) and UI Health Cerner electronic medical record (EMR) system with the following goals: (1) enable sharing of data about the status of the housing insecure and homeless. (2) Identify and match patient record accurately. (3) Record housing insecurity or homelessness information with structured data elements in the EMR. METHODS/STUDY POPULATION: We created a Master Person Index (MPI) of