

(e.g. GCP) as well as more specialized topics (e.g. comparative effectiveness research). They can also be used to quickly respond to breaking issues (e.g. single IRB review). In an initial survey targeting University of Virginia clinical research coordinators, 54 (68%) of 79 respondents reported having viewed a learning shot. Among those who had, 41 (84%) of 49 respondents reported that learning shots were helpful to their learning needs. Continuous evaluation is expected to further inform how learning shots meet clinical and translational science education needs. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Learning shots are an innovative and versatile educational tool for clinical and translational science that can be used to quickly and effectively convey important research information in response to an increasingly complex research environment and diverse learner needs.

4197

### **A Landscape Analysis of CTSA websites for Clinical Research Professional Training Opportunities**

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**OBJECTIVES/GOALS:** We conducted a review of CTSA websites to understand the current landscape for CRP institutional professional development and training revealed in the CTSA hub websites. **METHODS/STUDY POPULATION:** We accessed and reviewed 59 currently funded CTSA hub websites for evidence of CRP training opportunities. Parameters reviewed included: 1) opportunities were specified for CRPs versus K and T trainees; 2) mandated training; 3) leveling; 4) delivery methods/resources; 5) public accessibility; 6) unique features. The website reviews informed a REDCap survey sent to the CTSA Administrators (n = 149) and the Coordinator Taskforce (n = 105) listservs to gain additional knowledge of CRP training available at the institution. A subsequent repeat review of the CTSA hub websites will be conducted to determine evolving trends. **RESULTS/ANTICIPATED RESULTS:** A total of 40 responded to the survey from 59 CTSA hubs. Survey results are being analyzed. Website review data are being tabulated and the subsequent review of websites will be collected in February. Those findings are pending and will include a comparison of prior findings. 42% of CRP hubs list CRP training within the CTSA hub website. Required onboarding training (beyond CITI certificates) is revealed for some hubs (15%). **DISCUSSION/SIGNIFICANCE OF IMPACT:** On our initial website review less than half of the CTSA hub websites list specific CRP training on their website. Many were hidden behind firewalls and could not be reviewed for content. The REDCap Survey will provide more granular descriptions of programs. Data from a second website review will be collected for comparison. Based on a preliminary re-review of sites, there is a suggestion of increasing CRP workforce development information. CTASAs are well-positioned to be a central hub for promoting educational excellence of the institutional workforce, for medical centers and in other venues where clinical research is performed.

4060

### **A Telehealth Approach to Improving Healthcare to Rural and Underserved Populations**

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**OBJECTIVES/GOALS:** Project Extension for Community Health Outcomes (ECHO), a telehealth model, was launched at Penn State

University in 2018 to connect specialists with community providers to provide education on best clinical practices. We aim to describe clinical topics covered and relevant provider level outcomes. **METHODS/STUDY POPULATION:** The heart of the ECHO model is a hub-and-spoke knowledge-sharing system. The ECHO model has four core principles: 1) use technology to leverage scarce resources; 2) share best practices to reduce disparities; 3) employ case-based learning to master complexity; 4) monitor outcomes to ensure benefit. Unlike telemedicine, where outside specialists assume the care of the patient, Project ECHO is a guided learning community aimed at practice improvement: providers receive mentoring and feedback on de-identified patient cases, strengthen their skillset, and retain responsibility for their patients. **RESULTS/ANTICIPATED RESULTS:** Clinical topics launched include Medication Assisted Treatment for Opioid Use Disorder, Ehlers Danlos Syndrome, Polyneuropathy, and Dementia. In addition, we launched a nutrition-focused ECHO with Boy Scout summer camp leaders in 26 states, reaching 107,347 scouts. Over the past year we have reached 118 clinicians in 62 clinics within 19 counties in Pennsylvania, providing a total of 268 CME hours. These providers have treated 2,294 patients and reported increased knowledge (94%), decreased sense of professional isolation (86%), and improvement in ability to provide patient care (92%) following completion of an ECHO series. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Project ECHO is a powerful telehealth model providing mentorship and education to clinicians, encouraging them to treat more complex cases in their primary care clinics. As a result, patients receive higher quality care when they need it, and close to home, particularly important in rural areas.

4032

### **An exploration of the perceptions of young women with breast cancer with varying health literacy levels about the usefulness of cancer educational materials**

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**OBJECTIVES/GOALS:** Young women (18 – 45 years of age) with breast cancer have complex medical and psychosocial needs. Educational materials are often used as tools in patient-centered communication. However, these materials disseminate complex health information in print-heavy formats and can be difficult to understand for women with varying health literacy levels. **METHODS/STUDY POPULATION:** In the first phase of this study, the principal investigator (PI) will recruit 40 diverse women to participate in four focus groups (FG) to explore the perceived usefulness of the most frequently used cancer educational materials. The PI will also obtain demographics and health literacy levels of the FG participants using the Newest Vital Sign. In the second phase, the PI will assess the literacy demands of the ten most frequently used cancer educational print materials and five most frequently used websites described by the FG participants. The perceptions of the usefulness of materials and the literacy demands will then be used to appraise the effectiveness of materials within patient-centered cancer communication. **RESULTS/ANTICIPATED RESULTS:** Results from this study will provide a patient-centered blueprint that will be used to design more effective educational materials that treatment centers can incorporate into their patient-centered cancer communication process. The next step of this research will be to determine providers' perceptions of cancer education materials used to exchange information within the patient-centered communication process. This will complement the

patient findings and inform the development of the provider aspect of a communication intervention centered on designing educational materials for women with various health literacy levels within the patient-centered cancer communication process. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Detecting the usefulness of cancer educational materials, as perceived by young women with breast cancer, is foundational to developing communication interventions that improve cancer outcomes. This study will identify how materials can be improved in the critical informational-exchange component of the patient-communication process.

4173

### **An interactive, online Research Education Hub built with a standard Learning Management System focused of education and career development for students, postdocs, faculty, and research staff**

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**OBJECTIVES/GOALS:** The University of Rochester CTSI Research Education Hub is designed to: 1) connect the local research community with essential internal and external educational resources; 2) create a community of inquiry and collaboration across the translational science workforce pipeline within the university. **METHODS/STUDY POPULATION:** The Research Education Hub (RE-Hub) utilizes the university's widely used Learning Management System (LMS), Blackboard, and accessible to anyone at the university with a BlackBoard account. The RE-Hub greets users with an overview, an introduction of key local faculty experts in relevant research methodologies, and links to institutional research programs and helpdesks. Users are provided with curated educational resources organized by topic areas including, but not limited to, research methodology, statistical analysis, and grantsmanship. Discussion boards were created for users to ask general research questions and to connect with others in the translational research community. **RESULTS/ANTICIPATED RESULTS:** The RE-Hub was designed in Fall 2019 with the purpose of increasing utilization of university resources, including workshops, seminars, methods forums and consultation resources to improve translational science at the university. The RE-Hub was designed to be flexible and responsive to the changing needs of the local research community. User feedback will be used to identify improvements in the organization and content of the RE-Hub. Future improvements will include additional topic areas that span translational competencies, additional materials added to existing topic areas, and facilitation of better collaboration and integration of career development programs and grantsmanship resources. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The Research Education Hub provides the University of Rochester translational science research community with a space to explore educational resources, to interact with colleagues and ask research related questions, and to help develop and/or improve other educational programs at the university.

4470

### **Are nurses' attitudes toward caring for hospitalized adults with intellectual disabilities associated with nurse and nursing unit characteristics?**

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**OBJECTIVES/GOALS:** (1) Determine nurse (age, education level, years of experience, ID education/training, contact with people with

ID, communication apprehension, beliefs about patient quality of life), and nursing unit (teamwork, staffing and resources, person-centered care) characteristics that are associated with and predictive of nurses' attitudes, positive emotions, and negative emotions toward caring for adults with ID. (2) Explore nurses' perspectives of perceived barriers and facilitators to providing nursing care to hospitalized persons with ID and medical comorbidity, and how nursing care differs when caring for a person with ID. **METHODS/STUDY POPULATION:** This mixed methods nested analysis will employ an internet survey of medical-surgical registered nurses to collect nurses' attitudes and emotions toward caring for hospitalized persons with ID and medical comorbidity, nurse characteristics, and nursing unit characteristics. We intend to recruit 150 medical surgical nurses currently practicing in the United States via email invitation to the membership of the Academy of Medical Surgical Nurses. Purposeful maximum variation sampling will be used to invite a subset of respondents for qualitative, semi-structured telephone interviews to elicit barriers and facilitators to nursing care of persons with ID and how nursing care differs when caring for persons with ID. **RESULTS/ANTICIPATED RESULTS:** We hypothesize that lower nurse education level, fewer years of experience, less ID education/training, lower amount of contact with people with ID, increased communication apprehension, and lower beliefs about the quality of life of persons with ID will be associated with negative nurse attitudes and emotions toward caring for people with ID. Further, we hypothesize that lower levels of nursing unit teamwork, staffing and resources, and person-centered care practices will be associated with negative nurse attitudes and emotions toward caring for people with ID. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The proposed research is an important first step in determining potential nurse and nursing unit factors influencing nurses' attitudes toward caring for people with ID. It will lead to targeted interventions to enhance nursing care quality and reduce hospital-associated healthcare disparities among people hospitalized with intellectual disabilities and medical comorbidities.

4539

### **Building a Translational Science pipeline: The Indiana CTSI STEM K-12 Program**

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**OBJECTIVES/GOALS:**

- Develop strong network of science teachers interested in promoting scientific research to their students.
- Place students in an immersive summer research internship that, when possible, matches their career interests.
- Expose students to the numerous career paths within the STEM field.