OF IMPACT: Websites and mobile apps appear to be feasible modes to deliver health interventions to CGs. Researchers should consider including features of apps most frequently used by CGs, such as the weather, ways to connect with others, and music/entertainment, when delivering mHealth interventions to CGs.

**4135**

### Digital Mental Health Interventions for PTSD & Resilience: A Systematic Review

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OBJECTIVES/GOALS: 1) In this literature review we want to explore the literature on DMHI (Interventions delivered via digital technologies, such as smartphones, websites, or text messaging), specifically designed to treat Posttraumatic Stress Disorder (PTSD), and/or to promote positive change & resilience after trauma. 2) We also want to evaluate the literature in terms of the theoretical model used in each DMHI, engagement, effectiveness, & potential harms/challenges. METHODS/STUDY POPULATION: We will review the literature that describes DMHI for PTSD, resilience, & positive change in persons exposed to psychological trauma (Exposure to actual or threatened death, serious injury, or sexual violence, as defined by the fifth edition of the Diagnostic & Statistical Manual of Mental Disorders). We will review the following databases: PsychINFO, EBSCOhost, PubMed, & PsychiatryOnline. The following inclusion criteria will be used: 1) Interventions delivered by computer, smartphones, or online, 2) studies published between 1999-2019. Exclusion criteria will include reviews, opinion, or discussion articles, & unpublished works. RESULTS/ANTICIPATED RESULTS: We expect to find that the most popular therapeutic model for DMHI is cognitive behavioral therapy. We also expect to find a higher number of web-based interventions, as opposed to phone-based interventions, or other types of DMHI. We also expect to find variable drop-out rates, low engagement, & small to moderate effect sizes. DISCUSSION/SIGNIFICANCE OF IMPACT: We expect our contribution to center on evaluating available DMHI for psychological trauma. This systematic literature review is expected to provide scientific justification for the development (or validation), & implementation of a DMHI that takes into account the results of previous studies. This contribution is expected to be significant because it will help in choosing, or developing an effective future intervention with DMHI. CONFLICT OF INTEREST DESCRIPTION: There is no conflict of interest in this study.

**4178**

### The feasibility/acceptability of using smartphone technology to assess mental health symptoms among Spanish-speaking outpatients

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OBJECTIVES/GOALS: Geographic and linguistic isolation is associated with negative mental health outcomes, including increased risk for suicide, among ethnic/racial minorities. This study explores the feasibility of using smartphone technology with active and passive sensing to assess mental health symptoms and social behavior among at risk Spanish-speakers. METHODS/STUDY POPULATION: Participants were 13 Spanish-speaking adult outpatients who reported hopelessness/suicide ideation in the last month. Participants completed a baseline interview, 2-weeks of remote ecological momentary assessments (EMA; 4xday) using a smartphone with optional passive sensing (GPS, ambient sound recording), and a final interview. All participants identified as Hispanic (84.6% female, M age = 42.24 years). 53.8% identified as White, with 46.2% reporting race as Other (e.g., Indio, Trigueña). On average, participants had lived in the USA for 6.56 years ($SD = 12.63$ years). A majority (69.2%) met for Major Depressive Episode Current. At baseline, 53.8% reported passive and 23.1% reported active suicide ideation in the last month. 46.2% of participants reported a previous suicide attempt. RESULTS/ANTICIPATED RESULTS: A majority (84.6%) of participants consented to all passive data collection (GPS tracking and ambient sound recording). One participant dropped out after baseline and did not complete the EMA study portion. Participants completed on average 76.93% EMA survey instances ($SD = 18.01\%$). Baseline depression/anxiety severity were significantly positively associated with symptom severity at 2-week follow-up ($p < .01$); however, baseline suicide ideation was not associated with ideation at follow-up. Participants did not report significant changes in mood or ideation from baseline to 2-week follow-up. Symptom severity at baseline was not associated with EMA instances completed. Percent of EMA instances completed were also not associated with symptom severity at follow-up, controlling for baseline severity. DISCUSSION/SIGNIFICANCE OF IMPACT: Results support the feasibility of smartphones to assess mental health symptoms and behaviors in real time, real world settings with Spanish-speakers. A majority of patients consented to active and passive remote assessments. Adherence to remote EMA was good and study attrition was minimal. Implications and future directions will be discussed.

# Education/Mentoring/Professional and Career Development

**4195**

### "Learning Shots" are an Innovative, Versatile Educational Tool for Clinical and Translational Science

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OBJECTIVES/GOALS: To demonstrate how brief online audiovisual presentations, "learning shots", informed by evaluation, can be used to quickly and effectively provide essential just-in-time research-related education in the complex and evolving world of clinical and translational science. METHODS/STUDY POPULATION: "Learning shots" are an educational tool, originally developed by the University of Virginia IRB for Health Sciences Research, that cover a broad spectrum of methodological, regulatory, and ethical topics in research. They are designed to be responsive to adult learners, a rapidly changing research environment, and the need for flexible offerings. Learning shots target different groups involved in research including clinical research coordinators, investigators, and trainees. A survey was used to assess the role of learning shots in meeting learning needs. Moving forward, continuous evaluation will occur through the addition of tracking and a short evaluation survey to each learning shot. RESULTS/ANTICIPATED RESULTS: The University of Virginia has an online library of over 30 learning shots. Learning shots are used to cover foundational topics

(e.g. GCP) as well as more specialized topics (e.g. comparative effective-ness 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 clini-cal 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 avail-able 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 col-lected in February. Those findings are pending and will include a com-parison 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 descrip-tions of programs. Data from a second website review will be collected for comparison. Based on a preliminary re-review of sites, there is a sug-gestion of increasing CRP workforce development information. CTSAs 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 clini-cal 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 prin-ciples: 1) use technology to leverage scarce resources; 2) share best prac-tices to reduce disparities; 3) employ case-based learning to master complexity; 4) monitor outcomes to ensure benefit. Unlike telemedi-cine, 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 educa-tion 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 com-munication. 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 investi-gator (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 demo-graphics and heath 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