

responded to feedback. The team then updated both surveys and format, programmed revised surveys into a centralized platform, and provided instructions and training for implementation. RESULTS/ANTICIPATED RESULTS: This effort resulted in streamlining both the assessment process and the surveys used by the Southern California Clinical and Translational Science Institute (SC CTSI). Instead of using different versions of surveys or none at all, now SC CTSI commits to using the same follow-up survey for events and for educational offerings institute-wide, and agrees to store and access that data via a single platform, REDCap, allowing any member to see data in real time. This will allow SC CTSI to monitor and evaluate its short-term outcomes at an institutional level, and determine areas for improvement or best practices. Future plans include training on survey data interpretation for decision making. DISCUSSION/SIGNIFICANCE: Presenters will share lessons learned and considerations when embarking on streamlining assessment practices institute-wide, highlighting the importance of leveraging educational methodology to go beyond measuring satisfaction and into measuring learning. Presenters will share revised surveys.

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### **Mentor experience with the transition to remote learning in a summer research program**

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OBJECTIVES/GOALS: This study examines faculty mentor experiences in a summer research program for students traditionally underrepresented in translational research. The objectives are to understand mentor perspectives of the program and how their views were impacted by the pandemic-related pivot to a remote format. METHODS/STUDY POPULATION: During the summer research program, students work with a faculty mentor on an ongoing research project. Program staff pair students with diverse faculty members who share their research interests. Our program has traditionally been offered as a residential in-person program but in 2020 we moved swiftly to a fully remote learning format. Students continued to work on research projects remotely and interacted virtually with their faculty mentors. For the past five cohort years, we have collected comparable data about faculty perspectives of their program experience, which allows us to evaluate the impact of the remote format on the faculty experience compared to that of the in-person format. RESULTS/ANTICIPATED RESULTS: For this study, we will examine data from five cohort years (2017-2021). A survey questionnaire was administered to mentors each year at the end of the summer research program. Data were collected on faculty satisfaction with the quality and amount of student work, the amount of time students spent on their projects, and how mentors communicated with students. In 2020 and 2021, three questions were added regarding satisfaction with the remote format. Quantitative data collected from both the in-person and remote cohorts will be compared using independent samples t-tests. Select quotes from open-ended qualitative questions will be used to illustrate mentors attitudes toward the program. DISCUSSION/SIGNIFICANCE: This study addresses a gap in the literature about summer research programs, as previous work has primarily focused on trainees. As many training programs continue to remain remote or adopt hybrid

models, these results have implications for the design of similar mentored research programs.

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### **Evaluating the Effects and Contributing Factors to the “Hidden Curriculum” in Medical School**

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OBJECTIVES/GOALS: The “hidden curriculum” is a set of unofficial rules outside of the formal curriculum that allows medical students to succeed. It is often not accessible to those who are first-generation in medicine. This study created a novel survey tool to directly evaluate the hidden curriculum, its contributing factors, and its effects on students. METHODS/STUDY POPULATION: Using available literature as a guide, a novel survey tool to evaluate different aspects of the hidden curriculum was created. This survey consists of 17 Likert scale questions on topics varying from sense of belongingness to dress code, self-guided studying, mentorship, and confidence in knowing how to succeed. This survey tool was embedded into a larger survey evaluating health disparities and diversity, inclusion, accessibility, and justice (DEIAJ) in the curricular and extracurricular spaces. This survey packet was administered to all medical students at a large U.S. medical school. RESULTS/ANTICIPATED RESULTS: 166 medical students from all years responded to this survey. 70% were female, 27% male, and 3% non-binary or prefer not to say. 67% of respondents agreed or strongly agreed that there is a hidden curriculum accessible to only those who have family members in medicine. 57% agreed or strongly agreed that the medical school gave them the adequate training and resources to succeed. 48% agreed or strongly agreed that they would perform better academically if they had more money with 11% stating they often feel embarrassed in a professional setting due to lack of money. Fellow classmates, faculty members, and upperclassmen were identified as the most useful resources to learn how to succeed in medical school. Students on average reported feeling like they knew what to do to succeed in medical school half of the time. DISCUSSION/SIGNIFICANCE: This data strongly supports the existence of a hidden curriculum and gives insight into the importance of financial support for low-income students and peer support groups for those who do not have family members in medicine. This data will be used to inform future interventions to address the hidden curriculum.

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### **Research 101: Building the Research Skills of Practicing Clinicians**

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OBJECTIVES/GOALS: The goal was to develop foundational research knowledge and skills for clinicians interested in conducting clinical research. Emphasis was on the development of a research question and the iterative process necessary to transform a research question into a well-designed study and well-articulated research proposal for pilot grant funding. METHODS/STUDY POPULATION: The course took place over 10 sessions, May -

September 2021. The application process required participants to provide an initial self-assessment of research skills and a proposed research question. 25 clinicians applied to the program, 11 were accepted, and 9 enrolled. All clinicians in the initial cohort were clinical faculty physicians. Because of the geographical distance of participants as well as the ongoing pandemic, the course used a blended learning approach with both synchronous and asynchronous learning. Participants viewed online lectures on core content coupled with live virtual sessions with opportunities for discussion and application of the content. Relevant CTSI and institutional resources were highlighted in each session. RESULTS/ANTICIPATED RESULTS: Of the 9 clinician participants who enrolled in Research 101, the average attendance per session was 67% or 6 people. 89% or 8 participants attended five or more sessions. 5 participants submitted a letter of intent for the annual CTSI Pilot grant program, and of the five, two were invited to submit a grant application. Formal evaluation of the program is currently ongoing and will close on November 30th, at which time full results will be available. Research competencies will be assessed through a pre-post comparison, each self-rated by course participants. Additionally, participants were asked to provide input on the most and least valuable components of the course, as well as any open-ended feedback. Research 101 leadership will use these results to improve the course for future participants. DISCUSSION/SIGNIFICANCE: A learning health system (LHS) is recognized as an essential means by which research evidence is translated into practice. Important to realizing the LHS vision is the engagement of clinicians into the generation and translation of research into practice. Research 101 is an important way to bolster clinician engagement in translational research.

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### Translational Science Competencies in a Virtual CTSA Internship Program

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OBJECTIVES/GOALS: The Workforce Development Core of the New Jersey Alliance for Clinical and Translational Science (NJ ACTS) has developed an internship program for students to engage in virtual research projects across the CTSA Hub. We sought to evaluate how intern projects within NJ ACTS align with the competencies needed for translational science. METHODS/STUDY POPULATION: Core leads and researchers within NJ ACTS developed 34 projects that were completed by individual interns or pairs of interns. Forty-two professional, undergraduate, and graduate students across the 3 Hub institutions have completed semester-long intern projects. Intern mentors mapped their projects to the C-COMEND competency profile for translational scientists which were further aligned with the seven fundamental character traits defined by Translation Together. RESULTS/ANTICIPATED RESULTS: More than 75% of intern projects addressed the C-COMEND competencies in Personal Development, Communication and Dissemination, Project Management and Time Management. Few projects (< 10%) focused on skills related to preclinical or clinical research. The competencies needed for development as a Rigorous Researcher were most consistently addressed in the intern projects. Additionally, intern projects fostered a number of skills needed for becoming a Domain Expert and Skilled Communicator. DISCUSSION/

SIGNIFICANCE: Taken together, a virtual internship program can be designed to introduce and/or refine the competency skills needed for translational science.

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### The implementation and impact of a mentored professional development program for clinical and translational research staff.

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OBJECTIVES/GOALS: The objective of this evaluation is to show how the STEP.UP program promoted the professional development at Michigan Medicine by providing clinical and translational research staff an experienced research staff mentor in a structured 9-month program. METHODS/STUDY POPULATION: Participant and mentor data was collected from application forms, online surveys, and interviews with both participating mentors and mentees. Validated assessments of mentoring competencies were administered. Participants were tracked over a period of four years with regular reviews of institutional records. Mentor and mentor data was also collected at the point of application each year and the application forms were aligned with NIH definitions for under-represented populations in science in 2020. As part of a process of continuous programmatic improvement, a STEP.UP Advisory Board consisting of senior research staff and past mentors was involved in the identification, operationalization and evaluation of programmatic outcomes and is involved in the ongoing governance of this mentoring program. RESULTS/ANTICIPATED RESULTS: Four cohorts of mentees and mentors have participated in this program since its inception. Mentees gained the greatest abilities in, Active listening, Establishing a relationship based on trust, Considering how personal and professional differences may impact expectations, and Working effectively with mentors/mentees whose personal background is different. Mentees reported the program contributed to their Career planning, Professional advancement, networking, personal growth, professional networks, and communication skills. Mentors reported learning about new professional techniques and areas of expertise. As of 2021, 75% the first cohort changed their job-classification since participating as did 25% of the second cohort and 100% of mentees have maintained research careers. DISCUSSION/SIGNIFICANCE: The creation of this program in 2019 marked the beginning of a novel professional development opportunity at Michigan Medicine. The evaluation results show how STEP.UP contributes to advancing clinical and translational study teams and how it can inform and the identification of best practices in clinical and translational workforce development.

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### A high-fidelity globe and orbit surgical simulator for ophthalmologic surgical training\*

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OBJECTIVES/GOALS: Many ophthalmologic procedures involve operating on or manipulating the globe and bony orbit. Creating