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### Barriers and Resources in Career Development in Academic Medicine as Reported by Junior Faculty

Julie Schweitzer<sup>1</sup>, Julie Rainwater, Rebeca Giacinto and Hendry Ton

<sup>1</sup>University of California, Davis

**OBJECTIVES/SPECIFIC AIMS:** To identify the most frequently reported barriers/constraints and resources by junior faculty in achieving their goals at a large medical school in the Western United States. **METHODS/STUDY POPULATION:** We reviewed 222 individual development plans (IDPs) from 26 departments in an academic medical center for content regarding constraints and resources to achieve activities and barriers and/or resources to achieve new goals. The content and quality of the IDPs included was ascertained using quantitative data analysis as well a review of open-ended qualitative questions. In addition to analyzing the content, the quality and percent completion of data filled out for each field in the IDP was also assessed to help identify gaps with departments in successfully completing and submitting their IDPs. **RESULTS/ANTICIPATED RESULTS:** Junior faculty indicated the following barriers: time/time management (55%); work/life balance (32%); funding (8%) and other (5%). Junior faculty also indicated that they had resources to help them achieve their goals, including: mentors (60%); collaborators (26%); colleagues (6%); other (8%). **DISCUSSION/SIGNIFICANCE OF IMPACT:** The barriers in goal achievement (e.g., time/time management & work/life balance issues) at this academic medical setting suggest that further resources regarding time management and work - life balance need to be developed and disseminated in order to assist faculty in achieving their objectives. This project also reinforces the importance of having a robust mentor or mentoring team for junior faculty. Mentors and administrators should work collaboratively with junior faculty to identify resources to improve time management and work-life balance.

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### Breaking the Mold: Using a learner & faculty centric approach to increase satisfaction and usability

Katherine Cornelius<sup>1</sup>, Alexandra Joelle Greenberg-Worisek, PhD, MPH<sup>1</sup>, Ryan Jimison<sup>1</sup>, Jennifer Weisbrod<sup>1</sup> and Karen Marie Weavers<sup>1</sup>

<sup>1</sup>Mayo Clinic

**OBJECTIVES/SPECIFIC AIMS:** Scholars and faculty in the Clinical and Translational Science (CTS) track of our institution's biomedical science graduate school reported a lack of satisfaction with our learning management system (LMS); specifically, they reported frustration with the amount of time spent locating learning assignment guidelines, course readings, and submission portals. As a result, we created a new master template to address their concerns. **METHODS/STUDY POPULATION:** A new template was created within the LMS based on scholar and faculty feedback. Surveys and other tools have been used to determine student and faculty satisfaction as well as measure secondary outcomes of time spent in the online learning space. Some key changes include a redesigned menu and submission portal. **RESULTS/ANTICIPATED RESULTS:** There was an increase in satisfaction with the new LMS template. Next steps include systematically rolling out the new template, with continued solicitation

of feedback from all stakeholders. All courses in the CTS track will be converted to the new template by summer quarter 2020. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The strengths of this project include the multidisciplinary team-based approach to improving course satisfaction and usability, as well as the use of innovative technologies. Additionally, the analytical capabilities of the LMS will be maximized in the new template, which was a shortcoming of the previously available template.

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### Building Resilience & Wisdom in Clinical and Translational Researchers: A Mixed-Method Study of a Pilot Curricular Intervention

Sandra Burks<sup>1</sup>, Karen Johnston, Nicole Chiotta-McCollum, Natalie May, John Schorling and Margaret Plews-Ogan

<sup>1</sup>University of Virginia

**OBJECTIVES/SPECIFIC AIMS:** The clinical and translational research workforce is in jeopardy due to investigator attrition and competing demands upon researchers. Resilience and wisdom are measurable traits that can be acquired. The aim of this study was to examine a pilot curricular intervention promoting resilience and wisdom formation in early-career translational researchers. **METHODS/STUDY POPULATION:** We conducted a prospective, mixed-methods evaluation of a curricular intervention promoting the development of wisdom and resilience among junior faculty in a career development program. Six 90 minute sessions were delivered between September 2017 and January 2018. Pre- and post- resilience and wisdom were measured using the Connor Davidson Resilience Scale and 3D-Wisdom Scale. Individual semi-structured interviews were conducted before and after the intervention. **RESULTS/ANTICIPATED RESULTS:** Five scholars participated. Median resilience and wisdom scores revealed moderate levels of each trait; pre- and post-scores were not significantly different. Four themes emerged from the analysis of interview transcripts: 1. "Success" broadly defined; 2. Adversity threatens success; 3. Community breeds resilience; and 4. Wisdom formation parallels growth towards independence. **DISCUSSION/SIGNIFICANCE OF IMPACT:** An intervention aimed at developing capacities of resilience and wisdom is feasibly delivered to early career researchers. The relationship between these capacities and the sustainability of a research career warrants additional study.

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### Clinical and Translational Mentoring Team (CTMT): Effective Strategy for the Development of Students - undergraduate (US) and graduate (GS) - and Faculty (F) of Health Sciences Programs (HSPs) in Clinical and Translational Research (CTR) in Puerto Rico

Margarita Irizarry-Ramírez<sup>1</sup>, María E. González-Méndez<sup>2</sup>, José R. Moscoso-Álvarez<sup>2</sup> and Rubén García García<sup>1</sup>

<sup>1</sup>University of Puerto Rico-Medical Sciences Campus and

<sup>2</sup>Universidad Central del Caribe

**OBJECTIVES/SPECIFIC AIMS:** The Title V Cooperative Project between the University of Puerto Rico- Medical Sciences Campus (UPR-MSC) and Universidad Central del Caribe (UCC) has trained US, GS and F (participants) of HSPs to engage them in CTR.

**METHODS/STUDY POPULATION:** First stage of the training sessions (TS) dealt with the theory of CTR. After TS and responding to their research interests, as answered in a questionnaire, the participants formed a CTMT, under the mentorship of a well-established CT researcher. This, as a prelude to their hands-on experiences in Intensive Development and Experiences in Advancement of Research and Increased Opportunities (IDEARIO), for which a research proposal is needed. **RESULTS/ANTICIPATED RESULTS:** Five (5) CTMTs were formed in different research areas – cardio, neuro, liver, renal, Zika–, as submitted in their research concept papers. Eight (8) CT researchers are currently mentoring 2 US, 7 GS and 6 F of HSPs through the CTMTs. They have submitted a research proposal, as a bridge between the theory in the TS and the practice in IDEARIO. Five (5) proposals were received and 2 of them approved, while the other 3 are in the evaluation process. We will present the composition, research topics, development of research and the feedback of participants in IDEARIO and CTMTs. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The CTMTs and their respective proposals are effective strategies for the mentoring of US, GS and F in CTR.

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### Clinical research training methods that improve self-efficacy in clinical research domains

Mathew Sebastian<sup>1</sup>, Matthew Robinson<sup>1</sup>, Leanne Dumeny<sup>1</sup>, Kyle Dyson, Wayne T. McCormack<sup>1</sup> and William Stratford May<sup>1</sup>  
<sup>1</sup>University of Florida Clinical and Translational Science Institute

**OBJECTIVES/SPECIFIC AIMS:** The study aims to determine the current clinical research training interventions of MD-PhD programs and how effective they are in promoting clinical research self-efficacy. **METHODS/STUDY POPULATION:** A national survey of MD-PhD trainees was conducted in 2018 to identify clinical research training methods and self-efficacy for clinical research skills. MD-PhD program directors and coordinators from 108 institutions were asked to distribute the survey to their students. Responses were received from 61 institutions (56.5%). Responses were obtained from 647 MD-PhD students in all years of training, representing 17.9% of the 3613 possible participants at the 61 medical schools represented. No compensation was provided for this study. **RESULTS/ANTICIPATED RESULTS:** The primary methods of clinical research training reported by students included didactics, mentored clinical research, didactics plus mentored clinical research, didactics plus clinical research practicum, and didactics plus mentored clinical research plus clinical research practicum. A quarter of all participants reported having no clinical research training. Clinical research self-efficacy was then correlated with the amount of clinical research training. Students exposed to no clinical research had the lowest self-efficacy in clinical research skills and students experiencing didactics plus mentored clinical research plus clinical research practicum had the highest perceived self-efficacy in clinical research domains. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This is one of the first studies assessing clinical research training methods for MD-PhD students and assessing their efficacy. We found that of all students questioned, 25% mentioned had not received any type of clinical research training. The remaining students identified 5 research training methods that institutions currently use. This work highlights the importance of clinical

research experience students need to improve their self-efficacy, a major influence on research career outcomes.

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### Communication in Science: a summer workshop program at Mount Sinai

Janice Lynn Gabrilove, MD, FACP<sup>1</sup> and Layla Fattah<sup>1</sup>  
<sup>1</sup>Mount Sinai School of Medicine

**OBJECTIVES/SPECIFIC AIMS:** In an effort to increase awareness and enhance knowledge and skills in relation to communication in science at Mount Sinai, the Communication in Science summer workshop series aimed to provide an accessible, workforce-wide lecture series to promote key concepts and skills related to communicating science. Delivered by faculty and invited speakers, a series of seven workshops delivered over a 4 week period covered topics such as communication in teams, storytelling and TED talk principles, and community engagement. The aim of each session was to offer “top tips” that participants could apply to their practice. Evaluation of the workshop series aimed to determine participant satisfaction and self-perceived changes in knowledge and skills in relation to science communication. **METHODS/STUDY POPULATION:** A total of 375 participants registered to attend the workshop series from a range of backgrounds including post-docs, faculty, residents, staff and students at Mount Sinai. Attendance at the workshops ranged from a high of 119 and a low of 33 participants, with as many as 41% of attendees joining the session via live-streaming. Participants were emailed an online survey at the end of the workshop series, asking for satisfaction feedback on each individual workshop and an overall impression of the workshop series. Participants were asked to rate the satisfaction criteria related to content, gained knowledge and skills, presentation style and whether they found the session of value for each workshop, using a Likert scale from 1 - 5 (1 = strongly disagree, 5 = strongly agree). Participants were also asked to provide an overall rating for the summer workshop series as a whole. **RESULTS/ANTICIPATED RESULTS:** A total of 35 participants responded to the survey. Mean responses to the survey questions were: The content of this session is important to my work = 4.09 (range 3.77 - 4.45). This session increased my knowledge or skills 4.03 (range 3.56- 4.62). The presenters delivered this content clearly = 4.16 (range 3.78 - 4.67). Overall I found this session valuable = 4.13 (3.78 - 4.61). Participants were also asked to provide an overall rating for the summer workshop series as a whole on a scale of 1 to 10 (1 = poor, 10 = excellent). The mean response was 8.36, indicating a high level of satisfaction with the program. Qualitative feedback indicated that the sessions were successful in increasing awareness of this topic. One participant reported that “these sessions inspired me to think differently, and in a way that can potentially allow me to communicate with the non-science community”. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The high number of registrants for this summer workshop series indicates a perceived need for education and training on Communication in Science at Mount Sinai. Sessions that focused on TED talk principles and storytelling in science were particularly well attended and well-reviewed, suggesting a particular interest in these topics. There was, however, a discrepancy between registration and attendance numbers, which going