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Ideation Jams: Catalyzing Interdisciplinary Teams to Maximize Research Impact*

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OBJECTIVES/GOALS: There is broad recognition that interdisciplinary research teams are uniquely suited to address complex research questions. At the Michigan Institute for Clinical & Health Research, we recognized a significant gap in support services at the University of Michigan for coordinating interdisciplinary teams to advance translational research. **METHODS/STUDY POPULATION:** The initial team science challenge we tackled was how to bring together cross-disciplinary groups, for the first time, to engage meaningfully and collaboratively with a 'wicked' problem of interest and create a shared vision. To address this, we developed Ideation Jams, which are facilitated experiences that help new groups build community, identify and prioritize research opportunities, determine how individual interests and other potential partners align with opportunities, and commit to next steps that will advance collaborative efforts. Ideation Jams leverage the methods and mindsets of design thinking, including divergence and convergence; making information visual; amplifying diversity; horizontal distribution of responsibility; and bias towards action. **RESULTS/ANTICIPATED RESULTS:** We have facilitated 11 Ideation Jams with 255 participants, including faculty, staff, health practitioners, and community members, who brought diverse expertise and insight to the research problems. Participant feedback has been overwhelmingly positive, with Ideation Jams fostering shared vision and innovation, and positively impacting various measures related to team performance. Participants have reported that Ideation Jams catalyzed various outcomes, including submission and award of grants, the introduction of new and specialized clinical offerings, and development of an interdisciplinary research agenda for their field of interest. Most recently, we trained representatives from five Clinical & Translational Science Award hubs to implement Ideation Jams at their universities. **DISCUSSION/SIGNIFICANCE:** Ideation Jams are ideal for mobilizing new groups around complex research problems, moving them from blue-sky thinking to action planning in three hours. Ideation Jams will be integrated into a suite of facilitated experiences, trainings, and grant development services to provide iterative support as teams advance their research priorities.

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Associations of human placental lactogen and oxytocin during pregnancy with maternal-fetal attachment, anxiety and depression

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OBJECTIVES/GOALS: The goals of the present study were to examine levels and potential changes in oxytocin and HPL over the course of pregnancy. We assessed the potential predictive value of oxytocin and HPL on maternal-fetal attachment, anxiety and depression at three timepoints during pregnancy. **METHODS/STUDY POPULATION:** Pregnant women (n=70) enrolled in a longitudinal, rolling protocol study. Eligibility criteria included 1) singleton pregnancy confirmed at early pregnancy screen (EPS) ultrasonography, 2) mother aged 19 or greater, and 3) fluent in English. Predictors (oxytocin and HPL levels) were measured via blood draws at the same three times (early-stage, mid-stage, and late-stage) that MFA, anxiety and depression questionnaires were completed. **RESULTS/ANTICIPATED RESULTS:** An increased OT level compared to a mother's average OT level did not have a statistically significant effect on MFA (within-person estimate = 0.02, 95% CI: -0.03 to 0.05, p = 0.427). An increased HPL level compared to a patient's average HPL level did not have a statistically significant effect on MFA (within-person estimate = -0.10, 95% CI: -0.67 to 0.47, p = 0.730). The main effect of between-person HPL was significant; such that a one-unit increase in average HPL level was associated with a 0.52 higher anxiety score (between-person 95% CI: 0.08 to 0.96, p = 0.022). The main effect of between-person HPL was significant, such that an increased average HPL level was associated with a 0.45 higher depression score (between-person estimate = 0.45, 95% CI: 0.04 to 0.86, p=0.031). **DISCUSSION/SIGNIFICANCE:** To our knowledge, our study is the first to measure HPL and MFA over the course of a pregnancy. At this point, perhaps the best we can say is that HPL is a promising new target hormone that may be related to psychological symptoms surrounding pregnancy.

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AI Translation Advisory Board: Mastering team science to facilitate implementation of AI into clinical practice

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OBJECTIVES/GOALS: Healthcare sectors are rushing to develop AI models. Yet, a dearth of coordinated practices leaves many teams struggling to implement models into practice. The Enterprise AI Translation Advisory Board uses across-disciplinary team to facilitate AI translation. **METHODS/STUDY POPULATION:** The Mayo Clinic Enterprise AI Translation Advisory Board was established to assess AI solutions lever aging cross-disciplinary team science to accelerate AI innovation and translation. The 23-member board reflects expertise in data science, qualitative research, user experience, IT, human factors, informatics, regulatory compliance, ethics, and clinical care, with members spanning thought leadership, decision-making, and clinical practice. Taking an approach of respectful communication, transparency, scientific debate, and open discussion, the Board has consulted on over two dozen projects at various stages of the AI life cycle. **RESULTS/ANTICIPATED RESULTS:** Common issues identified for projects earlier in the AI

life cycle, sometimes fatal but often addressable once identified, include a lack of buy-in from potential product users, a lack of planning about integration into clinical workflow, inadequately labeled data, and attempting to use machine learning when what is desired is really a causal model for intervening. Recommendations for projects later in the AI life cycle include details of a testing plan (silent evaluation, pragmatic clinical trials), advice about clinical integration, both post-hoc and on going auditing for performance disparities, and planning for regulatory clearance. **DISCUSSION/SIGNIFICANCE:** Advising is more valuable for projects at the ideation phase, when multi disciplinary interrogation can identify weaknesses. But at all phases, projects have gaps related to a lack of specific disciplinary expertise. A multi disciplinary cluster like the AI Translation Advisory Board seeks to address these gaps.

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Team Science to Assess Effectiveness and Impact in Public Healthcare Delivery System Contracting

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OBJECTIVES/GOALS: Healthcare organizations and payers are moving from accountability to effectiveness frameworks. Static vendor contracts for full-scale implementation limit organizations' ability to evaluate impact before scale-up, or to iteratively improve. Our team science innovation employs science and learning methods as systems engage vendors. **METHODS/STUDY POPULATION:** Our team science innovation is a method to assess and model impact of interventions at scale in healthcare delivery systems. We are integrating expertise in learning processes of an academic medical center (UCLA CTSI) with the organizational knowledge and methodological expertise of the nation's largest Medicaid managed care plan (LA Care Health Plan), which has over 2 million members. The LA Care Advanced Analytics Lab has unique capability in machine learning, while enables deep learning of variation. Our innovative product is a template to quickly mobilize evaluation and learning for a diverse population in a varied and distributed delivery system. The template design enables rapid learning for the full-scale policy implementation often imposed by government, and in the short timeframes involved. **RESULTS/ANTICIPATED RESULTS:** LA Care and the UCLA CTSI partnered to provide subject matter expertise and design effective pilots for interventions such as transitional care services, complex care management, and physician home visit strategies, accounting for confounding factors affecting the intervention and outcome. So far, collaborative modeling and design has produced a successful pilot of a physician home visit program intended to reduce avoidable emergency department visits. This pilot quickly revealed several major changes that would need to be incorporated for the contracted vendor to produce results if operated at scale, further informed by machine learning, in sufficient time to inform the contracting process. There are multiple evolving applications, including housing/homelessness. **DISCUSSION/SIGNIFICANCE:** Integrating the large data and analytics of a large healthcare organization with learning methods from the CTSI – including learning from variation and designs for studying impact during scale-up – fosters academic-community team science that could significantly improve the value of our largest delivery systems, public and commercial.

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Platelets and Leukocytes Interact to Modulate Inflammation in Patients with CKD

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OBJECTIVES/GOALS: Platelets interact with leukocytes in the circulation to modulate inflammation in chronic diseases. In previous clinical study, we showed that platelet leukocyte interaction is reduced in the circulation of patients with CKD. Preclinical studies are needed to show whether these findings are a precursor to or a result of CKD. **METHODS/STUDY POPULATION:** We used mouse models (wild type and platelet-defect) and induced CKD with intraperitoneal cisplatin injections. We measured platelet leukocyte interactions before and after CKD induction in the two models. **RESULTS/ANTICIPATED RESULTS:** We found platelet-leukocyte interaction to reduce after CKD induction in both wild type and platelet-defect mice. This coincided with a pro-inflammatory state in these mice, as measured by serum TNFalpha levels. Specifically, pro-inflammatory state was exacerbated in CKD of mice with platelet-defects compared to the wild type. **DISCUSSION/SIGNIFICANCE:** These findings recapitulate translational findings in human CKD samples and confirm that CKD state results in reduced platelet-leukocyte interactions in the circulation, and this change imparts a pro-inflammatory state in the CKD state.

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Empowering Community Organizations with the Team Science Community Toolkit

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OBJECTIVES/GOALS: To introduce the new Team Science Community Toolkit, co-created by community and academic partners, and showcase its potential to empower Community Organizations (COs) in achieving equity in community-engaged research (CER). **METHODS/STUDY POPULATION:** In response to the challenges faced by COs in CER collaborations, qualitative interviews were conducted with CO staff from historically marginalized communities. These interviews informed the development of the Team Science Community Toolkit, a collaborative effort involving a Community Advisory Board (CAB) and Team Science experts from Northwestern University. The toolkit, designed using a community-based participatory research approach, incorporates the Science of Team Science and User-Centered Design principles. Integrated into the NIH-sponsored COALESCE website, it includes