

University of Maine System (UMS)
Rural Health and Wellbeing Grand Challenge Initiative
November 2020 Update

Through the UMS Research Reinvestment Fund (RRF), a systemwide grand challenge pilot initiative was launched in fall 2019 with “Rural Health and Wellbeing” as its theme. While the theme was established before the global pandemic, it is now more relevant than ever. Three two-year pilot projects were competitively selected by the RRF Advisory Board from a field of 30 concept papers. These interdisciplinary and intercampus teams, composed of researchers from the University of Maine, University of Southern Maine, University of Maine at Augusta, and University of Maine at Presque Isle, were introduced at the January 2020 Board of Trustees meeting. During the last several months, the teams are identifying interdisciplinary solutions in biomedicine, telehealth, and injury prevention and are making excellent progress. The following report provides updates on each of the three grand challenge projects during the start-up phase of their two-year performance period.

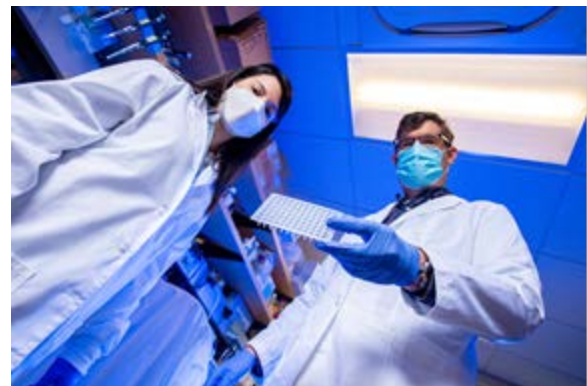
Maine Precision Medicine Initiative Project Update

Research Team: *UMaine*: Ben King, Debbie Saber, Rob Wheeler, Clarissa Henry, Melissa Maginnis, Melody Neely, David Harder; *UMA*: Con Sullivan; MDI Biological Laboratory (*MDIBL*): Iain Drummond, Hermann Haller; The Jackson Laboratory (*JAX*): Ron Korstanje, Krishna Karuturi, Jens Reuter; Maine Medical Center Research Institute (*MMCRI*): Lucy Liaw; *Northern Light Health*: James Jarvis

In the start-up phase of this two-year project, the team has made significant progress helping UMS-affiliated researchers expand key research, education, and outreach partnerships with biomedical scientists and physicians affiliated with Northern Light Health, JAX, MDIBL, MMCRI, Northeastern University’s Roux Institute, and others.

Project Highlights

- Dr. Sullivan is writing an invited review for *Frontiers in Immunology*.
- Established the Maine Chronic Kidney Disease (ME-CKD) Genetics Pilot Study, the first human genomewide association study conducted by the UMaine Institute of Medicine in collaboration with Northern Light. The executed contract will serve as a template for future UMS faculty to engage in clinical research projects with Northern Light Health.
- Established the first BioBank at UMaine to store de-identified human blood samples.
- Finalized Data Use and Registration Agreement from the National Institutes of Health (NIH) *All of Us* Precision Medicine Initiative through the Vanderbilt University Medical Center. This will make it possible for other UMS faculty to apply to use data from *All of Us*.
- Worked with UMaine Senior Associate Provost Jeff St. John and Associate Vice President for Graduate Studies Scott Delcourt to establish a 4+1 M.S. Program in Bioinformatics with the Roux Institute, where UMaine students can apply to earn a M.S. degree in Bioinformatics from Northeastern University in one year after completing 12 credit hours of specific courses during their undergraduate degree.



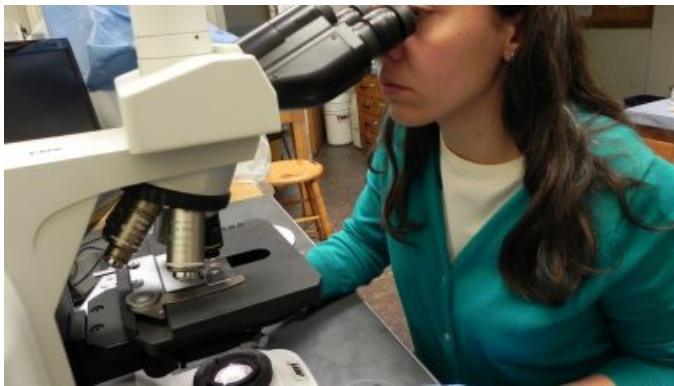
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Research Progress and Plans

Will work with Northern Light to recruit patients, obtain informed consent, collect de-identified clinical data and blood samples. Will examine available data from the NIH *All of Us* Initiative as controls in our analysis. By March 2021, the first batch of 25 samples for genome sequencing will be sent.

Student Involvement

- Liz Saavedra (Norman, Oklahoma and Orono, Maine), a Ph.D. student in the Department of Molecular and Biomedical Sciences, was recruited as the graduate research assistant for the project. Her responsibilities include coordinating sample delivery, managing samples in the BioBank, DNA extractions, coordinating sequencing, and establishing the data analysis pipeline.



External Funding in Development

- Submitted a National Science Foundation (NSF) proposal Aug. 3, 2020 titled “New Tools for Building Community Resiliency: Understanding Microbial Movement through Schools”, together with Drs. Saber, Wheeler, Maginnis, and Howell (\$50,000 for 4 months; \$1million for 1 year).
- Dr. King submitted an NIH R21 proposal with Drs. Coffman (MDIBL) and Stanton (Dartmouth) on Oct. 16 (\$275,000 over 2 years).
- Dr. King is working the Drs. Henry, Maginnis, Talbot, Kelley, Madelaine (MDIBL), Wheeler, Harder, and Drummond (MDIBL) on a NIH COBRE proposal due January 2021 (\$7.8 million over 5 years) to establish a center scale cell signaling research initiative.
- Dr. Deborah Saber submitted an AHRQ R01 proposal to study microbial spread in acute and long-term care facilities, focusing on MRSA and COVID-19. UMS collaborators include Drs. King, Feinstein (UMPI), Soucy (UMFK), Lichtenwalner, Maginnis, Stechliniski, Wheeler and Howell.

Expanding Interdisciplinary Telehealth Graduate Student Training to Support the Needs of Children with Disabilities in Maine’s Public Schools Update

Research Team: *USM:* Kimberley Fox, Yvonne Jonk, Mary Anderson; *UMaine:* Judy Walker; *External Partners:* RSU 10 Western Foothills and Maine Health Data Organization

In the first six months of this two-year project, the team has begun a two-pronged approach to characterize the policy environment and prospects for telehealth practice in Maine and stand up telepractice training for Occupational Therapy graduate students and expand training for Communication Sciences and Disorders graduate students.

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Project Highlights

- UMaine Communication Sciences & Disorders Telepractice Training Program received national recognition as a leader in speech therapy telepractice training:
 - Walker, J.P. (Presenter). (May, 2020). *Speech therapy telepractice training programs*. [Audio podcast]. In Council of Academic Programs in Communication Sciences and Disorders (CAPCSD) (Producer), Professional Development Podcasts. Retrieved from <https://www.capcsd.org/podcasts/>
 - Walker, J. P., Lowman, J., & Houston, T. (Presenters). (June, 2020). *CSD graduate student telepractice training programs: Impact of COVID-19*. [Webinar]. In CAPCSD (Producer), Professional Development Webinars. Retrieved from <https://members.capcsd.org/events/Details/csd-graduate-student-telepractice-training-programs-impact-of-covid-19-9012-213027>
- Commenced analyses of Maine All Payer Claims Data from 2012 to 2016 to assess rural/urban differences in the use of telehealth among children in Maine and to develop a method for assessing service need for specific services in rural school districts.
- The analyses conducted for the Grand Challenge informed a research article accepted for publication by the *Journal of Rural Health*. While the analyses are based on data through 2016, the team is developing data files for 2017-2019 that can serve as the baseline for future assessments of the impact of COVID-related telehealth and other licensure policy changes on telehealth use.



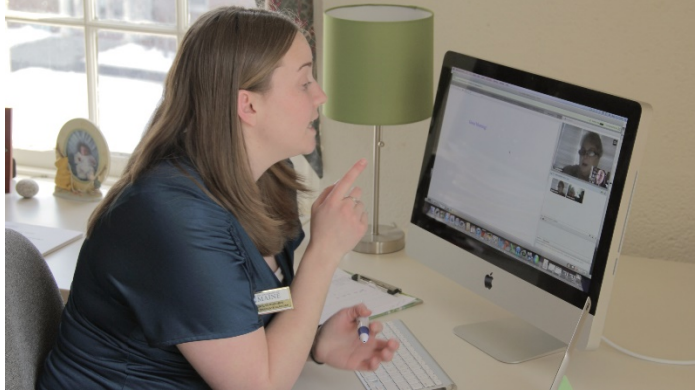
Research Progress and Plans

- Intensive telepractice training of fall CSD graduate student clinicians
- Commenced CSD telepractices services to schools in RSU 10
- CSD telepractice outcomes measures to be obtained (Sept. 2020/Dec. 2020/May 2021)
- CSD working in collaboration with USM Occupational Therapy (OT) to develop an interdisciplinary telepractice training program.
- Revised and updated Memorandum of Understanding with the Maine Health Data Organization to include the Grand Challenge telehealth project and submitted data use request to conduct telehealth child health claims analyses.
- Tracked COVID-related telehealth, school, and pediatric policy changes that support broader adoption of telehealth in rural Maine schools and may inform or help support graduate workforce telehealth training programs.
- Dr. Jonk and Ms. Fox presented telehealth-related findings at the National Rural Health Association meeting (June 18-21) and the annual meeting of Academy Health (July 28-Aug. 6). Dr. Jonk presented to the State University Partnership Learning Network of Academy Health Sept. 11 and discussed the relevance to assessing impact of COVID-related telehealth policy changes. Both Dr. Jonk and Ms. Fox presented at the Maine Public Health Association *One Maine, One Health* virtual conference series.

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Student Involvement

CSD Graduate Student Telepractice Clinicians: (Summer University 2020) Nell Kido, Jon Forbes, Alethia Campbell, Jane Woodworth; (fall semester) Alethia Campbell, Taylor Trainor, Natalie Penny, Olivia Rancourt, Lauren Emmory, Emma Jandreau CSD Research Assistants: Jana Watson (Graduate); Emma Budway (Undergraduate)



AY 2020-2021: Telepractice training of 15-18 CSD Graduate Students; 2-4 OT Graduate Students

John Massey, a graduate student in the USM nursing and public health programs, has been hired to work as a graduate assistant on this project. Massey, from Danforth, Maine, has prior work experience managing a rural Federally Qualified Health Center and brings considerable knowledge and experience with rural health access issues. He previously worked as a graduate assistant for the Rural Telehealth Research Center on the qualitative evaluation of the implementation of rural school-based telehealth services nationally and co-authored an article that will be submitted to the Journal of School Health.

External funding applied for and external funding in development/planned

USM was awarded the Rural Telehealth Research Center grant from the Federal Office of Rural Health Policy in partnership with the University of Iowa, and the University of North Carolina for a second four-year period. USM's proposed project expands on the work conducted for the Grand Challenge. The team will study children's use of telehealth services using national Medicaid data, which may also serve as a benchmark for the analyses of children on MaineCare's use of telehealth services in rural/urban areas compared with other states.

University of Maine System Injury Prevention Research Collaborative Update

Research Team: *UMaine:* Marcella Sorg, Jamie Wren; *USM:* Judith Tupper, Elisabeth Snell, Mary Lindsey, George Shaler; *UMPI:* Nicole Fournier, Kim Jones; *External collaborators:* Maine Center for Disease Control (CDC), Medical Examiner, and Maine Substance Abuse and Mental Health Services (SAMHS)

In the startup phase of this two-year project, the team assessed the injury and violence prevention expertise within the University of Maine System, then launched a seed grant program designed to promote intercampus research collaborations in injury and violence prevention topics that will build toward a US Centers for Disease Control (CDC) Injury Control Research Center proposal.

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- A request for proposals (RFP) released in September 2020 sought out injury and violence prevention projects from UMS researchers. The program requires the involvement of at least two UMS campuses, and encourages researchers to include undergraduate and graduate students in their proposed projects. Projects related to falls among older adults; intimate partner and domestic violence; motor vehicle injury; drug overdose; sexual and gender-based violence; suicide prevention; and COVID-19 will be given special consideration. The aim of this RFP is to strengthen UMS expertise in areas that align with the research goals of a U.S. CDC's Injury Control Research Center (such Centers were funded at the level of \$833,000/year for five years in the last cycle). Approximately 6-8 seed grant projects will be funded based on review and alignment.
- Created a preliminary expertise database of all UMS faculty who have applied for or been awarded external funds for research or programming related to injury and violence prevention.
- Currently recruiting an advisory board for the project who will also serve as subject matter experts for the seed grant proposal review. The advisory board will contain representatives from multiple system campuses as well as state agencies and subject matter experts.

Research progress and plans for the academic year

- Drafted a brief survey to be sent to UMS researchers identified in the preliminary expertise database work to gauge interest in being involved in the collaborative.
- Plan to:
 - Send survey out by the end of the fall semester.
 - Develop project advisory board with representatives from all seven campuses
 - Launch funded seed grants by the end of the calendar year
 - Apply for at least one additional external award under the main project, with several seed grants applying for funding in 2021.

Student Involvement

- Liam Sigaud, a master's candidate in the UMaine Resource Economics program, worked on the expertise database project over the summer. Sigaud is a UMA alumnus from Rockland, Maine.



External Funding in Development

- Plans to apply for National Institute of Justice funding related to substance abuse and violent crime this fall.
- Long-term funding target is a U.S. CDC's Injury Control Research Center grant.