Moving from Potential to Real Impact: Engaging with a Broader Community to Improve Translation of Rehabilitation Research Innovations

Table of Contents

Agenda

Day 1: Thursday, September 7, 2023 (All times Eastern)

10:30 - 10:40 a.m.	**Welcome** **Rick Segal, PT, Ph.D., FAPTA** Professor Emeritus, Department of Health Sciences and Research Medical University of South Carolina, Charleston, SC Education Director, National Center of Neuromodulation for Rehabilitation Lead, MR3 Coordinating Center
10:40 – 11:30 a.m. 30-min presentation 20-min discussion	**Keynote Presentation** **Linda Resnik, PT, Ph.D., FAPTA** Director LeaRRn, Co-Director Pilot Core Professor, Health Services, Policy and Practice, Brown University Research Career Scientist, Providence VA Medical Center *Integrated Knowledge Translation for Greater Impact* **Session Moderator:** Christine McDonough, Ph.D., PT
11:30 a.m. – 11:40 a.m.	*****Break*****
11:40 – 12:40p.m. 20-min, including discussion, each	**Session 1 – Clinical Research Partnerships 1** **Courtney Celian, M/OT** Shirley Ryan AbilityLab *Bringing Clinicians and Researchers Together to Inform Device Development: Insights and Lessons Learned* **Melissa Briody, MOT, OTR/L, MS** Shirley Ryan AbilityLab *The IdeaLab: A Strategy to Promote Interdisciplinary Communication and Advance Rehabilitation Research Projects* **Wen Liu, Ph.D.** University of Kansas Medical Center *To Develop a Model for Walking Exercise in Rural Stroke Survivors* **Session Moderator:** Miriam Rafferty, Ph.D., DPT, PT
12:40 – 12:50 p.m.	*****Break*****

12:50 – 2:10 p.m. 20-min, including discussion, each	**Session 2 – Patient/Community Engagement 1** **Ikenna Ebuenyi, Ph.D.** University of Pittsburgh *Perceptions of Rehabilitation for Alzheimer's Disease and Alzheimer's Disease Related Dementias: Using Stakeholder Feedback to Refine Research Tools* **Julie Schwertfeger, Ph.D., PT** Rosalind Franklin University & Captain James A. Lovell Federal Health Care Center *Reimagining Engagement: An Interprofessional Research Design Used to Study the Effects of a 3-Day Stroke Camp across 42 Sites* **Shonali Gaudino, OT** Spaulding Rehabilitation Hospital *Finding Strength: Podcasting as a Means of Community Engagement in Rehabilitation Research* **Jessica Kramer, Ph.D., OTR/L** University of Florida *Reconciling the Past, Changing the Future: Building Capacity of Young Adults with IDD-MH, Families, and Researchers to Partner in Research* **Session Moderator:** Amy Darragh, Ph.D., OTR/L
2:10 – 2:20 p.m.	*****Break*****
2:20 – 3:20 p.m. 20-min, including discussion, each	**Session 3 – Industry Partnerships** **Arun Jayaraman, Ph.D., PT** Shirley Ryan AbilityLab *Collaboration with Industry: Do's & Don'ts to Help your Academic Career* **Ela Plow, Ph.D., PT** Cleveland Clinic Foundation *Lost in Translation: Noninvasive Neuromodulation- What We Owe to our Patients, Community, and the Nation* **Rick Greenwald, Ph.D.** Founder and Past President/CEO of Simbex Adjunct Professor of Engineering, Dartmouth University *Commercialization of Medical Devices: A Role for Industry Partnerships* **Session Moderator:** Rick Segal, PT, Ph.D., FAPTA

3:20 – 3:30 p.m.	*****Break*****
3:30 – 4:30 p.m.	**Session 4- Advisory Boards** **Mara Yale, Ph.D.** Massachusetts General Hospital *Integrating a Parent Advisory Council in a Clinical Trial* **Miranda Donnelly, OTR/L** University of Southern California *Establishing a Long-Term Stakeholder Partnership for Stroke Rehabilitation Research* **Gabrielle Scronce, Ph.D., DPT, PT** Ralph H. Johnson VA Health Care System and Medical University of South Carolina *Community Advisory Board Research Collaboration to Identify User Priorities for Ankle-Foot Orthoses* **Session Moderator:** Amy Darragh, Ph.D., OTR/L
4:30 – 5:00p.m.	**Funding Agency Q&A** **NIH National Center for Medical Rehabilitation Research (NCMRR)** Joe Bonner, Ph.D., *Health Scientist Administrator and Program Officer* **Veterans Affairs Rehabilitation Research & Development (VA RR&D)** Audrey Kusiak, Ph.D., *Scientific Program Manager for Regenerative Medicine, Spinal Cord Injury/Disorders and Neuropathic Pain* Brian Schulz, Ph.D., *Scientific Program Manager for Rehabilitation Engineering and Prosthetics/Orthotics* **NIH National Center for Advancing Translational Sciences (NCATS)** Christopher Hartshorn, Ph.D., *Chief, Digital & Mobile Technologies Section* **National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR)** Radha Holavanahalli, Ph.D., *Rehabilitation Program Specialist* **Congressionally Directed Medical Research Programs, United States Department of Defense** Melissa Miller, Ph.D., *Health Science Program Manager* **Craig H. Neilsen Foundation** Jacob Shreckengost, Ph.D., *Program Officer* **Session Moderator:** Rick Segal, PT, Ph.D., FAPTA

Day 2: Friday, September 8, 2023 (All times Eastern)

11:00 – 11:05 a.m.	**Welcome** **Rick Segal PT, Ph.D., FAPTA**
11:05 – 12:25 p.m. 30-min presentation 20-min discussion	**Session 5 – Clinical Research Partnerships** **Natalie Douglas, Ph.D.** Central Michigan University *Leveraging a New Clinical-Research Partnership: Mitigating Fall Risk in Inpatient Rehabilitation with Speech-Language Pathology* **Jessica Cassidy, Ph.D., DPT, PT** University of North Carolina at Chapel Hill *Empowering Stroke Survivors Beyond the Inpatient Rehabilitation Facility: The STRIDE Program* **Amy Yorke, PT, Ph.D.** University of Michigan-Flint *iKNOW: Integrating Knowledge through Community and Clinical Partnerships* **Parker Ruth** Stanford University *Scalable Kinematic Analysis Using Smartphone Videos: Towards Movement Biomarkers for Neuromuscular Diseases* **Session Moderator:** Lisa Juckett, Ph.D., OTR/L
12:25 – 12:45 pm	**Session 6 A -Design Thinking** **Miriam Rafferty, Ph.D., DPT, PT** Shirley Ryan AbilityLaband Northwestern University's Feinburg School of Medicine *Designing for Accelerated Translation: An Implementation Framework Adapted for Rehabilitation Technology*
12:45- 1:00 p.m.	***Break***

1:00 – 1:50 p.m. 30-min presentation 20-min discussion	**Keynote Presentation** **James Krause, Ph.D.** Distinguished University Professor and Associate Dean for Research Director, Center for Rehabilitation Research in Neurological Conditions Medical University of South Carolina *Developing, Maintaining, and Expanding a Program of Research: An Example with Spinal Cord Injury* **Session Moderator:** Randal Davis, MBA
1:50 – 2:30 p.m. 20-min, including discussion, each	**Session 6 B-Design Thinking** **Tamra Keeney, Ph.D., DPT** Harvard Medical School, Massachusetts General Hospital *Using Human-Centered Design Principles within the Multiphase Optimization Strategy (MOST) Framework to Engage Clinical Partners to Develop LiveWell-HF: a Home-Based Palliative Physical Therapy Intervention* **Veronica Swanson, Ph.D.** University of California, Irvine *Improving upon User-Centered Design with Sensor Data: Design-for-Uptake in Rehabilitation Technology* **Session Moderator:** Matthew Petrucci, Ph.D.
2:30 – 2:45 p.m.	*****Break*****
2:45 – 3:45 p.m. 20-min, including discussion, each	**Session 7 – Patient/Community Partnerships** **Julie Ferrell-Olson** University of Illinois, Chicago *Aligning Fall Definitions with Lower Limb Prosthesis Users' Lived Experiences* **Theresa Sukal Moulton, Ph.D., DPT, PT** Northwestern University *Facilitators and Barriers to Implementing Frame Running into Extracurricular Running Groups for Children and Adolescents* **Dan Blustein, Ph.D.** Acadia University *Patients and Clinicians as Collaborators on the Development and Acceptance of a Virtual Reality Stroke Rehabilitation Platform* **Session Moderator(s):** Rick Segal PT, Ph.D., FAPTA

3:45 – 4:45 p.m.	**Session 8 – Learning Health Systems** **Megan Schliep, Ph.D., CCC-SLP, MPH** Spaulding Rehabilitation Hospital *Using the RE-AIM Framework to Evaluate the Implementation of Standardized Cognitive Outcome Measures within a Rehabilitation Learning Health System* **Emily Evans, Ph.D., PT** Boston University *Leveraging a Learning Health System Model to Improve Care for Low Back Pain, One Clinic at a Time* **Samannaaz Khoja, Ph.D., PT** University of Pittsburgh *Engaging with a Learning Health System as an External Research Scholar: Accomplishments, Challenges and Lessons Learned* **Session Moderator:** Christine McDonough, Ph.D., PT
4:45 – 5:00 pm	**Closing Remarks** **Theresa Hayes Cruz, Ph.D.** Director, NICHD National Center for Medical Rehabilitation Research

Acknowledgements

The National Institutes of Health Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), which is home to the National Center for Medical Rehabilitation Research (NCMRR), in collaboration with the National Center for Complementary and Integrative Health (NCCIH), the National Institute of Biomedical Imaging and Bioengineering (NIBIB), the National Institute on Deafness and Other Communication Disorders (NIDCD), and the National Institute of Neurological Disorders and Stroke (NINDS), and the National Institute of Nursing Research (NINR), supports the Medical Rehabilitation Research Resource Network (MR3N). The MR3N is made up of six P2C resource center grants that provide infrastructure and access to expertise, technologies, and resources to foster clinical and translational research in medical rehabilitation.

Day 1 Speakers

Rick Segal, PT, Ph.D., FAPTA

Dr. Segal is a Professor Emeritus in the Department of Health Sciences and Research and past Chair of the Department of Rehabilitation Sciences at the Medical University of South Carolina. After several years as a practicing Physical Therapist in Washington, D.C., he went to the University of Virginia to earn his Ph.D. in Anatomy and Neuroscience. He spent twenty-two years as a faculty member at Emory University before serving eight years as Director of the Division of Physical Therapy at the University of North Carolina at Chapel Hill.

Dr. Segal is active in faculty and research mentorship and is a strong advocate for translational research. He has over 30 years of experience carrying out rehabilitation-oriented Neuroscience research on motor control and spinal circuits. Dr. Segal was part of the NIH funded program project grant entitled "spinal circuits and the musculoskeletal systems" for 24 years. He was a mentor in the ERRIS grant writing workshops for 10 years, and PI/Co-PI and mentor for the TIGRR grant writing workshops for the past 11 years. He is working on translating research into practice through students using education research. In 2018 he coordinated the first grantsmanship and mentorship in education research (GAMER) grant writing workshop. He served on the Executive Committee of the NIH funded Interdisciplinary Rehabilitation Engineering Career Development Program (IREK K 12), where he is helped engineers make their research more applicable for rehabilitation of patients. He also was a mentor and on the advisory board of the NIH funded RMSTP program. Finally, he is the Education Director of the NIH-funded P2C National Center of Neuromodulation for Rehabilitation (NC NM4R) along with being the lead of the Medical Rehabilitation Research Resource (MR3) Network Coordinating Center for the six P2C's across the country.

Dr. Segal was selected as a Catherine Worthingham Fellow of the American Physical Therapy Association (APTA) in 2009, selected by the Academy of Physical Therapy Research as the John P. Maley Award winner for research leadership in 2023, and is a member of Global Membership Committee and Neuroscience Scholars Selection Committee of the Society for Neuroscience.

Keynote: Linda Resnik, PT, Ph.D., FAPTA

Linda Resnik, PT, PhD, FAPTA is a Professor in the Department of Health Services, Policy and Practice, Brown University, and a VA RR&D funded Research Career Scientist at the Providence VA Medical Center. She is the Principal Investigator of LeaRRn, the Learning health System Rehabilitation Research Network, and is the director of the Center on Health Services Research and Training (CoHSTAR) since 2015. At the Providence VA she is the leader of the research focus area on Restoring Limb Function of the VA Rehabilitation Research Center of Excellence, the Center for Neurorestoration and Neurotechnology.

Dr Resnik has been continuously funded by VA HSR&D, RR&D, the DoD, NIH, and private foundations since 2004. She has led complex, multi-site studies involving the Department of Veterans Affairs, the Department of Defense, and a wide range of universities. Her research focuses on rehabilitation services research, development and testing of rehabilitation outcomes measures, and the design and evaluation of prosthetic devices and other assistive technologies.

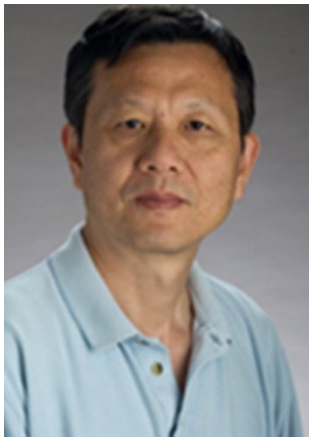
Courtney Celian, M/OT

Courtney Celian is the Project Manager of the Robotics Lab at Shirley Ryan AbilityLab in Chicago, IL. She is a graduate of The Ohio State University with a masters in occupational therapy and has over 7 years' experience as a clinician and researcher. Courtney's research focuses on understanding and bridging the gap between rehabilitation technology development and clinical uptake. She has published works investigating the clinical decision-making behind incorporating technology into treatment. Her work emphasizes close collaboration between researchers, engineers, and clinicians to develop technology that will improve patient outcomes.

Melissa Briody, MOT, OTR/L, MS

Melissa Briody is a Senior Project Manager at Shirley Ryan AbilityLab in Chicago, IL. She oversees the Center for Smart Use of Technologies to Assess Real World Outcomes (C-STAR), an NIH-funded infrastructure center that supports early-career rehabilitation researchers using innovative technology to measure outcomes in the lab, clinic, and community. She also oversees internal research initiatives designed to increase communication and collaboration between researchers and clinicians.

Melissa completed her Master's Degree in Occupational Therapy from Xavier University in 2012. She graduated with a Master of Science in Health Systems Management from Rochester Institute of Technology in 2020. Melissa practiced occupational therapy in diverse healthcare settings in Chicago, IL and Rochester, NY before transitioning into management. Her clinical expertise lies within pediatric rehabilitation for developmental, neurological, and physical disabilities.



Wen Liu, Ph.D.

Wen Liu, Ph.D., is an Associate Professor in the Department of Physical Therapy, Rehabilitation Science, and Athletic Training at University of Kansas Medical Center. He is responsible for teaching in the rehabilitation science doctoral degree programs. He also performs research in the fields of rehabilitation science/complementary medicine and serves on various committees within and out of the campus. Research works in his laboratory has been focused on neurorehabilitation of people with sensorimotor functional impairment after stroke, spinal cord injury, or sports injury; and application of complementary medicine in people with chronic diseases such as chronic pain, Parkinson's disease, and cancer. He and his research team have developed a novel walking training/exercise device that can help people who are non-ambulatory due to neurological disorders to walk again on a treadmill or overground. In their recent research works, they examined the efficacy of Qigong exercise in managing chronic pain, fatigue, sleep dysfunction, and other symptoms in patients with fibromyalgia, Parkinson's disease, or cancer. Qigong exercise is a mind-body approach rooted in Chinese Traditional Medicine. They have also examined the changes in inflammatory pathways and observed that the improvements in patients' symptoms after Qigong exercise were significantly related to the changes in some of inflammatory biomarkers, indicating possible biological mechanisms underlying the benefits of Qigong exercise. Dr. Liu has been awarded research grants from National Institute of Health, National Science Foundation, American Heart Association, and other funding agencies or foundations.

Dr. Liu obtained a Bachelor's degree in mechanical engineering from Nanchang University and Master's degree in mechanical engineering at the Beijing University of Aeronautics and Astronautics, China. He then worked as a research engineer in the biomechanics laboratory at Yale University School of Medicine. He earned a doctorate in biomedical engineering from the Institute of Biomedical Science and Engineering at Drexel University in Philadelphia. After earning his PhD degree, he worked as a Post doctoral fellow at the University of Calgary, Canada and later a post doctoral Research Associate in the Department of Biomedical Engineering at Boston University. He joined the University of Kansas Medical Canter as a faculty member since 1999.

Ikenna Ibuenyi, Ph.D.

Ikenna Ebuenyi is an Assistant Professor in the Department of Rehabilitation Science and Technology. He received a medical degree (MBBS) at Imo State University Owerri Nigeria. He worked as a resident doctor in the departments of Internal and Community Medicine at the Niger Delta University Teaching Hospital Nigeria for five years. Ebuenyi completed a Master of Public Health (MPH) at the Federal University of Technology, Owerri, Nigeria, and later a joint MSc in Global Mental Health at King's College London and London School of Hygiene and Tropical Medicine through the Chevening Scholarship award. He also completed a PhD in Trans Global Health at Vrije Universiteit Amsterdam and Barcelona Institute of Global Health having received the European Union Erasmus Mundus Joint Doctorate Fellowship. His doctoral research focused on inclusive employment for persons with mental disabilities in East Africa. Also, Ebuenyi holds a Licentiateship of the Faculty of Occupational Medicine (LFOM) from the Royal College of Physicians of Ireland. His professional and research interests are in Public Mental Health, Psychosocial Rehabilitation, Disability inclusion and Health Policy & Systems.

Julie Schwertfeger, Ph.D., PT

Dr. Schwertfeger recently earned a PhD in Interprofessional Healthcare Studies in Spring 2020 after over two decades of progressive leadership and direct rehabilitation clinical treatment with adult brain injury populations as well as academic clinical teaching experience. Dr. Schwertfeger's research aims are to facilitate the development of care models and treatment enhancements to address current gaps in long-term recovery and quality of life after acquired brain injury for patients and their family.

Dr. Schwertfeger is completing an Advanced Postdoctoral Polytrauma / TBI Research Fellowship at the Captain James A. Lovell Federal Health Care Center (mentor Dr. Bharathi Swaminathan, secondary mentor at UIC, Sangeetha Madhavan) that uses high-definition transcranial direct current stimulation and exergaming to improve attention and balance in veterans with TBI living in the community. She currently teaches in the medical and interprofessional coursework at Rosalind Franklin University of Medicine and Science and is an active member in the Motor Behavior and Neurorehabilitation Laboratory of Dr. Carolee Winstein at the University of Southern California.

Professional service highlights: She currently serves on the Academy of Neurologic Physical Therapy (ANPT) Advocacy and Consumer Affairs Committee, and the ANPT Stroke Special Interest Group and Balance and Falls Podcast teams, and she is the immediate past Chair of the ANPT Balance and Falls Special Interest Group (SIG). She is serving her third term as an At-Large Delegate for the Illinois Chapter to the APTA House of Delegates. Dr. Schwertfeger is the 2021 recipient of the Outstanding Service Award from the ANPT Balance and Falls Special Interest Group, the 2017 recipient

of the Illinois Babette Sanders Leadership and Service Award, and the 2015 Federal Government Affairs Leadership Award.

Shonali Gaudino, OT

An Occupational Therapist with clinical experience in gerontology and skilled nursing, Shonali has worked in various capacities across the Spaulding Rehabilitation Network for over 13 years. She has extensive systems knowledge about the Spaulding organization, post-acute care, and data and information systems. She facilitated the implementation of the Epic electronic health record across the network's four inpatient and 25 outpatient facilities and developed programs to educate staff on this critical source of patient data. As the Administrative Director of the Rehabilitation Outcomes Center at Spaulding, she is working to advance data-driven care along every step of the rehabilitation journey, from inpatient through community living.

Jessica Kramer, Ph.D., OTR/L

Dr. Kramer, from University of Florida Department of Occupational Therapy, conducts research that draws upon theoretical concepts and methodologies from occupational therapy, disability studies, education and rehabilitation to: 1) Partner with youth with intellectual and developmental disabilities (I/DD) in the development and evaluation of rehabilitation products; 2) Develop community-based interventions that equip youth with I/DD and their families with the skills to identify and resolve environmental barriers to participation; and 3) Design high quality patient reported outcome measures (PROMs) using contemporary measurement approaches. Dr. Kramer uses quantitative, qualitative, and participatory approaches to design projects that harness the optimal method needed to answer complex research questions and meet the needs of multiple stakeholders, including youth and young adults with disabilities, their families, and rehabilitation professionals.

Arun Jayaraman, Ph.D., PT

Arun Jayaraman PT Ph.D. is the Director, Max Näder Center for Rehabilitation Technologies & Outcomes Research at the Shirley Ryan AbilityLab (formerly The Rehabilitation Institute of Chicago). He is also the Executive Director of the Technology and Innovation Hub (tiHUB) at the AbilityLab. He is a Professor in the Departments of Physical Medicine & Rehabilitation, Physical Therapy & Human Movement Sciences, and Medical Social Sciences at Northwestern University's Feinberg School of Medicine, Chicago. Dr. Jayaraman's group is a clinical lab that develops and executes both investigator-initiated and industry-sponsored research in rehabilitation technologies, prosthetics, orthotics, rehabilitation robotics, neurotherapeutics, and other assistive and adaptive technologies to treat physical disability. The lab conducts all its outcomes research using advanced wearable patient monitoring wireless sensors and machine learning techniques in addition to the traditional outcome measures.

His team oversees over 35 projects including multiple grants funded NIH, DOD, NIDILRR, NSF, MJFox Foundation, Ryan Family Foundation etc.

Ela Plow, Ph.D., PT

Dr. Plow is a Physical Therapist and Rehabilitation Scientist with expertise in the area of neuroplasticity and brain-based markers of recovery. She received her PhD from the University of Minnesota in the area of rehabilitation science and neuroscience. She went on to complete a postdoctoral fellowship from Harvard Medical School's Beth Israel Deaconess Medical Center in the area of neurology and brain stimulation. In 2010, she moved to the Cleveland Clinic and to start a program in non-invasive brain stimulation and rehabilitation. Her lab specializes in the study of neural mechanisms of motor recovery in neurologic populations especially stroke and spinal cord injury. This work funded by the NIH, the Department of Defense, and the American Heart Association has led to ~80 peer-reviewed publications, plus noted media releases. Dr. Plow regularly reviews for the NIH and the American Heart Association and serves as a reviewer for journals like Nature, Neurology, Brain Stimulation and Annals of Neurology among others.

Rick Greenwald, Ph.D.

Rick is an entrepreneur and biomedical engineer with over 25 years of experience in building companies, developing novel technologies, and motivating the process of technology commercialization in the medical device industry. His expertise includes technology and intellectual property development, evaluation and licensing, strategic financing, and business development. He is the Founder and past-CEO of Simbex (sold to Salona Global Medical Devices in 2021), and was founding CEO of venture-funded iWalk (later BionX, then acquired by Ottobock). Rick led two federally funded technology and product development centers, the Center for Translation of Rehabilitation Engineering Advances and Technology (TREAT) and the New England Pediatric Device Consortium (NEPDC). Rick previously served as a small business expert on of the National Advisory Child Health and Human Development Council of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, and on the Council of Councils, Office of the Director, National Institutes of Health. He serves on the Board of Trustees for the Visiting Nurse and Hospice for Vermont and New Hampshire (VNH) and the New Hampshire Academy of Science (NHAS). Rick is a fellow of the National Academy of Inventors (NAI) and the American Institute for Medical and Biological Engineering (AIMBE), an Adjunct Professor at Thayer School of Engineering at Dartmouth College, and holds 20 US Patents, with 5 patents pending.

Mara Yale, Ph.D.

Mara Yale, PhD leads Pediatric Stroke and Brain Injury Education and Outreach at Massachusetts General Hospital, reaching an international audience. She co-chairs the I-ACQUIRE Parent Council. Mara brings scientific inquiry and collaboration to her work based on prior careers in geophysics and software engineering. Mara is a Guild Certified Feldenkrais Practitioner, Somatic Experiencing Practitioner, has trained in Hand-in-Hand Parenting, holds a Ph.D. in geophysics, and played Division I ice hockey. She lives near Boston with her two children, one of whom had a perinatal stroke.

Miranda Donnelly, OTR/L

Miranda Donnelly is PhD Candidate in the Occupational Science PhD Program at the University of Southern California under the mentorship of Dr. Sook-Lei Liew. Her research interests include studying the intersection of technology, health, and occupation as it influences the development and implementation of innovative rehabilitation technologies. Her dissertation work evaluates the implementation context of a post-stroke rehabilitation technology. Prior to beginning her PhD studies, she completed her occupational therapy education at Towson University and was a Fellow in The AOTA Fellowship Program at the Ohio State University.

Gabrielle Scronce, Ph.D., DPT, PT

Gabrielle Scronce completed her Doctor of Physical Therapy and PhD in Human Movement Science degrees at the University of North Carolina at Chapel Hill. Following her postdoctoral training at the Medical University of South Carolina (MUSC), Gabrielle is now a Research Associate at MUSC and a Research Health Science Specialist at the Ralph H Johnson VA Health Care System in Charleston, SC. Her clinical background influences her research, which focuses on exploring psychosocial factors that affect individuals' engagement in rehabilitation after stroke.

Funding Agency Q&A Speakers

Joe Bonner, Ph.D.

NIH National Center for Medical Rehabilitation Research (NCMRR)
Health Scientist Administrator and Program Officer

Audrey Kusiak, Ph.D.

Veterans Affairs Rehabilitation Research & Development (VA RR&D)
Scientific Program Manager for Regenerative Medicine, Spinal Cord Injury/Disorders and Neuropathic Pain

Brian Schulz, Ph.D.

Veterans Affairs Rehabilitation Research & Development (VA RR&D)
Scientific Program Manager for Rehabilitation Engineering and Prosthetics/Orthotics

Christopher Hartshorn, Ph.D.

NIH National Center for Advancing Translational Sciences (NCATS)
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Radha Holavanahalli, Ph.D.

National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR)
Rehabilitation Program Specialist

Melissa Miller, Ph.D.

Congressionally Directed Medical Research Programs, United States Department of Defense
Health Science Program Manager

Jacob Shreckengost, Ph.D.

Craig H. Neilsen Foundation
Program Officer

Day 2 Speakers

Natalie Douglas, Ph.D.

Dr. Douglas is a Professor of Communication Sciences and Disorders, Division of Speech-Language Pathology, at Central Michigan University. As a clinician-scholar, she is firmly committed to closing the research to practice gap, particularly for people living with acquired communication disorders from neurological disease. Dr. Douglas actively partners with speech-language pathologists to develop and test interventions that improve communication, life participation, and quality of life for people living with aphasia, traumatic brain injury, and dementia.

Jessica Cassidy, Ph.D., DPT, PT

Dr. Jessica Cassidy is an Assistant Professor in the Division of Physical Therapy at the University of North Carolina at Chapel Hill. As Director of the Cassidy Plasticity Lab, Jessica applies multi-modal neuroimaging and neuromodulation techniques across the lifespan to examine brain changes during development, disease, and injury. Jessica completed her clinical doctorate in Physical Therapy and PhD in Rehabilitation Science (Neuroscience minor) at the University of Minnesota-Twin Cities and postdoctoral training at the University of California-Irvine in the Department of Neurology.

Amy Yorke, PT, Ph.D.

Dr. Amy Yorke is a Professor and Associate Director for Community Engagement in the Physical Therapy Department, College of Health Sciences, at the University of Michigan-Flint. She oversees the activities at HEART (Health Equity, Action, Research & Teaching), a faculty and student collaborative pro bono health service. Dr. Yorke is the team lead of the integrating KNOWledge (iKNOW) Institute and her research interests lie in translating evidence-based practices to clinical, community, and academic settings to enhance patient outcomes.

Parker Ruth

Parker Ruth earned a dual degree in computer engineering and bioengineering from the University of Washington in Seattle. Now a Computer Science PhD student at Stanford, Parker's research lies in the intersection of computing, engineering, and medicine. His work explores hardware and software technologies to biomedical challenges, making medical assessments more accessible and personalized. Parker's work has been recognized by campus and national research awards.

Miriam Rafferty, Ph.D., DPT, PT

Dr. Miriam Rafferty is a Research Scientist and the Director of Implementation Science at the Shirley Ryan AbilityLab, as well as an Assistant Professor at Northwestern University's Feinberg School of Medicine in the Departments of Physical Medicine & Rehabilitation and Psychiatry & Behavioral Science. She also is a board certified neurologic physical therapist specializing in the proactive rehabilitation of people with Parkinson's disease, stroke, and other conditions. Dr. Rafferty uses implementation science methodology to study and facilitate the adoption of evidence-based practices and novel technologies in real-world rehabilitation contexts.

Keynote: James Krause, Ph.D.

Dr. James S. Krause is a Distinguished University Professor and Associate Dean for Research in the College of Health Professions at MUSC, the Scientific Director of the South Carolina SCI Research Fund (SCIRF), and the Director of the Center for Rehabilitation Research with Neurologic Conditions. Motivated by his own spinal cord injury (SCI), he has committed his life to improving the lives of people with SCI and other neurologic conditions. His research focuses on health and function, participation and longevity, including a 50-year longitudinal study, opioid abuse, and quality employment throughout the work lifecycle in those with SCI, multiple sclerosis, and stroke.

Dr. Krause receives funding from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) and the South Carolina Spinal Cord Injury Research fund (SCIRF), and has previously had funding from NIH, the Department of Defense, the VA, and the Paralyzed Veterans of America. He has authored more than 200 articles in peer-reviewed journals (134 as first author) and has contributed more than 320 conference presentations. He has received several prestigious research awards, including 7 awards for the outstanding published manuscript: the American Spinal Injury Association (ASIA) Research Award (2007), 3 National Association Rehabilitation Research and Training Centers (NARRTC) Research Awards (2008, 2011, 2018), the Apple Award from ASIA (2009), and the American Rehabilitation Counseling Association Research Award (ARCA) (1993, 2010). Dr. Krause has received several career awards including: the first ever Patricia McCollom Memorial Research Award from the Foundation for Life Care Planning (2008), induction into the SCI Hall of Fame by the National SCI Association (2008), the National Medtronic Courage Award in 2011 (previous awardees include Judith Heumann, Sens. Bob Dole and Max Cleland, activist Christopher Reeve, and physicist Stephen Hawking), Distinguished Service Award from NARRTC (2012),

Healthcare Hero – Charleston (2019), Excellence Award for Outstanding Leadership from the American Paraplegia Society (2021), the Excellence Award for Outstanding Leadership in SCI&D Healthcare (2021), and, most recently, the South Carolina Governor's Award for Excellence in Scientific Research (2023). His own spinal cord injury occurred over 50 years ago and has strongly motivated area of focus and commitment to the field.

Tamra Keeney, Ph.D., DPT

Dr. Tamra Keeney is a clinician scientist and Physical Therapist in the Division of Palliative Care & Geriatric Medicine and the Mongan Institute Center for Aging and Serious Illness at the Massachusetts General Hospital and an Instructor of Medicine at Harvard Medical School. Dr. Keeney completed her Doctor in Physical Therapy (DPT) in 2011 at Saint Louis University, a PhD in Rehabilitation Science from the MGH Institute of Health Professions in 2018, and an AHRQ T32 Postdoctoral Research Fellowship at the Center for Gerontology and Health Care Research at Brown University. Dr. Keeney's research focuses on enhancing function and optimizing quality of life for people with serious illness by working at the intersection of palliative care and rehabilitation. Her work is funded by the National Palliative Care Research Center and the National Institute on Aging.

Veronica Swanson, Ph.D.

Veronica Swanson recently received her PhD in Mechanical Engineering from the University of California, Irvine with the Biorobotics Lab led by Dr David Reinkensmeyer. Her research focused on aspects of uptake, usability, and implementation for rehabilitation technologies. Prior to this, she worked as a research and development engineer designing 3D printers for the International Space Station and served as the Associate Technical Director for the Institute for Design and Manufacturing Innovation at UC Irvine. She is currently working as a data scientist through the U.S. Digital Corps fellowship.

Julie Ferrell Olson

Julie Ferrell-Olson is a Ph.D. student at the University of Illinois Chicago in the department of Kinesiology and Nutrition. She is a member of the Locomotor and Rehabilitation Lab at UIC and her research interests include changes in balance and gait biomechanics with aging and clinical populations.

Theresa Sukal Moulton, Ph.D., DPT, PT

Theresa Sukal Moulton is a Pediatric Physical Therapist and Assistant Professor at Northwestern University's Feinberg School of Medicine. She educates Doctor of Physical Therapy students, is an active member of the American Academy of Cerebral Palsy and Developmental Medicine, and her research interests are in underlying neural mechanisms of movement challenges in cerebral palsy and activity-based interventions. Also trained as an engineer, Theresa is most comfortable tinkering, graphing data, and finding creative and practical approaches to rehabilitation science. She currently collaborates with community partners on a pilot clinical trial of a team-based frame running program where athletes train together and participate in a community run event.

Dan Blustein, Ph.D.

Dan Blustein is an Associate Professor of Psychology at Acadia University in Canada. His research focuses on virtual reality neurorehabilitation solutions, prosthesis assessments, and motor learning. He has a PhD in Biology from Northeastern University, completed a postdoctoral fellowship at the Institute for Biomedical Engineering at the University of New Brunswick, and spent three years as an Assistant Professor of Psychology at Rhodes College in Memphis, TN prior to his current position.

Megan Schliep, Ph.D., CCC-SLP, MPH

Megan Schliep is an Assistant Professor in the Department of Communication Sciences & Disorders at MGH Institute of Health Professions in Boston, MA. She also holds a clinical appointment as a Speech-Language Pathologist at Spaulding Rehabilitation Hospital in Boston, MA. Her research focuses on post-stroke aphasia and explores the implementation of standardized and interdisciplinary assessment practices across the care continuum, with a developing focus on both learning health systems and research-practice partnerships to improve patient outcomes.

Emily Evans, Ph.D., PT

Emily Evans, PT, Ph.D., is an Assistant Professor at Boston University's College of Health and Rehabilitation Sciences: Sargent College, in the Department of Physical Therapy. She received a DPT from Ithaca College and a PhD in Rehabilitation Sciences from the MGH Institute of Health Professions. She completed post-doctoral training in Health Services Research at the Center for Gerontology and Health Care Research at Brown University. She was supported by the Center on Health Services Training and Research and an AHRQ T32 Fellowship. She is a 2023 LeaRRn Learning Health Scholar working

with Spaulding Rehabilitation Hospital. Dr. Evans has been a practicing physical therapist for the last 17 years, predominantly working with individuals with acquired neurologic diagnoses in post-acute settings. Dr. Evans's research aims to inform efficient and effective post-acute and chronic care for individuals with acquired neurological diagnoses by leveraging clinical and administrative data and implementation methods.

Samannaaz Khoja, Ph.D., PT

Dr. Samannaaz Khoja, PT, PhD is a Research Assistant Professor in the Department of Physical Therapy, University of Pittsburgh. She received her PT degree from Seth G.S. Medical College in Mumbai, India, and a master's degree and doctoral degree in Health and Rehabilitation Science from the University of Pittsburgh, Pittsburgh, PA.

She is a junior investigator with research interests in the areas of health services research and implementation science. Her recent and current research projects focus on leveraging large datasets such as electronic medical records (EMR) and qualitative data to understand the barriers to delivery of evidence-based treatments, and to inform decisions to improve the access to PT/rehabilitative services.

Dr. Khoja has more than ten years of experience administrating and coordinating single site and multi-site clinical trials related to PT interventions, and more recently she has been collaborating with healthcare system partners on quality improvement initiatives and pragmatic trials. She was involved in a PCORI funded pragmatic multi-site type 1 hybrid trial, where she was part of the data team that managed the coordination and management of EMR data across four different healthcare systems. She has also been the PI of two related pilot studies investigating the trajectory of care of individuals with knee-OA in a large healthcare system. She is also a recent recipient of the Learning Health Systems Rehabilitation Research Network (LeaRRn) Scholarship Award, and the LeaRRn Pilot Study Award, and through the LeaRRn awards she was able to collaborate with stakeholders at Intermountain Health Rehab Services to develop quality improvement initiatives to improve falls risk assessment for older adults. She is also currently a member of the Research Committee for the Academy of Orthopedic Physical Therapy (AOPT), where she chairs the Small Grants Workgroup sub-committee.

Theresa Hayes Cruz, Ph.D.

Theresa Hayes Cruz, Ph.D., is the Director of NCMRR, which, through basic, translational, and clinical research, fosters the development of scientific knowledge needed to enhance the health, productivity, independence, and quality-of-life of people with physical disabilities.

As NCMRR Director, Dr. Cruz led the development of the 2021 NIH Research Plan on Rehabilitation and planned the NIH-wide conference, "Rehabilitation Research 2020: Envisioning a Functional Future." She represents NIH on various federal committees, including the Interagency Committee on Disability Research.

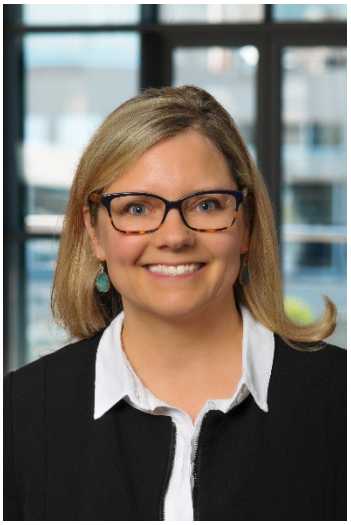
In addition to her NCMRR duties, Dr. Cruz is a team lead in the NIH Brain Research through Advancing Innovative Neurotechnologies® (BRAIN) Initiative, where she co-manages a grant portfolio in the areas of neurotechnology development, validation, and translation.

Session Moderators

Christine McDonough, Ph.D., PT

Christine McDonough, PT, PhD, is an Assistant Professor in the Department of Physical Therapy and in Orthopaedic Surgery at the University of Pittsburgh. Her primary areas of research focus on implementation of evidence-based practice in orthopaedic and geriatric rehabilitation. Her past research has included the development and testing of patient-centered outcome measures using item response theory and computer adaptive testing methods, clinical and health services research in fall and fracture prevention and management for older adults, the measurement of function for work disability determination and rehabilitation, and cost-effectiveness of alternative management approaches for musculoskeletal disorders.

Dr. McDonough's research interests include: implementation of evidence-based practice in work disability prevention, older adult fracture and fall prevention, and musculoskeletal conditions; rehabilitation technology development and commercialization/ translation; and clinical practice guideline development and implementation. She is currently engaged in three ongoing projects, "Vermont Retaining Employment and Talent after Injury/Illness Network (VT RETAIN)," "Secondary Fracture Prevention in Older Adults," and "Combining Testosterone Therapy and Exercise to Improve Function Post Hip Fracture (STEP-HI)." Dr. McDonough is the Co-Director of Pilot Studies Core (PSC) of the Center on Health Services Training and Research (CoHSTAR).



Amy Darragh, Ph.D., OTR/L

Dr. Darragh leads the National Pediatric Rehabilitation Resource Center Pilot Studies Core. She is an Associate Professor and Director of the Division of Occupational Therapy in the School of Health and Rehabilitation Sciences at The Ohio State University. She is an Occupational Therapist and research scientist focused on optimizing rehabilitation outcomes while supporting caregiver and family health. The breadth of her work includes pediatric rehabilitation, parent and family health and well-being, musculoskeletal injury prevention, and the application of virtual technologies and patient handling technologies in healthcare. Through interprofessional, team-based science, Dr. Darragh is dedicated to the translation of high quality evidence to clinical practice to support optimal patient, family, and provider outcomes. Currently, she is co-investigator for 3 NIH-funded multisite comparative efficacy (RCT) trials in pediatric neurorehabilitation: CHAMP (R01HD068345), Baby CHAMP (R01HD074574), and the Phase III StrokeNet I-ACQUIRE (U01NS106655), for which she serves as co-director of the study Assessment Center and investigator liaison to the I-ACQUIRE Parent Council, and principal investigator for a study developing an app for health and safety support for healthcare workers (Ohio BWC). Dr. Darragh is committed to the development and testing of state-of-the-art interventions and methodologies to improve child and family outcomes and to the mentorship of the next generation of highly skilled, rigorous, and innovative scientists.

Lisa Juckett, Ph.D., OTR/L

Dr. Lisa Juckett is an Assistant Professor at The Ohio State University, an Investigator for the MR3's Learning Health Systems Rehabilitation Research Network, and an occupational therapist by training. Her current research is funded by the NIA, AOTF, and the ACL and focuses on bridging the gap between empirical discoveries and the use of these discoveries in real-world practice settings, particularly in organizations that serve the older adult population.

Matthew Petrucci, Ph.D.

Matt is the Scientific Program Manager for the Mobilize and Restore Centers at Stanford University. He is interested in developing digital health tools that optimize human mobility and performance. His previous research has focused on cross-sectional, longitudinal, translational, and feasibility studies in people with Parkinson's disease, people with multiple sclerosis, and firefighters. These studies included evaluating objective biomarkers of disease or performance, optimizing and evaluating novel treatments and interventions, developing real-time closed-loop algorithms, and clinical trials. He helps run the various scientific outreach and training programs of the Mobilize and Restore Centers.

Randal Davis, MBA

In February 2019, Randal Davis was appointed the Director of Strategic Research Initiatives for the Medical University of South Carolina (MUSC) College of Health Professions and is an Assistant Professor. Prior to this, he was on the ground floor of the NIH's Roadmap Initiative that, in 2006, transformed the General Clinical Research Centers program into the Clinical and Translational Science Award (CTSA) – leading to MUSC establishing the South Carolina Clinical & Translational Research (SCTR) Institute. As the first SCTR Project Director, he oversaw strategic planning and evaluation, directed the project management office, guiding the T32 (TL1) and K12 (KL2) career development programs, engaged community and national stakeholders, and guided the science related programs (retreats, pilot studies, translational technologies.) Simultaneously, Mr. Davis served as the university Director of Grants Development for the Office of Research Development leading the development of complex center grants, training grants, and other types of infrastructure grants sponsored by the NIH, National Science Foundation, Department of Defense, and other federal funding agencies. He has a broad background in leading national projects and strategic planning; measuring and reporting programmatic successes; proactively pursuing continuous process improvement; engaging communities for positive action and partnership building; and major center grant program development (contributions to date have leveraged more than $350M in extramural award funding).

MR3 Network Action Steps for Diversity, Equity, and Inclusion

- Recruiting participants that reflect the population(s) involved in rehabilitation.
- Developing pathways for younger, underrepresented individuals to enter the rehabilitation research workforce
- Retaining and facilitating growth of underrepresented rehabilitation researchers.
- Rapidly and effectively exchanging new knowledge about rehabilitation science to diverse patient populations.

For More Information, Visit
ncmrr.org/diversity

Day 1 Abstracts

Keynote Presentation: Linda Resnik, PT, Ph.D., FAPTA

Integrated Knowledge Translation for Greater Impact

Linda Resnik
Brown University, and Providence VA Medical Center

The 17-year research to practice gap has not substantially changed in two decades. Transfer of research evidence to practice remains unacceptably slow and incomplete. Some estimate that as many as 30-45% of patients are not receiving evidence-based and 20% to 25% of the care that is provided is not needed or is potentially harmful.
In this keynote address, Linda Resnik, Director of LeaRRn, the Learning Health Systems Rehabilitation Research Network, Professor of Health Services, Policy and Practice at Brown University, and VA Research Career Scientist discusses the research translation continuum and strategies to improve clinical translation through knowledge translation (KT). Knowledge translation aims to enhance the use and usefulness of research by changing the way that researchers design and conduct studies, disseminate and implement findings. Integrated knowledge translation (iKT) and learning health systems (LHS) research are new paradigms for many rehabilitation researchers which have great potential to reduce the research to practice gap.

Integrated Knowledge Translation is a type of KT in which researchers and knowledge users collaboratively shape the research entire process; by determining the research questions; deciding on the methodology; collecting data; developing tools; interpreting findings; and disseminating the research results. Learning health systems (LHS) research is a unique type of iKT that takes place within a LHS. This talk introduces the components of the LHS cycle, the features of LHS research, as well as the core competencies required of LHS researchers. Dr. Resnik also discusses her professional journey and illustrates how the iKT approach influences her current research to develop functional outcome measures.

Session 1: Clinical Research Partnerships 1

Bringing Clinicians and Researchers Together to Inform Device Development: Insights and Lessons Learned

Courtney Celian, Hannah Redd, Kevin Smaller, Miriam Rafferty
Shirley Ryan AbilityLab

Rehabilitation technology is key to advancing innovation, yet its potential is often limited by a lack of end-user feedback during the development process. To address the challenge of obtaining end-user feedback, we facilitated advisory groups of clinicians and stroke survivors for research teams from multiple Rehabilitation Engineering and Research Centers. 7 teams participated in a one-hour, moderated panel in proof-of-concept and proof-of-product stages of technology development. Each panel consisted of 2-3 occupational or physical therapists (depending on the device), 1-2 physiatrists, and 2 stroke survivors. A facilitator moderated introductions, a researcher presented their device, then the panel participated in moderated discussions. All participants were given the opportunity to provide feedback on the final summary report. Barriers to panel organizing include: participant availability, hesitancy to participate due to diverse educational backgrounds, and complex researcher presentations. We addressed these barriers by reviewing presentations beforehand to ensure clarity and providing 1:1 follow-up

discussion with stroke survivors. After the panels, the research teams were surveyed on the impact of the panel on device development. 92% (12/13) respondents reported the panels made a positive impact on device development, and it was an effective use of their time. Researchers wanted the panels to be longer than an hour, occur more frequently, and with clinicians from more diverse settings in attendance. Researchers reported some of the most valuable feedback improved device usability, simplicity, and customizability. These findings highlight the importance of end-user feedback and collaborative partnerships between engineers, researchers, clinicians, and patients throughout the device development process.

The IdeaLab: A Strategy to Promote Interdisciplinary Communication and Advance Rehabilitation Research Projects

Richard Lieber, James Silwa, Melissa Briody
Shirley Ryan AbilityLab

Clinician-researcher partnerships require effective communication to develop new ideas and ensure clinical utility of research projects. The IdeaLab is a novel method employed by C-STAR, the Center for Smart Use of Technologies to Assess Real World Outcomes, to elicit interdisciplinary feedback to direct the development of new research projects and facilitate clinician-researcher partnerships. In the IdeaLab, investigators present novel and early-stage research ideas, ask questions, and receive guidance from clinicians and researchers. This forum has been critical for researchers with limited clinical knowledge and clinicians with limited research expertise to receive expert guidance that will advance their idea.

From 2016-2022, we held 25 IdeaLabs with an average of 30 employees at each event (29.7±8.9). Participants in these sessions were composed of 39% Scientists, 36% Allied Health, 13% Other non-clinical staff, 11% Physicians, and 1% Registered Nurses. The purpose of this presentation is to describe the development and implementation of the IdeaLab, which has been successful in (1) improving clinical relevance of early and mid-stage research ideas; (2) creating interdisciplinary partnerships, and (3) producing new external grant applications and awards for continued interdisciplinary research. It should be noted that, in a few cases, the IdeaLab has resulted in termination of projects where clinicians did not agree that the idea had clinical utility. We view this as a success even though the project was ended since the scientist is free to pursue their next idea.

To Develop a Model for Walking Exercise in Rural Stroke Survivors

Wen Liu, Yvonne Colgrove
University of Kansas Medical Center

Background and Purpose: More than 22% of 7 million stroke survivors are severely impaired and non-ambulatory. They often experience cardiovascular diseases and recurrent stroke. Walking exercise can significantly help them to reduce the risk of complications, but such exercise facility is not accessible for most of them, especially for rural stroke survivors. Here we report results of a pilot trial of walking exercise and a focus group interview of rural physical therapists and propose a novel task shifting model to support walking exercise in rural non-ambulatory stroke survivors.

Methods: We conducted a pilot single-group (n=9) clinical trial of walking exercise for 8 weeks with 3 sessions per week. The walking exercise used a novel gait training device that is effective and low cost. We also did a focus group (n=6) interview in rural physical therapists.

Results: Our pilot trial showed significant reduction in resting heart rate and blood pressure, and improvement in sensorimotor function before and after the eight-week walking exercise. Our focus group interview revealed that there is usually no follow-up rehabilitation therapy for severely impaired stroke survivors after discharge from hospital. Caregivers needs a lot of help, but often no help from healthcare professional.

Discussion and summary: The walking exercise showed promising results in our pilot trial. However, in rural areas the walking exercise are not available to non-ambulatory stroke survivors. We propose a model to shift the walking exercise task to a group of stakeholders including caregivers and rehabilitation professionals and our novel training device.

Session 2: Patient/Community Engagement 1

Perceptions of Rehabilitation for Alzheimer's Disease and Alzheimer's Disease Related Dementias: Using Stakeholder Feedback to Refine Research Tools

Ikenna Ibuenyi, Janelle Christensen, Cynthia Anggraini Putri, Shaye Kerper, Julie Faieta
University of Pittsburgh

Background: Despite demonstrated importance of rehabilitation for Alzheimer's Disease Related Dementias (AD/ADRD), research and practice on the subject is limited and use of participatory approaches are even more limited. Our study aims to understand collaborator perspectives on how to incorporate rehabilitation strategies for people with AD/ADRD. Feedback from collaborators can refine tools used in the mixed-methods study.

Methods: We utilized a qualitative interactive approach to explore the perspectives 10 community collaborators recruited from University of Pittsburgh Pepper Center. A two-hour virtual session explored their perspectives on the project tools including introductory script, information and consent form, interview, and focus groups questions.

Results: The collaborators suggested that the term rehabilitation has a negative connotation and suggested alternative descriptive terms such physical and cognitive support services, and individualized support services. They suggested a preference for simplified script or infographic to describe the scope of rehabilitation services for people with AD/ADRD. They declared preference for open-ended questions in the interviews and focus groups discussion to allow them to express their thoughts and perspectives on the concepts. Overall, the group highlighted that research and services on rehabilitation for AD/ADRD do not prioritize the voice of family caregivers and community partners.

Conclusion: The use of a transdisciplinary and participatory research approach offered us the opportunity of including community collaborators feedback in our formative research process that helped to refine our study. Inclusion and participation of users of research products and community collaborators in research design, process and implementation is critical to reducing research-practice gap.

Reimagining Engagement: An Interprofessional Research Design Used to Study the Effects of a 3-Day Stroke Camp across 42 Sites

Julie Schwertfeger, Kristin Schneider, Steven Miller, Allen Heinemann, Michelle Jordan, Dean Jordan, Veronica Rowe, Marylee Nunley, Larry Schaer
Rosalind Franklin University & Captain James A. Lovell Federal Health Care Center

BACKGROUND Stroke is a leading cause of impairment costing an estimated $60 billion annually. Stress from changes from the stroke contributes to poor health for many caregivers (CG) and people with stroke (PWS) years to more than a decade after the stroke event. Chronic-disease self-management programs (CDSMPs) adapted for post-stroke are evidenced to reduce long-term stress in PWS and CGs. CDSMP training components include decision-making, problem-solving, resource utilization, peer support, patient-provider relationship development, and environmental support.

OBJECTIVE A user-designed stroke camp was assessed for Stanford CDSMP domains, stress reduction effects. Intended users were part of all aspects of the research.

METHODS An open cohort survey study that assessed stress with two baseline timepoints: one -week prior and immediately before camp, and two post camp timepoints taken immediately and one-month post. Changes in stress were assessed through mixed-model analysis pre-post camp. CDSMP domains were assessed through review of camp documents and survey responses.

POPULATION PWS and CG participants in a 2019 camp. PWS (n = 40) was 50% male, 1-41-years post stroke, 60% ischemic, one-third with aphasia, and 37.5% with moderate-severe impairment. CG sample (n = 24) was 60.8% female, 65.5 years old, with 7.4 years CG experience.

RESULTS Stress decreased significantly in PWS (Cohen's d = −0.61) and CGs (Cohen's d = −0.87) from pre- to post-camp. Camp activities addressed all but one CDSMP domain were found across camps.

CONCLUSIONS Stroke camp is a novel model that addressed CDSMP domains, stress reduced in PWS and CGs following camp. Controlled studies are warranted. Intended-user models and partnerships may advance translation.

Finding Strength: Podcasting as a Means of Community Engagement in Rehabilitation Research

Shonali Gaudino, Lauren Shepler, Mary Slavin
Spaulding Rehabilitation

The significant delay between knowledge generation via research and adoption in clinical practice is widely acknowledged. Additionally, recent emphasis on patient-centered care has placed a spotlight on the importance of including persons-served in every step of the learning health cycle. Thus, there is a growing need to nurture relationships amongst classically siloed populations such as clinicians, researchers, payors, community leaders, hospital administrators, and most importantly, people with lived rehabilitation experience. Podcasting is an accessible platform for reaching a general audience with a relatively low barrier to entry.

Spaulding Rehabilitation is a post-acute network with over 4000 employees and a research arm that has generated over 3000 publications over the last decade. Spaulding sought innovative knowledge translation strategies to increase access to its research findings and spark engagement across its community leading to the launch of

Finding Strength: The Spaulding Rehabilitation Podcast. Each episode is inspired by publications from Spaulding's research centers and brings diverse perspectives to the table including at minimum the researcher and a person with lived experience. The format prominently features the voices of patients and people with disabilities and uses group discussion to contextualize the researcher's body of work. In its first four months, the production has released five episodes, has 90 subscribers, and over 450 plays.

Early analytics suggest the podcast is an effective format to connect the community to the research. Future plans will expand the breadth of perspectives to policymakers and payors and build upon efforts to include people from underrepresented and marginalized populations.

Reconciling the Past, Changing the Future: Building Capacity of Young Adults with IDD-MH, Families, and Researchers to Partner in Research

Jessica Kramer, Fiorella Guerrero, Tawara Goode, Joan Beasley, Elizabeth Grosso, Micah Peace Urquilla, Destiny Watkins
University of Florida

Research has historically excluded persons with disabilities, resulting in harmful assumptions about their abilities, needs, and preferences. There is a critical need for the research community to engage in reconciliation with diverse youth with disabilities and their families to move forward and collaborate in research that affects their lives. In this presentation, we describe the collaborative design, implementation, and evaluation of Truth and Reconciliation (T&R) forums designed to build the capacity of persons intellectual and developmental disabilities and mental health needs (IDD-MH), families, and researchers.

The project's leadership team, including young adults with IDD-MH, designed the Truth & Reconciliation forums to address the four steps of reconciliation (truth telling, acknowledging, restoring, and collaborating). Mental health clinicians and young adults with lived experience co-facilitated four forums with persons with IDD-MH (n = 9) and family members (n = 6). From this project, we learned: 1) Persons with disabilities and clinicians can work together to build capacity for research. 2) Persons with disabilities are eager to take on research roles 3) Researchers must consider the relevance and benefit of their studies at the individual, practice, and societal levels. 4) Meaningful engagement in research is possible when team members: Live the principle "nothing about us without us"; recognize that research occurs in a cultural context; and celebrate strengths. Our T&R process can serve as a model for pediatric rehabilitation researchers who seek to advance a collaborative research agenda that meaningfully engages youth with disabilities and their families to chart a new path forward.

Session 3: Industry Partnerships

Collaboration with Industry: Do's & Don'ts to Help your Academic Career

Arun Jayaraman, Richard Lieber
Shirley Ryan AbilityLab

Academic faculty whose job portfolio includes research have to write grants and publish manuscripts as part of their job. However, procuring traditional funding (NIH, NSF, NIDILRR) to conduct rehabilitation research, and publishing peer-reviewed publications have become harder and harder to achieve in recent times. Some of the reasons include: the positive significant increase in the number of rehabilitation research faculty who are focused on conducting research, while the funding rates or the amount of funds available to conduct research has

remained the same or even diminished in some cases. One alternate strategy to procure funding and publish manuscripts is via Industry collaborations and conducting industry-sponsored research. However, conducting industry research comes with its own set of complications, including the fact that one is conducting research to help a for-profit organization to make profits. Thus, this presentation will focus on guiding rehabilitation researchers on how to handle industry collaborations, negotiating budgets and contracts, how to conduct fair research and publish results which are considered acceptable by traditional research field. Furthermore, we will touch on topics which are important to industry sponsored rehabilitation research such as: FDA, CE-Mark, CMS, classification of devices, CPT codes, HCPCS codes etc. The presenters have extensive together in conducting over a hundred industry sponsored trails and have guided a significantly large number of industries enter and succeed in the field of rehabilitation.

Lost in Translation: Noninvasive Neuromodulation- What We Owe to our Patients, Community, and the Nation

Ela Plow[r], (Additional Symposium experts from industry, FDA advisors, VNS/DBS/SCS specialist, TMS/tDCS scientist, Hospital CEO)
Cleveland Clinic Foundation

Despite decades of resources dedicated to study of noninvasive neuromodulation including TMS and tDCS in neurorehabilitation, clinical translation of these approaches has hit a dead-end. The fate contrasts with invasive neuromodulation including VNS, SCS and DBS which generally have faster preclinical to clinical and regulatory success. This symposium takes on the provocative position that robust industry-academic partnerships and healthcare "buy-in" are critical for translation of noninvasive stimulation. Experts from industry, regulatory agencies, clinicians and scientists and healthcare leaders will (1) identify barriers to translation of noninvasive neuromodulation and (2) offer a 5-point plan for successful implementation. (1) Barriers would include high volume of noninvasive studies performed in "silos" without common platform for data aggregation and best practice, in contrast to focused study of invasive technologies. Equally important is large industry investment, healthcare model/business alignment and regulatory support for implanted stimulation. Studies of noninvasive stimulation do not garner sufficient corporate backing for clinical and regulatory advancement. Reliance on federal/academic funding delays a process that is already arduous. The academic-clinical divide is significant in noninvasive stimulation whereas invasive studies naturally originate within clinics, which perpetuates misalignment from healthcare business models. (2) A five-point plan proposed may include (i) Partner, involving industry and national network, (ii) Inform patients, therapists, physicians and community to build acceptance, (iii) Engage healthcare leaders for determination of favorable cost-to-benefit, (iv) Provide step-by-step regulatory guidance and (v) Adopt and Assess success and barriers in implementation of noninvasive stimulation in rehabilitation to inform next steps.

Session 4: Advisory Boards

Integrating a Parent Advisory Council in a Clinical Trial

Mara Yale, Kim Hindery, Amy Darragh, I-ACQUIRE Parent Advisory Council
Massachusetts General Hospital

Clinical trials in rehabilitation present unique challenges and opportunities with interventions that are often complex and time-intensive. Researchers must collaborate with prospective participants, families, and caregivers to recruit, accrue, and retain study participants. When a study team includes both researchers and participant stakeholders as integral members, partnerships form that ensure participant-centered research processes and outcomes, and enrich the research experience for all parties. The C-PROGRESS leadership team has engaged with families in multiple pediatric clinical trials, culminating in the integration of a Parent Advisory Council in an ongoing multisite, phase 3 randomized controlled trial.

Our team of parents and scientists highlights distinct advantages and common challenges when integrating a parent advisory council into trial design and implementation. Topics include: timeline (e.g. at which research stage to initiate stakeholders-scientist partnership), roles and responsibilities (e.g. consent & enrollment; recruitment; training), communication (e.g. participation in executive steering committee; investigator liaisons), scientific integrity (e.g. bias, equipoise), parent-reported and family-centric outcomes (e.g. family feedback and family input into relevant and meaningful outcomes), and family-centered procedures (e.g. respectful communication; sensitivity to family needs and experiences). We share recommendations based on experience with integrating stakeholder councils into grant submissions, structuring the council, establishing and funding council payments, designing systems of communication and feedback, and navigating regulatory and compliance issues. Unexpected benefits of this parent advisory council have included: mutual respect among parents and researchers, an informal speakers bureau of parents to help train the next generation of therapists, and proactive ongoing trial recruitment by parents.

Establishing a Long-Term Stakeholder Partnership for Stroke Rehabilitation Research

Miranda Donnelly, Kyle Nishimura, Sook-Lei Liew
University of Southern California

The potential benefits of community-engaged research for improving the relevance and reach of research are well described, however there are cultural and logistical challenges to establishing and growing these partnerships. The Advisory Board model has become increasingly common for supporting both large institutions (e.g., National Advisory Board on Medical Rehabilitation Research) and specific research projects (Halladay et al., 2021). However, there is less evidence describing the role of Advisory Boards as long-term partnerships at an intermediate level, such as in a research laboratory.

We established an Advisory Board for the Neural Plasticity and Neurorehabilitation Laboratory at USC, composed of stroke survivors, their caregivers and loved ones, rehabilitation therapists, researchers, and students. The purpose of the Board is twofold: (1) to infuse stakeholder perspectives across all projects and phases of research in our laboratory and (2) to mobilize knowledge between people with lived experience of stroke and professionals to advance rehabilitation research, even beyond our laboratory.

In this presentation, we will discuss the foundation of our Advisory Board and share experiences from the first 6 months, including (1) the process of establishing the Board and developing our Board culture, (2) pragmatic

elements of coordinating a group composed of individuals with varying needs and experiences, and (3) activities and projects we have embarked on as a Board.

We propose that establishing Advisory Boards for long-term collaborations across research projects can elevate the voices of stakeholders, strengthen community engagement and access to research, and enhance the translation and implementation of important scientific findings into real-world contexts.

Community Advisory Board Research Collaboration to Identify User Priorities for Ankle-Foot Orthoses

Gabrielle Scronce, Mark Bowden, Patricia Chase, Eric Clark, Thomas DiBello, Emily Fox, Richard Neptune, Jeffery Rankin, Arian Vistamehr, Walter Weiss, Shane Wurdeman, Steven Kautz
Ralph H. Johnson VA Health Care System, and Medical University of South Carolina

Introduction: Ankle-foot orthoses (AFO) are commonly prescribed after stroke to enhance stability and improve biomechanical characteristics of gait. However, factors other than biomechanical improvements strongly influence whether a stroke survivor will or can choose to wear their AFO on a regular basis. Determination of optimal AFO prescription requires input and collaboration from AFO users. Thus, our objective is to engage a Community Advisory Board (CAB) to assist development, implementation, and dissemination of findings of a clinical trial composed of qualitative and quantitative methods to identify AFO characteristics most salient to users, optimizing AFO prescription and benefit.

Methods: The CAB is composed of 8 stroke survivors, appointed based on their lived experience as AFO users as well as their previous participation in research, support groups, and/or advocacy groups. These individuals are paid members of the research team. They provide input on study objectives and protocol to improve study design and direction and propose topics of discussion for focus groups, which they attend as facilitators and contributors.

Dissemination: Study findings will be shared with the CAB, who will co-author an infograph depicting AFO priorities and characteristics for AFO users, their caregivers, and providers. The infograph and overall research findings will be disseminated with CAB assistance and authorship at research conferences, support groups, webinars, and in-services.

Impact: The CAB will bring to the research team the necessary perspective of AFO users and stroke survivors and will be essential in successful identification of AFO priorities and dissemination of knowledge to the community.

Day 2 Abstracts

Keynote Presentation: James Krause, Ph.D.

Developing, Maintaining, and Expanding a Program of Research: An Example with Spinal Cord Injury

James Krause
Medical University of South Carolina

One of the most overlooked, yet fundamental, aspects of grantsmanship is the recruitment and retention of sufficient research participants. Many funded projects fail because of the inability to recruit appropriate participants, particularly when using specialty populations. Inclusion and exclusion criteria further reduce potential participant pools. The purpose of this presentation is to share observations regarding the importance of participant recruitment, considerations, and suggestions for investigators that may enhance both successful grant applications and the development of the program of research. The presenter will rely on experience conducting longitudinal research on individuals with spinal cord injuries (SCI), a specialty population for which there is limited access to most investigators. A 50-year study of outcomes after SCI will be described, emphasizing recruitment and retention. Successful recruitment leads to opportunities for more specialized studies of individuals with low incidence outcomes, such as a particular secondary health condition. It also leads to opportunities to study populations that have been associated with inequities in outcomes based on race-ethnicity, age, and socioeconomic status. There are also opportunities to expand from one study population to related populations, such as persons with other neurologic conditions that include traumatic brain injury, multiple sclerosis, and stroke. An example will be provided on moving from longitudinal outcome research using survey methodologies to intensive qualitative study designs. Lastly, participant engagement will be discussed as a partnership between the investigators and stakeholders whereby stakeholders serve as research participants and the investigators conduct the research and work toward educating stakeholders, clinicians, and policymakers to improve long-term outcomes.

Session 5: Clinical Research Partnerships 2

Leveraging a New Clinical-Research Partnership: Mitigating Fall Risk in Inpatient Rehabilitation with Speech-Language Pathology

Natalie Douglas, Sarah Wallace, Kate Minick, Nancy Christensen Mayer, Angela Menlove, Jamie D'Ausillo
Central Michigan University

The formation of a new clinical-research partnership between Central Michigan University and Intermountain Health will be described to inform other rehabilitation researchers in beginning stages of Learning Health Systems research. First, a tool to assess the fit of the partnership, the Framework for Assessing Research-Practice Partnerships will be outlined. Illustrative examples of the five dimensions of the framework-building trust and cultivating relationships, conducting actionable research, supporting the clinical organization in achieving its goals, producing knowledge that can inform improvement efforts more broadly, and building capacity to engage in partnership work will be presented.

Next, details will be provided about how Intermountain Health clearly identified a priority for the partnership. Through a series of meetings with key decision makers, it was identified that speech-language pathology was not explicitly involved in fall prevention for patients post-stroke and traumatic brain injury in the system's four inpatient rehabilitation facilities. Our team prioritized a retrospective data analysis documenting predictive relationships among cognition, communication, and falls. This required IRB approval and a data use agreement between the two organizations. These logistical steps can pose challenges and therefore, practical suggestions based on our experience will be presented.

Finally, we will outline how the retrospective data analysis informed a new pilot project designed to engage speech-language pathologists in the co-development of a tailored cognitive-communication intervention tied explicitly to fall risk. Our aim is that the foundational work in this partnership will result in more readily implementable interventions that progress to larger projects with advanced rigor.

Empowering Stroke Survivors Beyond the Inpatient Rehabilitation Facility: The STRIDE Program

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University of North Carolina at Chapel Hill

The timeframe from hospital discharge to the commencement of outpatient therapies represents a crucial yet often overlooked period during post-stroke recovery. For many, this time marks the transition from a structured therapeutic environment to a home setting defined by isolation, self-reliance, and disorganization. Post-stroke gains in physical activity achieved during inpatient hospitalization frequently decline following hospital discharge, which signifies missed opportunities to promote autonomy and engagement in one's health following a catastrophic medical event. A partnership between a university and its hospital system resulted in the creation of STRIDE (Stroke Management Training and Inpatient Rehabilitation Discharge Education)- an eight-week program targeting individuals preparing to discharge from an inpatient rehabilitation facility to home following their stroke. The program contained three main components: [1] daily activity monitoring and documentation using a commercially available activity monitor, [2] weekly education, and [3] social support through partnerships with fellow stroke survivors participating in STRIDE and STRIDE personnel. Pilot work confirmed the successful implementation and feasibility of STRIDE. Semi-structured interviews from participants underscored the value STRIDE during a critical timeframe of recovery. Planning efforts are now underway for a second iteration of STRIDE, which will leverage technology and stakeholders to enhance program accessibility and inclusivity to further address healthcare disparities in post-stroke rehabilitation.

iKNOW: Integrating Knowledge through Community and Clinical Partnerships

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University of Michigan-Flint

Background and Purpose: Knowledge translation (KT) aims to bridge the gap between research and practice by facilitating the utilization of evidence in real-world contexts. The purpose of this case report is to describe the organized and intentional KT efforts of a group of researchers who have successfully partnered with the clinical and public communities.

Case description: The Integrating Knowledge Translation (iKNOW) Institute was formed in 2018. iKNOW seeks to engage with health care organizations, academic institutions, and health policy in order to decrease the time it takes for research to be implemented into clinical practice. The iKNOW Institute has a web page which highlights the work of the faculty, clinicians, and students as well as serving a repository for clinical practice guidelines and presentations on current best evidence.

Outcomes: Over the last six years iKNOW has grown to include eight faculty (three universities), 14 students, four clinicians, with six active projects. The iKNOW projects have focused on standardizing outcome measurement in outpatient neurologic physical/occupational therapy and in a student pro bono clinic, blood pressure monitoring in outpatient physical therapy, initiating of a high intensity gait training in an interprofessional student pro bono clinic, ACL prevention program within a club soccer organization, and standardized pain assessment in outpatient physical therapy. Members of iKNOW have been successful in disseminating their work in peer reviewed publications, posters and platforms, and have received grant funding. The iKNOW Institute strives to collaborate with partners interested in improving the health and well-being of our communities.

Scalable Kinematic Analysis Using Smartphone Videos: Towards Movement Biomarkers for Neuromuscular Diseases

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Stanford University

Quantitative human movement assessments are vital to clinical trials for neuromuscular diseases. A new tool for smartphone video–based movement analysis, OpenCap, promises to augment existing trial outcomes, but the clinical value of video-based metrics remains unproven. To address this interdisciplinary challenge, we built a partnership between engineers and clinical researchers specializing in neuromuscular diseases. Initial needs finding revealed that clinicians can observe changes in movement quality that are undetected by existing trial endpoints such as timed functional tests (TFTs). Concentrating on two neuromuscular diseases, myotonic dystrophy (DM) and facioscapulohumeral muscular dystrophy (FSHD), we designed 12 activities that capture their clinical presentation and leverage the strengths of video-based motion capture. In-clinic pilot experiments precipitated our key hypotheses: compared to TFTs, video features are more disease-specific and better predictors of patient reported outcomes (PROs). We conducted a large-scale, cross-sectional parallel data collection (seven OpenCap stations) measuring kinematics and kinetics of 88 participants over three days (12 hours total). Clinicians guided participants through activities while engineers operated OpenCap. The study was high-throughput (20 min per person) and participants reported high satisfaction. To create a set of video-based movement features, engineers and clinicians together examined videos; as clinicians identified movement signatures in the patient groups, the engineers identified kinematic and kinetic measures quantifying the clinical observations. Preliminary models using video features better classify diseases and predict PROs than those using TFTs alone. Rapid, large-scale studies and algorithms encoding clinical domain knowledge could accelerate the development of clinic-ready biomarkers.

Designing for Accelerated Translation: An Implementation Framework Adapted for Rehabilitation Technology

Miriam Rafferty, Courtney Celian, Alex Ramsey, David Reinkensmeyer, James Patton
Shirley Ryan AbilityLab, Northwestern University's Feinburg School of Medicine

Rehabilitation researchers and engineers develop novel technologies each year that are efficacious, but either fail to make it to market or fail in the market. The historical average 17-year lag translating of research into practice is too slow in the age of technologically driven healthcare innovations. To address this challenge, we have drawn upon other frameworks to tailor them to the needs of rehabilitation technology research. The Designing for Accelerated Translation (DART) of Health Innovations Framework was developed to inform advanced implementation methodology (Ramsey et. al., 2019). DART considers factors that influence the pace of translation such as demand, risk, cost, and evidence base. Three key action areas of DART include (1) forming meaningful stakeholder partnerships, (2) designing innovations for dissemination and implementation, and (3) engaging in learning health systems. The clinical translation and measurement core of the Sensors Technology Applied to Rehabilitation in Stroke (STARS) Rehabilitation Engineering Research Centers (RERC), and the uptake core of the Collaborative Machines Enhancing Therapy (COMET) RERC facilitates each of these three areas for our engineering teams. We modified the original DART formula to assess the implementation potential, or inherent likelihood of success, of novel rehabilitation technology as a function of six factors: demand, effectiveness, potential utility, financial costs, opportunity costs, and risks to patients. Considering these six variables early in the design process should help rehabilitation engineers accelerate technology development.

Using Human-Centered Design Principles within the Multiphase Optimization Strategy (MOST) Framework to Engage Clinical Partners to Develop LiveWell-HF: a Home-Based Palliative Physical Therapy Intervention

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Background: One-third of older Americans hospitalized with heart failure (HF) are discharged with home-based care. Yet, 30 to 50% of beneficiaries who receive home health rehabilitation experience persistent functional limitations and 25% die within six months of discharge. High healthcare utilization and mortality risk, coupled with persistent functional limitations, call for tailored home-based physical therapy interventions for individuals recently hospitalized with HF.
Objective: To develop LiveWell-HF, a home-based physical therapy intervention supplemented with primary palliative care skills. We describe our approach to using the Multiphase Optimization Strategy (MOST) framework with human-centered design principles to engage clinical colleagues in our MOST Preparation phase of intervention development.

Design: Our research team embedded within Mass General Brigham (MGB) partnered with individuals at our integrated home health agency, MGB Home Care, to review project goals, ensure alignment with system priorities, and identify individuals with relevant expertise for this work. We established an advisory team (4 clinicians, 3 clinical leaders) to develop our intervention prototype.

Results: Between 2022-2023, we held 5 advisory team meetings. We refined our conceptual model and skills in the LiveWell-HF prototype based on feedback regarding palliative care skills and training needs. We then focused on reviewing session-by-session intervention content, clinician workflow, and training considerations. We will refine LiveWell-HF with broader clinician and patient feedback, followed by an open pilot test.

Conclusion: Using the MOST with human-centered design provided a useful framework to partner with clinical colleagues early in intervention design.

Improving upon User-Centered Design with Sensor Data: Design-for-Uptake in Rehabilitation Technology

Veronica Swanson, David Reinkensmeyer
University of California, Irvine

User-Centered Design (UCD) is currently the most widely used design paradigm for rehabilitation technology. UCD is based on three principles: early focus on users and tasks, empirical measurement, and iterative design. Most design teams implement the second UCD principle of empirical measurement by deploying interviews and surveys . User perspectives are valuable for understanding goals and requirements, but self-reported data is subjective and variable. Here, we advocate for extending UCD to a Design-for-Uptake approach, particularly for the class of systems where benefit from the system is obtained through high-volume use, such as rehabilitation therapy devices and various assistive technologies, including prostheses, orthoses, exoskeletons, and wheelchairs. In this approach, the primary insight into the validity of a design is obtained by the amount of use a device receives, as measured objectively with embedded sensors, rather than subjective opinions. Uptake is particularly important for technologies where users can freely choose to interact with or ignore the system and when they have multiple alternative systems to choose from. The Design-for-Uptake paradigm seeks to maximize actual use, unlike the UCD paradigm, which aims to improve usability, usually measured by surveying opinions about the usability of a system. To demonstrate this approach, we present two examples of sensor-based rehabilitation therapy systems whose designs we are refining based on insights from sensor-derived usage metrics.

Session 7: Patient/Community Partnerships 2

Aligning Fall Definitions with Lower Limb Prosthesis Users' Lived Experiences

Julie Ferrell-Olson, Brian Hafner, Andrew Sawers
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The absence of a clear and meaningful definition of a fall remains a barrier to collecting quality falls data from lower limb prosthesis (LLP) users. Without a definition that reflects preferred terminology and common lived experiences, LLP users may interpret what constitutes a fall differently, limiting aggregation and comparison of falls data among LLP users. Based on prior discussions with LLP users, we proposed that a fall be defined as "a loss of balance where your body lands on the ground or floor". Our objective here was to probe two key elements of that definition. First, could a fall be initiated by anything other than a "loss of balance", and second, could landing on something other than the "ground or floor" still be considered a fall? Semi-structured interviews with 24 LLP users identified two necessary revisions to the initial definition. First, participants described a "sudden loss-of-support" as an additional and unique precursor to a fall, differentiated from a "loss of balance" by its speed and lack of opportunity to attempt a recovery. Second, in addition to "ground or floor", landing on another object,

such as a table or chair, was considered by participants to be a fall. Based on these results a revised definition is proposed: "a fall is a loss of balance or sudden loss-of-support where your body landed on the ground, floor, or another object." The revised definition will help researchers collect consistent and meaningful falls data that can be aggregated and compared between LLP users.

Facilitators and Barriers to Implementing Frame Running into Extracurricular Running Groups for Children and Adolescents

Theresa Sukal Moultan, Forrest Parks, Rebecca Hanks, Tara Egan
Northwestern University

Background: Youth with and without disabilities who have decreased physical activity and increased sedentary behaviors are at increased risk for negative outcomes, including cardiovascular, muscular, and mental health equelae. For those with disabilities, community-based programming can be made accessible through the use of running frames to support balance and promote participation. This modality has been shown to improve muscle size and endurance, but implementation in a recreational context has been less explored.

Method: Our community-engaged accessible running program hosted 2 focus groups. One consisted of people who had participated in or supported an adaptive running team, and one consisted of people who did not have direct experience with the topic.

Results: Qualitative analysis of transcripts revealed that the biggest facilitators to implementation included beliefs about the benefits of inclusivity and prior exposure to adaptive equipment and people with movement differences. Participants noted their observations of changes in confidence and leadership skills of those that participated in the team. Experienced and perceived barriers to introducing the modality for coaches and athletes included concerns about equipment management, safety, and appropriately adapting running games/skills to participants with a variety of health diagnoses. They felt that preseason training and real time support during practices would be helpful.

Conclusion: It was feasible to implement running frames in a school setting and there was enthusiasm to extend this to new schools. Coaches would benefit from knowledge and skills training for successful running frame implementation.

Patients and Clinicians as Collaborators on the Development and Acceptance of a Virtual Reality Stroke Rehabilitation Platform

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Acadia University

Stroke patients frequently face barriers to accessing rehabilitation treatment including limited mobility, travel distance, transportation problems, and cost. Standard physical therapy protocols can be tedious and frustrating. We developed a portable, fun, and low-cost virtual reality (VR) platform to improve patient access to motor rehabilitation services. In this presentation, we will discuss our approach to collaborate with stroke patients and clinicians in the technological development, leveraging community partnerships with a publicly funded health system (in Canada) and non-profit organizations.

One concern that arose in the predominantly older adult stroke patient population was the acceptance of VR technology. We adopted a user-centered design approach to make the VR experience accessible and easy to use

featuring a virtual coach providing immersive audiovisual demonstrations who responds to voice inputs. In addition to collaborative consultations with stakeholders in hospital, laboratory, and patient home settings, we addressed this potential barrier to adoption by running a study testing different interventions designed to assuage feelings of apprehension and fear related to VR in older adults. We will share the results of this ongoing work that is comparing the effect of an introductory VR experience and static infographic handout on individual attitudes towards VR.

We argue for ongoing patient engagement throughout the process of rehabilitation technology development, not just for the treatments themselves, but for the acceptance of the underlying technological platforms required.

Session 8: Learning Health Systems

Using the RE-AIM Framework to Evaluate the Implementation of Standardized Cognitive Outcome Measures within a Rehabilitation Learning Health System

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Background: A learning health system (LHS) model can advance the field of rehabilitation medicine by providing an infrastructure for systematic data collection to support evidence-based care. To this end, an interprofessional team in a rehabilitation hospital network implemented a cognitive assessment protocol consistent with clinical guidelines. Using the RE-AIM framework, this study aimed to (1) measure the adoption and reach of the cognitive assessment protocol in two outpatient clinics and (2) explore the impact of site-specific implementation strategies on adoption.
Methods/Results: For reach and adoption, a retrospective medical record review was completed for 220 patients with a primary neurologic diagnosis who were seen by occupational (OT) and/or speech therapy (SLP) clinicians at two outpatient sites. Both Sites A & B employed implementation strategies targeting the individual provider level (e.g., education/training); Site A additionally included organizational level strategies (e.g., audit-feedback). Protocol adoption was greater at Site A compared to Site B, when controlling for sociodemographic factors of patients served within the clinics, $p < .01$.

To explore implementation determinants, focus groups were conducted with OT and SLP clinicians (n=15). In the absence of organization-level strategies, clinicians at Site B identified barriers related to leadership support, resources, and priority/workflow demands. However, clinicians valued the standardized approach in supporting their care plans and workflow.

Conclusions: Standardized practice protocols are feasible to implement within the rehabilitation setting and have the potential to support data-informed care. Multi-level implementation strategies may be needed to promote the adoption of systematic measurement practices within a rehabilitation LHS.

Leveraging a Learning Health System Model to Improve Care for Low Back Pain, One Clinic at a Time

Emily Evans, Diane Dalton, Daniel Sieczkiewicz, James Camarinos, Lee Marinko
Boston University

This case study provides an example of the Learning Health System model applied to an outpatient physical therapy clinic focused on improving care for people with low back pain (LBP). LBP is a major source of disability, impacting over 8% of adults in the US. (1) Physical therapy is considered a "first-line treatment" for LBP and is critical for decreasing LBP and LBP-related disability. (2) The Learning Health System model facilitates high-quality and high-value care by integrating data, experience, and evidence to inform knowledge generation and practice improvement. (3) But Learning Health Systems are typically discussed in the context of large systems. Despite a recent increase in consolidation, small physical therapy clinics are common. (4) Like larger networks, smaller independent clinics are impacted by transitions to value-based payment and are critical in providing high-quality care for people with LBP. However, focusing on larger systems may leave providers in smaller clinics wondering where to start.

Using the "Learning Cycle" component of the Learning Health System model proposed by Charles Friedman, (5) we will discuss how the Boston University Physical Therapy Clinic improved care for individuals with LBP. Steps included the clinic's integration into a learning community, collection of consistent outcome metrics, feedback on patient and provider performance, development of new treatment approaches, and integration of consistent treatment approaches into standard practice. We discuss the resources and infrastructure that are unique to the setting and those that may be replicable elsewhere, including clinical and research partnerships to facilitate evaluation and dissemination of the work.

Engaging with a Learning Health System as an External Research Scholar: Accomplishments, Challenges and Lessons Learned

Samannaaz Khoja, Kate Minick, Kevin Christensen, Stephen Hunter, Christine McDonough
University of Pittsburgh

The purpose of this presentation is to describe the experience, accomplishments, challenges, and lessons learned when engaging with a Learning Health System (LHS) as an external research scholar supported through the LeaRRn LHS Scholarship Award. During the scholarship period, the scholar collaborated with a team of health system stakeholders (clinicians, administrators, managers, and IT) who were part of a workgroup dedicated towards improving screening and mitigating falls risk in patients accessing the health system. The scholar regularly engaged with this team and learned about the health system's priorities and operating framework. The scholar supported the team by conducting an evidence review related to falls risk assessments and drafting a quality improvement (QI) proposal related to assessing falls risk assessment in the Emergency Department (ED). The scholar also developed a research grant proposal to examine acceptability and feasibility of falls risk assessment by ED providers, which would directly support the implementation of the proposed QI initiative.

Notable accomplishments of the scholar-health system partnership include submission and approval of the QI proposal by an internal review committee and obtaining external research funding to address the research question related to the QI initiative. Challenges identified included misalignment of current research funding priorities, timelines, mechanisms, and incentives with health system priorities and processes, misalignment between academic research goals versus health system processes, as well as uncertainty associated maintaining this partnership long-term. This experience highlights the need to explore alternative models to foster meaningful and sustainable collaborations between rehabilitation researchers and health systems.

Abstract Author Index

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MR3 Network 2023 Scientific Retreat Planning Committee

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Back to Top