

**Interdisciplinary
Research Fuels
Scientific Innovation**

**Proceedings from
the Capra
Interdisciplinary
Healthcare
Symposium 2019**

**School of Health Professions
UT Southwestern Medical Center
6011 Harry Hines Blvd.
Dallas, TX 75235**

Introduction to the Proceedings from the Capra Symposium

The Southwestern School of Health Professions (SSHP) is committed to fostering interdisciplinary research collaborations among its faculty. Accordingly, the Capra Symposium provides a venue for yearly scientific exchanges. It is hoped that through this forum, new collaborations will develop and established collaborations will continue to thrive. It is also hoped that students will be encouraged to join the faculty in on-going research projects.

- The theme of the Capra Symposium is ***“Interdisciplinary Research Collaboration”***. This means that experts in health professions are encouraged to form research teams. Their goal is to find novel approaches to disease treatment through translational research.
- The Capra Symposium is sponsored by an endowment from the Patricia H. and J. Donald Capra family. The continued support of the Capra family has been seminal to the scientific exchanges of the SSHP faculty. The sponsorship is immensely appreciated and gratefully acknowledged.
- The SSHP provides support to the research program through grants awarded to early career faculty engaged in interdisciplinary research projects. The abstracts in this publication provide an overview of the new projects being developed by the faculty.
- The symposium is organized by the SSHP Research Advisory Committee. This committee also provides peer review of grant proposals submitted by early career faculty. A list of the members of the committee is provide on page 2. Their efforts are greatly appreciated.

2019 - Research Advisory Committee Members

Dr. Scott Smith, Assistant Dean for Research, Committee Chair

Mrs. Tiffany Graham, Prosthetics & Orthotics

Ms. Sandra Hayden, Radiation Therapy

Dr. Mu Huang, Health Care Sciences

Dr. Tiffany Kindratt, Physician Assistant Studies

Dr. Palma Longo, Health Care Education

Dr. Masaki Mizuno, Health Care Sciences

Dr. Karen Brewer-Mixon, Rehabilitation Counseling

Dr. Staci Shearin, Physical Therapy

Dr. Gloria Lena Vega, Clinical Nutrition and Center for Human Nutrition

Dr. Hoda Yeganehjoo, Clinical Nutrition

Dr. Jason Zafereo, Physical Therapy

Ex Officio Members:

Dr. Jon Williamson, Dean

Dr. Kim Hoggatt Krumwiede, Associate Dean for Academic Affairs

Staff:

Mrs. Deborah Sanford (Administrator)

The Patricia H. and J. Donald Capra Endowed Fund in Allied Health Sciences

Dr. Patricia Capra and her late husband, Dr. J. Donald Capra, have had a long-term affiliation with UT Southwestern Medical Center. Dr. Patricia Capra was a faculty member in the Department of Rehabilitation Counseling and Dr. Donald Capra was a Professor of Immunology in Internal Medicine for 23 years. The couple started sponsorship of the Capra Symposium in 1998 and they established the Capra Endowment in 2001.

Dr. J. Donald Capra was recruited to UT Southwestern in 1974 by the late Dr. Donald Seldin and the former Chair of Microbiology, Dr. Johnathan Ur. At UT Southwestern, Dr. Capra conducted his very important work in the field of monoclonal antibody therapy of a number of diseases. He became an international leader in immunology research. He had ample support for research from the National Institutes of Health and he published over 350 research publications and scholarly chapters. He also was the holder of the Edwin L. Cox Distinguished Chair in Immunology and Genetics at UT Southwestern and directed the Molecular Immunology Center from 1990 to 1997. Subsequently, he became President of The Oklahoma Medical Research Foundation where he assembled a formidable research team that was very productive. Dr. Capra became Professor Emeritus in 2006.

It is Dr. Patricia Capra's vision of recognizing and honoring the team approach to healthcare and research that serves as the impetus for this symposium. Clearly, the diagnosis and treatment of any individual is enhanced through inter-professional teamwork; from physicians to physician assistants, to rehabilitation counselors and physical therapists, to prosthetists and orthotists, to clinical nutritionists and radiation therapists. By working together in the endeavors of patient care and scientific research, the field of medicine moves forward and the lives of the people served benefitted. The annual Capra Symposium embodies and celebrates this spirit.

The Capra family has attended the annual Capra Symposia since 1998. Dr. Patricia Capra continues her attendance to the events and is a passionate advocate of interdisciplinary collaborations in research. Her welcomed presence at the meetings is a constant reminder of the goals of the symposia.

Capra Symposia in the Past Decade

The target audience of the Capra Symposia is faculty and students of the Southwestern School of Health Professions, members of the UT Southwestern community and other research centers in the Dallas Fort Worth area.

The support for the symposium has been contingent on development of interdisciplinary research. This objective coincides with SSHP's long-term mission of scholarly activities centered around interdisciplinary healthcare training. In the SSHP, research is viewed as an integral component of inter-professional training.

There is ample evidence that major advances are made in clinical care through the coordinated efforts of researchers from many disciplines. Moreover, most of the current guidelines for clinical practice are based on evidence derived from clinical trials and other research endeavors. These guidelines require inter-professional collaborations of experts in various fields from clinicians, researchers, biostatisticians, health professionals and ethics boards. An aim of the SSHP is to train leaders in health professions that will collaborate extramurally with others and improve inter-disciplinary healthcare delivery.

An overview of the Capra Symposia held in the past decade is presented below. It provides the scope of research interests of SSHP faculty. The symposia have usually consisted of keynote speakers, presentation of work in progress from research awardees and round table discussions on interdisciplinary topics. Student participation in the latter also has been encouraged to the extent possible. The table below provides an overview of the titles of the Capra Symposia and this is followed by a list of the programs held in the past 10 years.

List of Symposia in the Past Decade

Year

- 2019 “Collaborate: Using Team Approaches to Advance Research on Chronic Conditions”
- 2018 “Collaborate: Interdisciplinary Bench Science and Clinical Research”
- 2017 “Collaborate: Transforming Medical Education and Patient Care Through Inter-Professional Research”
- 2016 “21st Century Strategies for Managing Obesity”
- 2015 “Converging on Parkinson’s Disease: Interdisciplinary Approaches to Diagnosis and Management”
- 2014 “Lending a Helping Hand: Community Based Medicine and Research”
- 2013 “Multiple Sclerosis: Diagnosis, Treatment & Management”
- 2012 “Stroke: Risks, Recovery and Relationships”
- 2011 “Interrelationships Between Mind, Body & Physical Functioning”
- 2010 “Perspectives on the Diagnosis and Treatment of Cancer”

Past Symposia Programs

Date: Wednesday, February 7, 2018

Title: “Collaborate: Interdisciplinary Bench Science and Clinical Research”

- **Keynote Lecture:**

Jeffrey Browning, M.D., Associate Professor and Chair

“Non-Alcoholic Fatty Liver Disease: From observation to intervention and beyond”

- **2017 Grant Recipients**

Karen Brewer-Mixon, Ph.D., C.R.C., Associate Professor

Staci Shearin, M.P.T., P.T., N.C.S, Assistant Professor

“Effectiveness of a Short Education Series to Reduce Anxiety for Health Professions Graduate Students”

Hoda Yeganehjoo, Ph.D., R.D., Assistant Professor

Masaki Mizuno, Ph.D., Assistant Professor

“Investigating the Potential Impacts of Natural Dietary Components on Improving Cognitive Function and Protein Biomarkers of Alzheimer’s Disease in Rat Models”

- **Expert Round Table Discussion**

“Benefits of Student Involvement in Scholarly Activity and Health Research”

Tiffany Graham, M.S.P.O., C.P.O., L.P.O, Instructor

Tiffany Kindratt, M.P.H., M.A., Assistant Professor

Kameka Rideaux, M.B.A., R.T., (R)(T), Assistant Professor & Program Director

Alexandra Yost (Physician Assistant Student)

Anna Marie Nguyen (Rehabilitation Counseling Student)

Kathryn Welch (Clinical Nutrition Student)

Date: Wednesday, February 15, 2017

Title: “Collaborate: Transforming Medical Education and Patient Care Through Inter-Professional Research”

- **Keynote Speaker**

Craig Rubin, M.D., FACP, AGSF, Professor

Jason Zafereo, Ph.D., P.T., F.A.A.O.M.P.T., O.C.S., Associate Professor

“Investigating Bone and Skeletal Muscle Interaction in Men with Prostate Cancer Treated with Androgen Deprivation Therapy”

- **Small Grants Program**

Venetia Orcutt, Ph.D., MBA, PA-C, Associate Professor

Palma Longo, Ph.D., Assistant Professor

“A New Collaboration Model to Study Clinical Reasoning”

Staci Shearin, M.P.T., P.T., N.C.S, Assistant Professor

Masaki Mizuno, Ph.D., Assistant Professor

“Impact of Exercise Intensity on Brain Derived Neurotrophic Factor in Parkinson’s Disease: From the Bench to the Clinic”

Lona Sandon, Ph.D., RD, LD, Assistant Professor

Scott A. Smith, Ph.D., Professor

“Preventing High Blood Pressure by Targeting Dietary Phosphate: A Collaborative Team Approach”

Expert Round Table Discussion

Symposium Speakers

Karen Brewer-Mixon, Ph.D., Associate Professor

Fan Gao, Ph.D., Associate Professor

Sandra Hayden, MA, R.T. (T), FASRT, Assistant Professor

Date: Wednesday, February 17, 2016

Title: “21st Century Strategies for Managing Obesity”

- **Speakers**

Gloria Lena Vega, PhD, Professor
Department of Clinical Nutrition and
Center for Human Nutrition

“Obesity Epidemic and Health Disparity”

Steve Farrell, PhD, FACSM, Scientific Content Specialist
Division of Adult Education, The Cooper Institute, Dallas

**“Joint Associations between Cardiorespiratory Fitness, Obesity, and Mortality:
The Cooper Center Longitudinal Study”**

Jaime Almandoz, MD, Assistant Professor
Department of Internal Medicine

“Multidisciplinary Weight Loss to Weight Wellness”

Lona Sandon, MEd, RD, LD, Assistant Professor
Department of Clinical Nutrition

“Weight Management & Lifestyle Intervention in the Workplace”

Martin Deschner, PhD, Associate Professor
Department of Psychiatry

“Patient Individuality and Interdisciplinary Treatment in Bariatric Surgery”

Expert Round Table Discussion

Date: Wednesday, February 18, 2015

Title: “Converging on Parkinson’s Disease: Interdisciplinary Approaches to Diagnosis and Management”

Richard Dewey, MD, Professor
Department of Neurology & Neurotherapeutics
UT Southwestern Medical Center

“Parkinson’s Disease Biomarker Program: What Is It and Why Is It Important”

Shilpa Chitnis, MD, Ph.D., Associate Professor
Department of Neurology & Neurotherapeutics
UT Southwestern Medical Center

“Current and Emerging Therapies in Parkinson’s Disease”

Faye Elahi, MS
Special Needs Nutritionist
Founder, Nutrition Balance for Life! LLC

“Latest Dietary and Nutrition Interventions for Management of Parkinson’s Disease”

David Wilson, MPO & Staci Shearin, MPT
Prosthetics-Orthotics Program and
Department of Physical Therapy
UT Southwestern Medical Center

“A Road Map to Improving Gait Dysfunction in Individuals with Parkinson’s Disease”

Expert Round Table Discussion

Date: Wednesday, February 26, 2014

Title: “Lending a Helping Hand: Community Based Medicine and Research”

Heather Kitzman-Ulrich, Ph.D.

Assistant Professor

Texas Prevention Institute-School of Public Health

University of North Texas Health Science Center

“Community-Based Programs to Improve Obesity and Related Chronic Health Conditions”

Carolyn Bradley-Guidry, MPAS, PA-C

Assistant Professor

Department of Physician Assistant Studies

UT Southwestern Medical Center

“Screening Our Sisters: Addressing Breast Health Disparities Through Community Education and Client Navigation”

Olga Gupta, M.D.

Assistant Professor

Department of Pediatrics, Internal Medicine

UT Southwestern Medical Center

Community Based Medicine and Research

“Beta Cells and Betta Fish: A Novel Pediatric Based Medical Approach to Improving Health Outcomes in Diabetes”

Expert Round Table Discussion

Date: Wednesday, March 6, 2013

Title: "Multiple Sclerosis: Diagnosis, Treatment & Management"

Elliot Frohman, MD, PhD
Director, Multiple Sclerosis Program
Department of Neurology and Neurotherapeutics
UT Southwestern Medical Center

**Pathobiological Underpinnings of Multiple Sclerosis and
Its Translation into Disease Modifying Therapy**

Teresa Frohman, PA-C
Multiple Sclerosis Clinic
Department of Neurology and Neurotherapeutics
UT Southwestern Medical Center

Managing the Symptoms of Multiple Sclerosis

Scott Davis, PhD
Director, Applied Physiology Laboratory
Department of Applied Physiology & Wellness
Southern Methodist University

Understanding Autonomic Dysfunction in Multiple Sclerosis

Elliot Frohman, MD, PhD, Teresa Frohman, PA-C, Scott Davis,
PhD, Diana Logan, NP, Chung-Yi Chiu, PhD, Kelli Doern, DPT,
Kelly Tarricone, RD, Nathan Sutti, CPO

Round Table Discussion: The Future of Multiple Sclerosis at UT Southwestern

Date: Wednesday, February 25, 2012

Title: “Stroke: Risks, Recovery and Relationships”

Mark Goldberg, M.D.

Professor & Chair

Department of Neurology and Neurotherapeutics

UT Southwestern Medical Center

Stroke Connections—From Axons to People

Mark Barisa, Ph.D., ABPP

Director of Neuropsychology Services

Baylor Institute for Rehabilitation

Dallas, TX

**Management of Depression Following Stroke:
A Stress and Coping Model**

Karen McCain, PT, DPT, NCS

Assistant Professor

Department of Physical Therapy

UT Southwestern Medical Center

Raising Expectations for Gait Recovery after Stroke

Date: March 2, 2011

Title: "Interrelationships Between Mind, Body & Physical Functioning"

Deborah Clegg, Ph.D., R.D.
Department of Clinical Nutrition
Touchstone Diabetes Center
UT Southwestern Medical Center

Body Weight Regulation: Is It All In Your Head?

Chrystyna Senkel, PA-C
Provost Bariatrics
Denton, TX

Intermediate and LongTerm Characteristics of Bariatric Surgery Patients

Deborah Josbeno, Ph.D., MS, PT
Department of Physical Therapy
University of Pittsburgh

Physical Activity and Physical Function After Bariatric Surgery

Title: “Perspectives on the Diagnosis and Treatment of Cancer”

Date: Wednesday, March 3, 2010

Robert Timmerman, MD

Professor

Department of Radiation Oncology

“Radiation Therapy Using Image-Guided and Stereotactic Techniques”

David Euhus, MD

Professor

Department of Surgery

“Energy Balance and Cancer”

Claus Roehrborn, MD

Professor & Chair

Department of Urology

“To Screen or Not to Screen: The Controversy Over Prostate Specific Antigen (PSA) Testing”

Gerald Casenave, PhD

Associate Professor & Acting Chair

Department of Rehabilitation Counseling

“Psychosocial Aspects of Cancer”

**CAPRA INTERDISCIPLINARY HEALTHCARE SYMPOSIUM
“Collaborate: Using Team Approaches to Advance Research
on Chronic Conditions”**

**Southwestern School of Health Professions
Wednesday, February 13, 2019
NB2.EEF Auditorium**

- 8:00 – 8:55 a.m. Registration and Continental Breakfast
- 9:00 - 9:05 a.m. Greetings
Description of Interdisciplinary Research Grant Program
Recognition of 2018 Grant Recipients
- 9:05 – 9:35 a.m. **“Clinical Assessments of Central Pain Processing Disorders in Patients with Chronic Pain”**
Jason Zafereo, Ph.D., P.T., F.A.A.O.M.P.T., O.C.S. Associate Professor
Mu Huang, Ph.D., P.T., D.P.T., O.C.S., Instructor
- 9:40 – 10:10 a.m. **“Targeting Insulin Resistance to Improve Abnormal Cardiovascular Control in Diabetes”**
Masaki Mizuno, Ph.D., Assistant Professor
Hoda Yeganehjoo, Ph.D., R.D., Assistant Professor
- 10:10 – 10:30 a.m. BREAK
- 10:35 – 11:10 a.m. **“Keys to the Mindset and Development of Collaborative Clinical Research”**
Ross Querry, Ph.D., P.T., Professor and Chair
- 11:15 – 12:00 p.m. **Expert Round Table Discussion
“Research Quick Hits”**
Speakers
Clinical Nutrition – Dr. Lona Sandon
Health Care Education – Dr. Yulia Piller
Physician Assistant Studies – Dr. Tiffany Kindratt
Physical Therapy – Dr. Ed Mulligan & Dr. Julie DeVahl
Prosthetics-Orthotics – Mrs. Tiffany Graham
Radiation Therapy – Ms. Sandra Hayden
Rehabilitation Counseling – Dr. Shannon Juengst
Grant Writing Workshop Report – Dr. Staci Shearin

CAPRA INTERDISCIPLINARY HEALTHCARE SYMPOSIUM

ABSTRACTS

2019

**Collaborate: Using Team Approaches to Advance
Research on Chronic Conditions**



SSHP INTERDISCIPLINARY RESEARCH GRANT PROGRAM RECIPIENTS

PHYSICAL THERAPY/HEALTH CARE SCIENCES

Title: Clinical assessments of central pain processing disorders in patients with chronic pain

Authors: Jason Zafereo, Ph.D., P.T., F.A.A.O.M.P.T., O.C.S. and
Mu Huang, Ph.D., P.T., D.P.T., O.C.S., Instructor

Background: Quantitative sensory testing (QST) has been shown to be very useful for detecting the presence of central pain processing disorders in the laboratory. However, no large-scaled prospective trials have investigated the responsiveness or discriminative validity of QST for patients with musculoskeletal pain receiving interdisciplinary pain program (IPP) treatment.

Objectives: To assess for responsiveness of QST in patients completing a 4-week IPP, and to determine the ability of QST to predict clinical outcomes and profiles within an IPP.

Methods: Sixty participants will be recruited from among patients receiving IPP treatment at UT Southwestern Medical Center. Patients with chronic pain of a musculoskeletal origin over any anatomical site will be eligible to participate. Comprehensive assessments of pain, function, and sensory processing will be performed at baseline, midpoint, and at the completion of the four-week treatment program.

Results: ICCs for same-day inter-rater reliability were good to excellent (0.80-0.98) for the QST battery. To date, eleven participants have completed the 4-week IPP and testing protocol. Although a small sample size limits any robust statistical analysis, trends in the data suggest that certain self-report and QST measures are sensitive to change in response to treatment across time.

Conclusion: The results from this study may suggest that clinical tests for central pain processing dysfunction are sensitive to change in participants completing an IPP.

SSHP INTERDISCIPLINARY RESEARCH GRANT PROGRAM RECIPIENTS

HEALTH CARE SCIENCES/CLINICAL NUTRITION

Title: Targeting insulin resistance to improve abnormal cardiovascular control in diabetes

Authors: *Masaki Mizuno, PhD and Hoda Yeganehjoo, PhD, RD*

In patients with type 2 diabetes mellitus (T2DM), exercise elicits an excessive increase in blood pressure. Since such an exaggerated pressor response to exercise increases the risk for the development of an unfavorable cardiovascular event, elucidating the mechanisms responsible is clinically important. The exercise pressor reflex (EPR, a reflex originating in skeletal muscle) plays an important role in regulating the cardiovascular system during exercise. It is possible that adverse alterations in EPR activity significantly contribute to the evolution of abnormal circulatory control in T2DM. Insulin resistance is one of the pathophysiological characteristics of T2DM. Peripherally, increased insulin concentration may sensitize afferent neurons associated with EPR. Centrally, impaired insulin transport to the brain may potentiate signal transduction associated with the EPR. The global objective of this proposal is to determine the mechanisms underlying the heightened blood pressure response to exercise in T2DM. We will perform neurophysiological studies in T2DM rats to determine 1) whether increased peripheral insulin generates EPR overactivity which can be ameliorated by antagonizing skeletal muscle afferent neurons, and 2) whether central insulin resistance generates an exaggerated EPR which can be ameliorated by increasing central delivery of insulin. We anticipate that peripheral and central changes in insulin handling contribute to the generation of abnormal EPR function in T2DM. The proposed studies are innovative in that they maintain the potential to shift current clinical practice paradigms by identifying insulin as a key target for the prevention and treatment of abnormal cardiovascular control during exercise in diabetes.

KEYNOTE SPEAKER

Title: Keys to the Mindset and Development of Collaborative Clinical Research

Author: Ross Query, Ph.D., P.T.

Collaborative clinical research is the concept of two or more disciplines, entities, or partners working together with a common question or focal point, but with different perspectives, aims, methods, or outcomes of interest. Contributors may seek outcomes that span from basic clinical science to seeking innovative standards of clinical care that directly impact patient outcomes. A “mindset” is defined as an established set of attitudes by an individual or group. Often, professions or departments seek to stay within a mindset that is “fixed” around their own discipline or scope of skills and interactions. While not easy, an open or “growth” mindset is essential in the development and success of collaborative clinical and research opportunities. A variety of collaborative constructs of people, programs, purpose, and potential create opportunities where the sum of the parts and the depth of research discovery and potential funding far exceed the individual parts.

Over the past several years, the faculty and clinicians of the Department of Physical Therapy have strategically sought to expand their clinical research program. Partnerships span UTSW basic and clinical entities, the community, and national and commercial relationships. Projects and goals developed around a variety of clinical questions or conditions. The purpose of this presentation is to highlight some of these efforts and present characteristics of the different models and breadth of collaborations. The goal is not only recognizing the current efforts and successes, but encouraging future possibilities and directions within the School of Health Professions and the UTSW community.

ROUND TABLE DISCUSSANTS

CLINICAL NUTRITION

Title: Preventing Hypertension and Sympathetic Over-activation by Targeting Phosphate PHOSTOP trial

Author: Lona Sandon, PhD, MEd, RDN, LD

Introduction: The average dietary phosphorous intake among U.S. adults is 1200mg/d, nearly twice the recommended daily allowance, 700mg/d. High dietary phosphorous is associated with cardiovascular morbidity, including hypertension. Dietary phosphorous exists in organic and inorganic forms.

Purpose: The purpose of this study is to determine if high levels of inorganic phosphorous intake result in a sustained increase of sympathetic nerve activity and increased blood pressure (BP) in adults with pre-hypertension (120-129/80-84mmHg) compared to low intake.

Methods: This is a randomized, double-blind crossover, metabolic diet study including a 4-week high Pi (1200 mg/d) phase and 4-week low Pi (700 mg/d) phase separated by a 2-week washout period. Participants consume a metabolic diet (2000 kcal (adjusted as needed), 1930mg Na⁺, 2200mg K⁺, 700mg PO₄, 700m Ca⁺⁺, and 200mg Mg⁺⁺) during each phase. Participants consume a daily supplement containing 500mg Pi (NaPO₄, 372 mg Na⁺) or placebo (NaCl, 372mg Na⁺) on the high Pi and low Pi phase, respectively. The primary end-point is BP and secondary end-points (24-hour dietary recalls, 24-hour urinary phosphorous, Na⁺, K⁺, Cr, microneurography) are obtained at baseline, week-2, and week-4 of each phase.

Results: To date 25 participants started, 4 withdrew, and 17 are complete or in-progress. Mean 24-hour urinary phosphorous ($n=16$) at week-4 on both the high and low Pi phases is within goal, $M=1027\pm315$ W4-P1, goal >800 mg/d, and $M=441\pm141$ W4-P1, goal <500 mg/d, respectively. BP data is not available.

Conclusion: To date, urinary phosphorous suggests the metabolic diet meets the dietary phosphorous requirements and participants are compliant with the diet instructions.

ROUND TABLE DISCUSSANTS

HEALTH CARE EDUCATION

Title: Gamification in Patient Centered Care: from assessing the needs to developing solutions (gPACC)

Authors:

University of Texas Southwestern Medical Center, USA: Kim Hoggatt Krumwiede, PhD, Yulia Piller, PhD

Heriot-Watt University, UK: Theodore Lim, PhD. Hans Wolfgang Loidl, PhD., Thusha Rajendran, PhD.

Introduction: Each person who has a stroke is affected differently. Present interventions not only restrict/limit the active roles patients and their families take in the rehabilitation and decision-making processes (NHSI, 2011; Eady, 2017), but also lack implementation of appropriate digital tools (Cogollor et al, 2018). This results in sub-optimal rehabilitation interventions, which ultimately become barriers to adherence and/or are financially unrealistic.

A paradigm shift in healthcare to the Patient Centered Care (PCC) model will encourage the active collaboration and shared decision making between multiple stakeholders (patients, caregivers and clinicians) in the development of successful rehabilitation systems.

Research Questions:

- What are the implications of applying gamification to needs assessment within PCC for cognitive (post-stroke) disabilities?
- What data analysis methodology could be implemented to process the data collected by the gamification framework?
- What is the approach to study user acceptance and related issues?
- Could gamification trigger socio-cultural awareness leading to culturally competent care and lasting behavior change?

Methods: The gPACC project innovates through gamification principles to capture the perception of needs and affordances of post-stroke patients with cognitive impairment. The methods would offer an alternative to bias-susceptible surveys/questionnaires.

Anticipated Outcomes:

- A gamified needs assessment approach for clinical interventions
- Identification of new technological interventions for rehabilitating patients with post-stroke cognitive impairment
- Novel culturally sensitive approach to Patient-Tailored therapy that takes advantage of emerging technologies in digital social innovation for cognitive rehabilitation.
- Insights on the reactions to a set of gamification stimuli or rules across different sociocultural backgrounds.

ROUND TABLE DISCUSSANTS

PHYSICIAN ASSISTANT STUDIES

Title: Examining the Influence of Patient-Provider Communication on Health Outcomes among US- and Foreign-born Racial and Ethnic Groups using Nationally Representative Samples

Author: Tiffany B. Kindratt, PhD, MPH

Introduction: Limited research has evaluated how patient-provider communication (PPC) contributes to health outcomes using nationally representative samples.

Objectives: My research objectives are to: 1) explore how different qualities and modes of PPC are associated with health outcomes across the lifespan and 2) determine differences by race and ethnicity among US- and foreign-born individuals. Current projects aim to: 1) estimate and compare qualities of PPC among non-Hispanic white, non-Hispanic black, Hispanic, Asian and Arab Americans with diabetes, hypertension and disabilities and 2) determine whether adults' perceptions of qualities of PPC are associated with diabetes, hypertension, and rehabilitation outcomes.

Methods: Secondary, cross-sectional data will be gathered from multiple years of linked Medical Expenditure Panel Survey (MEPS) and National Health Interview (NHIS) data. Adults reported how often providers spent enough time with them; explained so they understood; listened to them; showed respect; gave them a chance to ask questions; addressed feelings; involved them in decisions; confirmed understanding; and helped with uncertainty. These qualities of PPC will be evaluated to determine associations with diabetes, hypertension, and disability prevalence and assess whether or not PPC is associated with diabetes (e.g. foot exams, eye exams, lifestyle education), hypertension (e.g. exercise, diet, medications) and rehabilitation (e.g. activity, quality of life) care and health outcomes. Bivariate and logistic regression analyses will be conducted using SAS and STATA statistical packages.

Results: In progress.

Discussion: I seek to collaborate with and mentor interprofessional learners interested in evaluating how qualities of PPC are associated with health outcomes using large national databases.

ROUND TABLE DISCUSSANTS

PHYSICAL THERAPY

Title: Does Proximal Core Stability Impact the Incidence of Functional Ankle Instability?

Authors: Ed Mulligan, PT, DPT, OCS, SCS, ATC and Julie DeVahl, PT, DPT, OCS

Introduction:

The concept of regional interdependence suggests that a geographically remote impairment may influence the risk of injury or recovery at an anatomically distant site. Previous literature has established a link between proximal hip weakness and instability distally at the ankle. What is less clear is which specific muscle groups may be weak and/or inhibited and if this finding is different in subjects who recurrently sprain their ankle as opposed to those that only sprain their ankle once and fully recover.

Purpose:

The aim of this study is to examine whether subjects with chronic ankle instability (CAI) demonstrate proximal hip weakness tested in weight-bearing and non-weight bearing positions compared to subjects without CAI. Additionally, to investigate the relationship between hip strength and dynamic functional reach tests in subjects identified as chronically unstable at the ankle joint.

Methods:

This study will be a single-time assessment of hip strength (muscle force production/body weight) and lower extremity balance (STAR excursion on level and incline) in subjects that have not had ankle pain nor episodes of instability in the past three months. Based on the subjects' ankle injury history, analysis will be based on three groups: controls (no ankle injury history), "copers" (one injury and fully recovered), and CAI (sprained the same ankle two times or more in the past two years). Between group comparisons will be employed to see if the dependent variables (hip strength/balance) differs between the three groups. Data collection is scheduled for March 2019.

Results/Conclusions: To be determined.

ROUND TABLE DISCUSSANTS

PROSTHETICS - ORTHOTICS

Title: Effectiveness of Repositioning, Cranial Remolding, and Physical Therapy in Infants with Cranial Deformation

Author: Tiffany Graham, MSPO, CPO, LPO

Introduction: Deformational head shapes can be treated through repositioning therapy and/or Cranial Remolding Orthotic (CRO) treatment. Torticollis is a common comorbidity for these patients which need to be treated concurrently for optimal outcomes. However, there is conflicting clinical evidence about the effectiveness of each treatment method, exacerbated by a lack of randomized control trials and age-restricted studies.

Objectives: This study will compare the overall 3-dimensional percentage of cranial correction achieved through repositioning therapy versus CRO treatment as well as the rate of non-compliance for each method in order to examine the effectiveness of each treatment method. Compliance with each treatment method as well as physical therapy treatment will be analyzed. The results of this study are expected to lead to future studies comparing the treatment methods in terms of patient compliance, long-term outcomes, larger sample sizes, and statistically similar populations.

Methods: In this study, infants with cranial deformation will be followed from 2 to 12 months of age. Initially, all infants will be assigned to Repositioning Therapy (the current standard of care for 2 month olds) and evaluated by a physical therapist. Some participants will crossover to the CRO treatment group and/or undergo torticollis treatment. At 12 months of age, all infants will be scanned and the residual deformation compared to their initial presentation. Throughout treatment, caregiver surveys will be administered to evaluate compliance. This study will compare if repositioning therapy or CRO treatment is more effective.

Results: In progress.

Discussion: This study is open for enrollment as of January 3, 2018. This study seeks to collaborate with an interdisciplinary team interested in evaluating the effectiveness of different methods in treating deformational head shapes. Opportunities for collaboration in this study involve work in parental education, caregiver surveys, torticollis physical therapy treatment, and orthotic treatment.

ROUND TABLE DISCUSSANTS

RADIATION THERAPY

Title: Isocenter localization correlation between Radiation Therapists and Master's Education Program Radiation Therapy Students. A comparison and agreement study.

Authors:

University of Texas Southwestern Medical Center, USA: Kameka Rideaux, MBA, RT(R) (T), Sandra Hayden, MA., RT(T), FASRT, DeAnn Klein, M.Ed, RT(T)(R),CMD

Introduction:

The rapid technology changing in health care demands accuracy and a high level expertise from professionals.¹ In the highly technical Radiation Oncology Department, daily imaging is necessary to accurately localize the isocenter to provide quality radiation therapy patient treatment. Radiation therapists are extending the regular boundaries of our profession. Image Guidance Radiation Therapy (IGRT) with the advances in linear accelerator capabilities, higher patient volumes and the increased demand for cancer services require the comprehensive additional assistance of highly skilled radiation therapists who deliver care and critical thinking of these dedicated professionals on the front lines. These circumstances require the involvement of select experts in radiation oncology who can be trusted to localize the patient's isocenter on daily basis to treat patients precisely and later a physician to review these images post treatment. This shift in greater responsibility to the radiation therapists is an accepted change in our industry^{2,3} There are radiation therapists seeking professional advancement opportunities in Canada as well as the US.^{2,4}

Research Questions:

- How often will the IGRT imaging shifts correlate between the radiation therapists and the master's level radiation therapy student?
- What data analysis methodology could be implemented to process the data collected by the daily IGRT shifts?
- What is the radiation therapist acceptance to this project? Are there any issues around the radiation therapist adoption or user barriers?
- What are the ramifications of clinical education teaching and will we have enough volunteers to work with us on this study?
- What will be the ideal method of communication to the radiation therapists? What will be the acceptability and compliance by the radiation therapists?
- Could a high correlation percentage of the shifts be made to allow future adoption of the Advanced Practice Radiation Therapist? Could this prospective study lead to other correlation review of the radiation therapists and the radiation oncologists' agreement with daily IGRT image shifts?

Methods: The Isocenter percentage of correlation of daily IGRT shifts study could help to validate the master's level radiation therapy program by providing critical thinking, precision in localization and accurate higher skilled radiation therapy students. This project innovates through the radiation therapy student using principles of anatomical accuracy to enhance their comfort and competency. The daily shifts are recorded with the EMR verify and record system in Mosaiq and the comparisons/correlation in IGRT matching will be made independently between the clinical educators and the radiation therapy students. The data will be collected per orthogonal pair images to ascertain congruence or lack thereof. The methods would offer actual data of shifts.

Anticipated Outcomes:

- Once implemented the clinical coordinators along with the program director can review and provide a needs assessment approach for clinical education interventions to help improve the student's imaging skills.
- Identification of what areas the clinical coordinators can focus on utilizing the VERT simulation center in a lab environment to enhance student learning of imaging and accuracy of isocenter localization via anatomical structures.
- Improved radiation therapist's confidence in the master's level radiation therapy student's abilities.
- Insights on the reactions of the radiation therapists/ clinical education coordinators for increased education program and clinical relationships.
- Long term this data and acceptance could result in less burden of the radiation oncologists allowing them more time for patient centered care as the radiation therapists take on lower level tasks.

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ROUND TABLE DISCUSSANTS

REHABILITATION COUNSELING

Title: Problem Solving Training (PST) for Care Partners of adults with Traumatic Brain Injuries (TBI).

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Introduction: The chronic consequences of traumatic brain injury (TBI) are established, but ongoing support for adults with TBI is limited. This puts undue burden on their care partners, particularly during the transition from hospital to home, leading to emotional distress and increased substance abuse. There are no evidence-based interventions for care partners of adults with TBI to prepare them for this new caregiving role. Problem Solving Training (PST) is an evidence-based, self-management approach with demonstrated efficacy for care partners of individuals with disabilities, but it has not been delivered during inpatient rehabilitation.

Purpose: Aim 1): To assess the feasibility of providing PST to care partners of adults with TBI during the inpatient rehabilitation stay; Aim 2) To assess the efficacy of PST + education vs education alone for improving caregiver burden, depressive symptoms, and coping skills among care partners.

Methods: We are conducting a multisite, randomized control trial of PST vs Education for Care Partners during the inpatient rehabilitation stay of individuals with TBI. We will enroll 172 care partners and conduct baseline assessment, with follow-up assessment at 1 month and 6 months post-discharge.

Anticipated Results and Conclusion: We anticipate that care partners will be able to complete a minimum of 3 sessions during the inpatient rehabilitation stay and that PST will be more effective than Education alone for reducing caregiver burden and depressive symptoms and improving positive coping among care partners. This project provides evidence for effective ways to support care partners during the transition from hospital to home.