

AGING EXCHANGE

Tracking the Way We Age



Fall 2016

CALC Students Navigate Simulated Healthcare as Older Adults

Bodily aches and pains become more common during middle-age and later life. Some are tolerable while others are more serious and debilitating. How does one cope with a life-altering physical change, such as impaired vision due to glaucoma, garbled speech due to stroke, or limited mobility due to severe arthritis?

This past semester, graduate students from the Center on Aging and Life Course (CALC) participated in a simulation that allowed them to experience and manage these types of physical challenges.

CALC graduate students had the opportunity to “become older adults” and participate in the Geriatric Medication Game facilitated by Dr. Kimberly Plake, Professor of Pharmacy and CALC Faculty Associate at Purdue University.

The Geriatric Medication Game was originally created by the St. Louis College of Pharmacy to address the importance of displaying professional attitudes toward all clientele, especially older adults.

A modified program was created by the Purdue University College of Pharmacy to (a) influence students’ perceptions and attitudes toward older adults, (b) increase familiarity with common disabilities, and (c) experience the process of seeking healthcare. The overarching goal is to improve future interactions with

older adults. Nearly 200 students from various disciplines including pharmacy, sociology, and nursing took part in the experience.

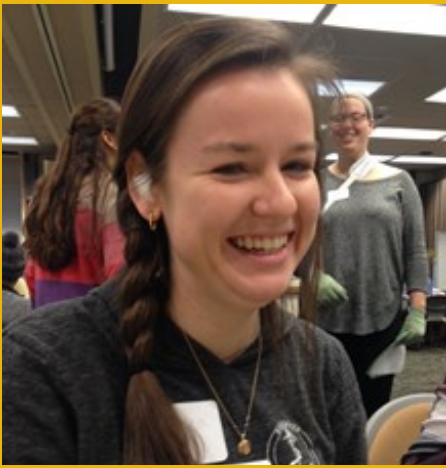
Navigating through healthcare in the United States is a convoluted and daunting task. The health insurance market, physician networks, and regimens to manage chronic diseases are part of a complex healthcare “system” that creates

challenges for most people. While smooth sailing is not easily accomplished, older adults are at an increased risk of being overwhelmed by the “rough waters” of medical care.

Older people are more likely than any other age group in the United States to receive care from multiple providers,



CALC graduate student, Monica Williams (center) learns the cost associated with the new medication she needs to take to manage her dizziness.



Clockwise from top left:

CALC student Marissa Rurka shows off her hearing impairment.

Two students learn to live with their new physical challenges.

Marissa Rurka and Samuel Kochert, work through dexterity issues.

CALC student Kia Hastings attempts to complete a task despite her limitations.

Game facilitator, Dr. Kimberly Plake, distributes a fate to a participant.

take prescription medications, live with a physical disability, experience longer waiting periods, and spend more money on healthcare.

According to the U.S. Census Bureau, roughly 13% of the U.S. population is age 65 or older—and that percentage will rise to 22% in 2030. Moreover, nearly 2 of 5 older people will live with one or more disabilities. Thus, it is imperative that the healthcare industry understands the challenges that older people face. The Geriatric Medication Game is one way that Purdue is educating future providers.

At the beginning of the game, every student was randomly assigned an age-related disability, a socioeconomic status, and an associated healthcare plan. Some students were more financially endowed depending upon their assignment. Disabilities assigned to students included:

- Goggles covered with Vaseline to simulate a visual impairment.
- Wheelchair or canes to imitate a physical disability.
- Slings on the dominant arm to illustrate a general impairment.
- Cotton balls inserted into ears to demonstrate hearing loss.
- Work gloves to mimic dexterity issues.
- Chewing gum to simulate speech problems associated with stroke.

Once students were given their assignments, they would embark

with another student as a paired team to take on the imagined healthcare marketplace. Within the healthcare system, students visited different stations where they would complete a task under the direction of the station moderator.

Students visited the physician's office, the pharmacy, and the medical laboratory, which simulated real-world healthcare scenarios. Once a team arrived at a station, the moderator would pronounce a fate, thereby determining if the team would have a good and/or bad outcome after completing the station's task. For example, a person's medications may no longer be effective, requiring visits to the physician's office and pharmacy for medication reconciliation.

At the completion of most tasks, the team had to pay a fee for services. If the team caught any errors in their medical bills, they were awarded points for being financially astute.

As students went from station to station, problems could arise. To replicate delays in healthcare, teams would wait in long lines at each station for their turns. During the waiting process, fate could visit teams and take away or add medications, disabilities, or even bless a team with good luck (skipping to the front of the line at a station).

Students were encouraged to work together as they navigated through the game. While one of the team members might have decreased dexterity, the other partner could help his partner out by opening child-proof pill bottles, signing consent forms, or holding the door.

At the end of the game, students expressed their reaction to the game through a reflection questionnaire. Many students reported feelings of frustration over the loss of an ability, having difficulty completing tasks, and having to wait in long lines for care. In addition, students remarked on the complications associated with having disabilities.

"The Geriatric Medication Game gives students a new perspective not gained in the classroom."

- Blakelee Kemp

From this, students began to understand the difficulties older adults with disabilities face when navigating the healthcare system. By the end of the experience, students felt their perceptions and attitudes had improved. They reported feeling more patient and empathetic, more willing to provide assistance, and greater respect for older adults.

CALC graduate student Blakelee Kemp reflected on her game experience. "The game increased my awareness of the issues and frustrations older adults encounter when navigating the healthcare system. One of the most difficult obstacles I faced was being given a disability. It made me feel unstable and dizzy, which really made completing tasks difficult."

Looking forward, Blakelee remarked that she hopes to be "more patient and understanding of the needs and issues older adults experience." Kemp stated, "The Geriatric Medication Game gives students a new perspective not gained in the classroom from reading assignments and lectures. The Game allowed us to



CALC student Blakelee Kemp (right) answers health-related questions with her teammate.

personally experience the real difficulties and frustrations one may encounter.”

The Geriatric Medication Game is shedding light on the harsh reality faced by older adults to maintain their health. It is important to remember that traveling through the game of life is a different process for every age group. With increased education, compassion, and tailored care for all age groups, the healthcare industry can help people to play the game well—to “pass go and collect two hundred dollars.”

Theodore Roosevelt once said, "Old age is like everything else. To make a success of it, you've got to start young." The Geriatric Medication Game helps students imagine the aging experience early and in a new light.



CALC student Erika Carrillo (center) and her teammate visit with a pharmacist to learn about a new medication she will need to take.



Kossek Appointed Chair for U.S. Personnel Management Research Summit



Ellen Kossek, Basil S. Turner Professor at Purdue University's Krannert School of Management, Research Director for the Susan Bulkeley Butler Center for Leadership Excellence, and CALC Faculty Associate, has been appointed as Chair of the Work/Life Committee for the United States Office of Personnel Management for a research summit.

The Office of Personnel Management (OMP) works to support the President Management Agenda goal to recruit, hire, and retain a world-class workforce. In addition, the OMP develops human resources policies including employee benefits, employee engagement, and performance management.

Kossek's areas of research include: work-family demands through the life course, work-life interventions, managing organizational change to support work and family/personal life, and aging worker and workforce relationship.

New Faculty Associates



Steve Amireault, PhD

Assistant Professor, Health & Kinesiology

Steve Amireault, Assistant Professor of Sport and Exercise Psychology received his PhD in Kinesiology at the Université Laval in Quebec City, Canada. Steve's research interests include: validation of physical activity measurement instruments, association between physical activity and health, identification of factors influencing the adoption and maintenance of an active lifestyle, and the development and evaluation of physical activity behavior-change interventions. His primary research goal is to develop behavior-change interventions and evaluate their impacts for sustained health and well-being.



Regan Bailey, PhD

Associate Professor, Nutrition Science

Regan Bailey, Associate Professor of Nutrition Science, earned her PhD at The Pennsylvania State University in Nutritional Sciences with a Gerontology minor. Regan also received her Master of Public Health from Johns Hopkins University. She completed her postdoctoral training at National Institutes of Health's Office of Dietary Supplements. She is a Registered Dietician and Certified in Public Health. Her research interests include: nutritional epidemiology; one-carbon metabolism, particularly the role of B vitamins; dietary assessment methods and measurement error; dietary patterns and supplements; nutrition screening; and nutrition and aging, particularly as it relates to reducing the risk of cognitive impairment and osteoporosis.



Kathleen "Katie" Hill Gallant, PhD

Assistant Professor, Nutrition Science

Kathleen (Katie) Hill Gallant is an Assistant Professor of Nutrition Science and Director of the Didactic Program in Dietetics. Katie is a 2010 Purdue CALC graduate earning a PhD in Interdepartmental Nutrition and minor in Gerontology. She completed a postdoctoral fellowship at IU School of Medicine. Katie is a Certified and Registered Dietician. Her research focuses on kidney disease and prevention. Additional research interests include: nutrition for optimal pediatric bone acquisition, and effects of obesity and diabetes on bone mass and quality.

Beck Studies Animal Assisted Therapy



Dr. Alan Beck, CALC Faculty Associate, Dorothy N. McAllister Professor of Animal Ecology, and Director of the Center of Human-Animal Bond at Purdue University, is using Animal Assisted Therapy (AAT) to improve the physical and psychological health of older adults. Research shows that AAT leads to better cardiovascular health—and decreased anxiety, fear, and

depression in older adults. In addition, a person's sense of well-being and cognitive function may improve with the use of AAT. Dr. Beck is taking AAT to the next level as he examines the effectiveness of using robotic dogs and aquariums in long-term care facilities.

A dog is a man's best friend, but what if that best friend is a robot? Meet AIBO, a robotic dog made by Sony, which uses artificial intelligence to express emotion and communicate with its human companions. **Artificial Intelligence RoBOt** (AIBO) has the ability to develop from a puppy into an adult dog with a personality shaped through the interactions with its caregiver.

While AIBO may not be furry or warm, the dog still provides similar health benefits compared to that of a real dog. In addition to its health benefits, AIBO eliminates some of the daily tasks that older adults may not be able to complete on their own such as feeding, walking the pet, grooming, and cleaning up after a pet.

Beck and his colleagues placed AIBO in a nursing home for six weeks to measure its impact. At the end of the study, participants indicated that they had improved interaction with their family during visits. In addition, AIBO provided an opportunity for residents to fulfill their desire to nurture.

Dr. Beck also collaborated with Dr. Nancy Edwards, CALC Faculty Associate and Director of the Adult/Geriatric Nurse Practitioner Program at Purdue University School of Nursing, to investigate the use of aquariums in the care of Alzheimer's patients in long-term care facilities.

The aquariums were placed in the dining hall with a goal of maintaining the patient's weight. Commonly, people with Alzheimer's suffer from significant weight loss which affects their overall health. The aquariums provided a calming effect in the

cafeteria: residents seemed less agitated and more awake during mealtimes.

At the end of the study, facilities reported small weight gains and decreased use of nutritional supplements. In fact, patients who were seated in front of the aquarium consumed 21-27% more food. The use of nutritional supplements was reduced by 25%, saving each facility approximately \$400 a month.

Animal Assisted Therapy is providing cost-effective alternatives in the rehabilitative care of older adults. Because of AAT, facilities are seeing an increase in patient and caregiver satisfaction. As the aging population increases, research conducted by scholars like Dr. Alan Beck will help pave the way for cost-effective and therapeutic care of the older adult population.



May 2016 CALC Graduates

Originally from Bangalore, India, **Ranjini Mohan** graduated with a bachelor's and a master's degree in Speech and Hearing Sciences from Mysore University in India. In May, Ranjini earned a dual-title PhD in Cognitive Neuroscience and Gerontology.

As an undergraduate student, Ranjini worked with older adults with communication disorders, and became aware of their motivation, positive life attitudes, and the support within the community. This gave her a new perspective on aging and inspired her to pursue an education in gerontology. Ranjini has made it her mission to learn about healthy aging so that she can exemplify graceful aging—just like her grandparents and others she has encountered.

After graduation, she intends to continue her research on dementia in a hospital setting. Reflecting on her time at Purdue, Ranjini valued her interdisciplinary research experiences. She credits CALC for facilitating the meaningful exchange of knowledge and helping to build valuable friendships and relationships.



Hailing from San Antonio, Texas, **Patricia Morton** began her studies at Texas State University earning a degree in Applied Sociology and a minor in Forensic Psychology. She continued her education at Purdue University earning a master's in Sociology followed by a dual-title PhD in Sociology and Gerontology this past May.

Patricia remarks that she has always had interest in early-life factors of health; however, one of her undergraduate mentors, Dr. Kyong Hee Chee, introduced her to the life course perspective on health and aging. This created a new road of passion for her to travel.

After graduation, Patricia will continue her training as a post-doctoral fellow in Statistics and Sociology at Rice University working specifically with the Children's Environmental Health Initiative (CEHI). As she prepares to embark upon the next part of her journey, Patricia remarked that she will take with her the invaluable training in researching health over the life course perspective coupled with the wonderful cross-disciplinary mentorships she experienced at Purdue.



Originally from Castries, Saint Lucia, **Kenona Southwell** pursued an undergraduate degree in Human Ecology and a Business Management minor at Cameron University in Lawton, Oklahoma. She later earned her master's in Human Development and Family Studies at Purdue University. Kenona was bestowed her PhD in Human Development and Family Studies and minor in Gerontology this past May.

Growing up in a culture that highly regards and respects older adults sparked Kenona's initial interest in Gerontology. She finds particular interest in understanding how younger members of society are affected by having to care for an aging loved one.

Post graduation Kenona will work for the Military Family Research Institute at Purdue University. Because of her time at Purdue and CALC, she states she now strives for excellence in research and truly understands the need for continual growth and education.



Scholars in the Spotlight & Spring Luncheon

Friday, April 8, 2016

The Center on Aging and the Life Course hosted its *Scholars in the Spotlight* on Friday, April 8. The annual event features graduate student presentations highlighting CALC's research proficiency and a keynote address by faculty scholars. This year, four CALC graduate students representing three disciplines presented their research.

Auditory Suppression and Adaptability in Younger and Older Adults

Understanding speech in a noisy environment becomes more difficult with age, even for those without hearing loss. This may lead to older adults restricting their social

participation, which results in social isolation and depression.

These changes in hearing may be related to changes in the cochlea, the organ of hearing. Two-tone suppression is a measure of cochlear function that gives more insight into hearing status beyond hearing thresholds measured in the clinic. Previous research has supported the idea that two-tone suppression may decrease in strength with age, but it may also decrease or fluctuate due to preceding sounds.

This fluctuation, or "adaptability," may help people understand speech in noise by enabling the ear to adapt to the auditory environment. If this adaptability



of suppression decreases in older adults, it may help explain their difficulty understanding speech in noise.

CALC student Erica Hegland's research examined suppression and its adaptability. In the study, suppression and adaptability were measured in normal-hearing younger adults, age 18-25, and older adults, age 61-69. Two-tone suppression was smaller in older adults than in younger adults. Furthermore, suppression among younger adults manifested more adaptability than was the case for older adults.

This research supports the idea of suppression adaptability, and it may represent one mechanism by which interventions could help older adults better understand speech in noisy environments.

The Long Arm of Maternal Differential Treatment: Effects of Recalled and Current Favoritism on Adult Children's Psychological Well-Being

Is a sibling in your family viewed as the "favorite?" Siyun Peng used life course theory to examine the effects of current and recalled perceived maternal favoritism on the depressive symptoms of adult children in midlife.



Those studied included 713 adult children nested within 280 later-life families. Multilevel regression revealed that both recollections of maternal disfavoritism from childhood and perceptions of mother's current disfavoritism regarding conflict predicted depressive symptoms.

Comparative Animal Modeling of Fetal Alcohol Spectrum Disorder

Christine Keller examined whether Fetal Alcohol Spectrum Disorder (FASD) is caused by ethanol exposure during fetal development. Because of the complex nature of this syndrome, it has been difficult to determine biochemical effects common to both acute and chronic alcohol exposure modalities.



Christine utilized well-established mouse and zebrafish models to generate an “unbiased” non-polar metabolome of FASD. Mice embryos were exposed to 400 mg/dL of ethanol for 0-2 hour intervals on consecutive days while zebrafish embryos were exposed to 0-3% ethanol for 2-24 hours. After comparing exposure results, the team was able to identify six common, significantly changed metabolites.

The principal findings underscore the importance of alterations of chemicals involved in cell formation and death during the development of FASD. Looking forward, the study’s results may represent a unifying approach to the dose and/or timing debate in FASD research.

Early Parental and Cognitive Well-Being in the Oldest Old: Reevaluating the Cumulative Disadvantage Theory in the Context of Gender Inequality

Rong Fu presented her research examining how losing a parent in early life may affect cognitive well-being in the Chinese oldest old. In addition, Rong postulated that gender of the



parent or offspring may also play a major role in long-term association between early parental loss and cognition.

Rong used data from the 2002 wave of the Chinese Longitudinal Healthy Longevity Survey. The final sample consisted of 10,587 Chinese oldest old aged 80–105 years.

Findings indicate that losing a mother in early life predicts elevated risk of developing cognitive impairment in late life. Oldest old men who lost their mother at or before the age of 16 years were most vulnerable to cognitive problems. The gender of the lost parent and the gender of the offspring both modify the relationship between early-life trauma and cognitive health at an advanced age.

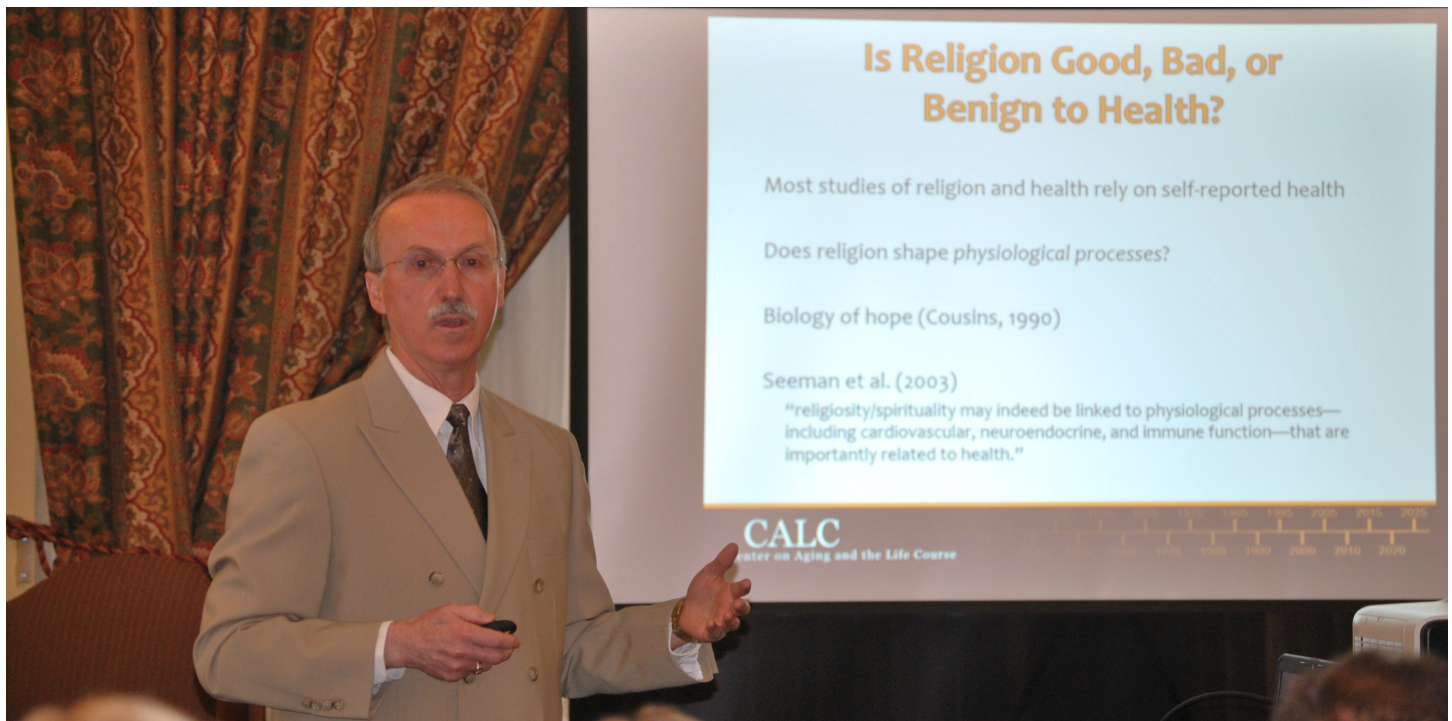
These findings suggest that traumatic events in early life could affect one’s health and well-being even many decades later. This study has empirical implications on parental death/separation and policy implications for gender-specific healthcare.

Do the Health Benefits of Religion Extend to C-Reactive Protein?

Ken Ferraro, Distinguished Professor of Sociology and CALC Director, and Elliot Friedman, William and Sally Berner Hanley Associate Professor of Human Development and Family Studies, were the faculty scholars for this year’s event.

Is religion good, bad, or benign for your health? In the past, most studies of religion and health have primarily relied on self-reported health. Scholars have found that religious beliefs and practices can shape physiological processes such as cardiovascular, neuroendocrine, and immune function.

One way religion may affect physical health is its effect on inflammatory processes within the body. Inflammation is the body’s response to infection or tissue damage and the first step in the immune response to bring healing. However, it can become maladaptive if not contained. Certain blood-borne proteins play an important role in the immune response such as interleukin-6 (IL-6), C-reactive protein (CRP), and fibrinogen. Typically, these proteins are detected at very low levels in the blood. While these small amounts of proteins are indicative of optimal health, larger amounts are associated with subsequent adverse health



Ken Ferraro, CALC Director, presents during the Scholars in the Spotlight event.

outcomes. For example, at chronically high levels (>3.0 mg/L), CRP is associated with greater risk of heart disease.

Recent studies of religion and CRP reveal that there may be a modest inverse relationship between religious activity and CRP levels. Among racial groups, a recent study showed that Black adults reap the most

health benefits from church attendance, including lower levels of CRP. With this in mind, how can religious practices, such as prayer, impact health?

In a recent study of religion and health, Neal Krause, Professor Emeritus of Health Behavior and Health Education at the University of Michigan School of Public Health, investigated intercessory prayer and its effect on

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CRP. Previous research showed that prayer can create support, remind us of the importance of others, reduce anger, and provide respite from personal problems. Krause wanted to know if praying alone “for other people” would have an effect on health.

Findings indicated there was no primary effect on praying for others. He reported, however, CRP was lower among those who prayed for others *and* experienced high levels of lifetime trauma. Diet, exercise, and disease management are vital to optimal aging, but special attention should be paid to spiritual or religious activity because it may play an important role in overall health and well-being.

Following Ferraro and Friedman’s presentation, guests enjoyed a delicious luncheon and conversation regarding new and upcoming initiatives within the CALC community.



Thank you to our 2015 Donors!

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Upcoming Events

When & Where	Featuring	Presentation
September 15, 2016 4:30-6:30pm West Faculty Lounge, PMU	Local Artists	20th Anniversary Celebration <i>Art of Aging Reception</i>
September 16, 2016 9:00-12:00pm Fowler Hall STEW	Laura L. Carstensen, PhD Founding Director of the Stanford Center on Longevity, Professor of Psychology, and the Fairleigh S. Dickinson Jr. Professor in Public Policy at Stanford University David J. Ekerdt, PhD Professor of Sociology and Director of the Gerontology Center at The University of Kansas	20th Anniversary Symposium of the Center on Aging and the Life Course: <i>Time Horizons and Optimal Aging</i>
October 14, 2016 12:30-1:25pm HAAS 111	Steve Amireault, PhD Assistant Professor of Health and Kinesiology	<i>Understanding the Physical Activity Participated Among Older Adults: A Dynamic and Technology -Based Approach</i>
November 4, 2016 12:30-1:25pm HAAS 111	Amanda Veile, PhD Assistant Professor of Biological Anthropology	<i>From the Cradle to the Grave: Life History Transitions and the Ecology of Aging in a Yucatec Maya Subsistence Farming Community</i>
November 16-20, 2016 New Orleans, Louisiana	CALC Faculty Associates and Graduate Students join gerontology researchers and experts from around the world	GSA 2016 Annual Scientific Meeting <i>New Lens on Aging: Changing Attitudes, Expanding Possibilities</i>
December 2, 2016 12:30-1:25pm HAAS 111	Regan Bailey, PhD Associate Professor of Nutrition Science	<i>Dietary Supplement Use in Older Adults</i>