



# CAIRHE

CENTER FOR AMERICAN INDIAN AND RURAL HEALTH EQUITY



## WIPING OUR LENSES

In February 2020 I had the privilege to return to New Zealand (known as *Aotearoa* in the Māori language) with a group of Indigenous Canadians, my friend Jennifer from Menominee, and others. We went on an Indigenous knowledge exchange, and we spent 10 days traveling the north island to different *marae* (communal and sacred meeting grounds) with several of our Māori friends. This was an immersive experience in Māori culture, language, food, and spirituality. Even though I've worked with Native American communities here in the United States for many years, the intactness and immersion that we experienced on this trip together was an intense, beautiful, and life-changing experience.

Within two weeks of my return, we were in lockdown with the COVID-19 craziness, followed by the onslaught of mask debates, toxic election politics, and the George Floyd murder and its aftermath. The intensity of this divisiveness in American culture that we've experienced both locally and nationally in the nearly two years since is in stark contrast to what I experienced in *Aotearoa*. The beauty of that full immersion into the Indigenous world made managing the rest of what's happened both easier and harder, as it was such a culture shock being back in the chaos here.

In the time since, one of the important comments I remember was something our friend Helen, a lovely Irish woman, said: "We need to wipe our lenses." We did a deep dive into understanding the role of colonization around the world and its ongoing devastating effects on Indigenous communities internationally, as well as our often unwilling complicity in it. We also considered what decolonizing or reindigenizing might mean in different contexts and to different people in *Aotearoa*, Canada, Ireland, and the United States.

Much of what I've been examining personally lately is deepening my understanding of the tool of race and the construction of race and racism early in our history used to justify colonization, genocide, and slavery, as well as my understanding of the depths in which we live in a society still dominated by white male patriarchy and societal ideas based on exploitation and hierarchical linear models of thought and leadership. During this time, I've had the opportunity to work on the *Climate Change and Human Health in Montana* special report, and it became even more clear to me that this worldview is what's killing the planet. The idea of humanity as supreme and above all other creatures vs. the worldview that we are but a small part of a larger system is one critical difference between Indigenous and Western thought. We must understand that we all have an Indigenous history *somewhere*—and that in all of our spiritual and cultural traditions there was an honoring of the Earth, the sacredness of all beings, and the responsibility we have to be caretakers and not takers of the Earth and her gifts.

So, this season I'm especially grateful for the lessons I'm learning daily from my Indigenous friends and colleagues, and my ancestors both good and bad. And I'm grateful for the journeys both outward and inward that are helping me "wipe my lenses" and begin to see more clearly the toxic soup that we swim in as a culture. I believe that it's only by seeing this toxicity and naming the various forms of it that we can find a way forward together for each other and for the planet.

Alexandra Adams, M.D., Ph.D.  
Director and Principal Investigator

**For Healthy Communities Under the Big Sky**

## ALEX ADAMS ELECTED AS MEMBER OF NATIONAL ACADEMY OF MEDICINE

By Marshall Swearingen  
MSU News Service

**A**lexandra Adams, M.D., Ph.D., known nationwide for her work to improve health in Native and rural communities, was elected in October to the National Academy of Medicine, considered one of the highest honors in the fields of health and medicine.

Adams was named one of 100 new members in conjunction with the Academy's annual meeting. The honor recognizes individuals who have demonstrated outstanding professional achievement. An announcement from the Academy cited Adams's work "partnering with Indigenous communities in the Midwest and Montana and pioneering community-engaged research methods."

"Today we celebrate with Dr. Adams, whose work is improving lives every day across all corners of Montana," MSU President **Waded Cruzado**, Ph.D., said upon the announcement. "She is very deserving of this honor."

As director of CAIRHE since 2016, Adams has played a key role in building the center, founded in 2014, into a multidisciplinary network of researchers, faculty members, and students spanning



Alex Adams

several colleges and a half dozen departments at MSU. In addition to funding multiple faculty research projects and smaller pilot projects that work with Native and rural partners across the state, CAIRHE mentors junior faculty investigators to become independently funded researchers who hold the highest level of grant funding from the NIH or other national grant-awarding agencies.

"I'm extremely honored to be elected to the National Academy of Medicine and am so grateful to all of my Indigenous community partners for their teachings in our work together," Adams said.

In 2019, CAIRHE received a five-year, \$10.7 million grant from the National Institutes of Health to advance CAIRHE's mission to reduce health disparities in Native and rural communities through community-based participatory research that is respectful of community needs. At the time, Adams said that public health challenges in rural and Native communities across the state are too much for any one entity to address, and that CAIRHE plays an important role as a hub to bring stakeholders together for lasting change and positive health outcomes. The grant came as CAIRHE founded its Translational Biomarkers Core Lab to provide state-of-the-art services for public health research, as well as a mobile lab called the Health Education and Research Bus for serving Montana's remote areas.

"Alex's sustained and impactful scholarship has been possible because of genuine partnerships with rural and Indigenous commu-

nities and is a national model for how to inclusively tackle health disparities," said **Jason Carter**, Ph.D., MSU's vice president for research, economic development, and graduate education.

Prior to MSU, starting in 1999, Adams was a professor in the Department of Family Medicine at the University of Wisconsin School of Medicine and Public Health, where she also served as director of the Collaborative Center for Health Equity from 2008 to 2015 and director of the Cancer Center's Cancer Health Disparities Initiative from 2009 to 2016. She received her M.D. from the University of Illinois College of Medicine at Urbana-Champaign and her Ph.D. in Nutritional Sciences from the University of Illinois at

*"I'm extremely honored to be elected to the National Academy of Medicine and am so grateful to all of my Indigenous community partners for their teachings in our work together," Adams said.*

Urbana-Champaign. She completed her residency in family medicine at the University of Wisconsin Hospital/St. Mary's Hospital in Madison. (A [recent profile](#) by the American Academy of Family Physicians tells more of Adams's backstory and the beginning of her work with Native communities.)

New members of the National Academy of Medicine are elected by current members through a process that recognizes individuals who have made major contributions to the advancement of the medical sciences, health care, and public health. One of Adams's mentees, **Erik Brodt**, M.D., of Oregon Health & Science University, [also was elected to the Academy](#) in this class.

The National Academy of Medicine, established in 1970 as the Institute of Medicine, is an independent organization of professionals from fields including health and medicine; the natural, social, and behavioral sciences; and beyond. It serves alongside the National Academy of Sciences and the National Academy of Engineering as an adviser to the nation and the international community. Through its domestic and global initiatives, the NAM works to address critical issues in health, medicine, and related policy and inspire positive action across sectors. The NAM collaborates closely with its peer academies and other divisions within the National Academies of Sciences, Engineering, and Medicine. With their election, NAM members make a commitment to volunteer their service in National Academies activities.

Adams is the third MSU faculty member to serve in a national academy. Regents Professor **Cathy Whitlock**, Ph.D., in MSU's Department of Earth Sciences was inducted into the National Academy of Sciences in 2019, and **Peter Buerhaus**, Ph.D., professor in MSU's College of Nursing, was elected into the National Academy of Medicine in 2003 while at Vanderbilt University, before coming to MSU. 🌱

Photo by Adrian Sanchez-Gonzalez

## NEHA JOHN-HENDERSON AWARDED \$2.2 MILLION NIH R01 GRANT

**L**ong before "social distancing" became a household phrase, researchers observed that isolation can increase an individual's risk for mental health disorders and chronic disease. Conversely, having a larger and more diverse social network can protect against depression and even physical risk factors such as high blood pressure.

But few studies of this kind have been conducted among American Indian populations, which face significant mental and physical health disparities and lower life expectancy, particularly in Montana, said **Neha John-Henderson**, Ph.D., assistant professor in Montana State University's Department of Psychology and an investigator with CAIRHE.

"Blackfeet community members and stakeholders have long held that a key resilience factor for their community is social connectedness," John-Henderson said. "They acknowledge that social connectedness has diminished over time in their community, but they believe efforts to restore and increase connectedness could have a tremendous positive impact on the health of their people."

Earlier this month John-Henderson received a four-year, \$2.18 million grant from the National Institute on Minority Health and Health Disparities, part of the National Institutes of Health, to investigate relationships between social connectedness and health risk factors in American Indians living on the Blackfeet Reservation—the first comprehensive, multiyear study of its kind, she said.

"If we can show there is an association between social connectedness and better health in this community, we can develop culturally appropriate ways to promote connectedness, thereby improving health in this vulnerable population," she said.

Over a two-year period, John-Henderson and her team will examine long-term changes in indices of mental and physical health and social connectedness among 280 adults on the Blackfeet Reservation, where she has worked with local research partners since 2016. John-Henderson hypothesizes that positive changes in social networks—such as increased reports of positive social interactions and social relationships—will be associated with improvements in sleep quality, mental health, and levels of immune system proteins and cardiometabolic markers as measured in blood samples.

The study also will consider shorter-term effects of daily social interaction on health. Participants will report on positive and negative social interactions six times a day using a mobile phone app, while a device worn on the wrist during the same two-week period will measure activity and sleep. Surveys will assess a participant's mental well-being. John-Henderson believes that more frequent

social interactions and greater reports of social connectedness will be associated with fewer symptoms of anxiety and depression, as well as greater sleep duration and optimal sleep quality.

"In addition to understanding long-term correspondence between social connectedness and health, it's important to understand more immediate effects of social connectedness on outcomes linked to health as they unfold in daily life in our actual environments," she said.

Data collection will take place at [Blackfeet Community College](#) in Browning, where John-Henderson has worked with faculty member **Betty Henderson-Matthews** and student research interns for the past five years. Henderson-Matthews will oversee research activities at the college with the help of a project coordinator and Blackfeet Community College students. Analysis of blood samples will be conducted by CAIRHE's [Translational Biomarkers Core Laboratory](#) on the MSU campus.

**Jason Carter**, Ph.D., MSU's vice president for research, economic development, and graduate education and an expert in sleep and cardiometabolic disease, said the study will address novel and timely questions that have been amplified by COVID-19.

"Social connectedness is a valued and foundational element within tribal communities," said Carter, who will serve as a co-investigator on the study. "The COVID-19 pandemic has only reinforced the value of social interactions, even in modified and mitigated ways. This partnership with the Blackfeet community will significantly advance our understanding of the complex relationships between social connectedness, mental health, sleep, and cardiometabolic health in ways that will help tribal communities be better prepared for future pandemics and adversities."

In her preliminary work on the Blackfeet Reservation, including [two pilot studies](#) funded by CAIRHE from 2017 to 2019, John-Henderson found that community connectedness appears to offset physiological risk for disease, particularly among individuals who experienced high levels of trauma early in life. Meanwhile, feelings of loneliness and perceptions of less community connection were associated with more anxiety and depression.

A separate CAIRHE study she led found that frequency of positive social interactions was inversely related to blood pressure, and that average perceived social connectedness was inversely related to levels of immune system inflammation. Adults who reported more loneliness across a one-week period also experienced worse sleep during that time.

These studies and work done in John-Henderson's [Stress, Adversity, Resilience, and Health Lab](#) at MSU indicate that the nature of one's social environment may have a greater effect on health among at-risk populations compared to others, she said.

"High levels of inflammatory markers, higher levels of depression and anxiety, high blood pressure, and poor sleep quality are all risk factors for higher levels of chronic disease in American Indian adults," said **Alex Adams**, M.D., Ph.D., director of CAIRHE and a co-investigator on the new study. "The preliminary research suggests that social connectedness may be a resilience factor that promotes better health and well-being in this community. We're excited that findings from a new, larger study could lead to innovative Blackfeet



Neha John-Henderson

Photo by Kelly Gotham



## RESEARCH

## RESEARCH HIGHLIGHTS

Here's a summary of what CAIRHE's project leaders have been working on, even amid the disruption of COVID-19.

**Andreas Thorsen**, Ph.D., and co-investigator **Maggie Thorsen**, Ph.D. ([Modeling Rural Perinatal Health Outcomes and Service Systems to Improve Health Equity](#)), recently published with their co-authors (M. Thorsen serving as lead author) a paper in the *Journal of Rural Health* titled "Evaluating Disparities in Access to Obstetric Services for American Indian Women Across Montana." Andreas Thorsen and co-investigator Ronald McGarvey, Ph.D., of the University of Missouri published a paper in *Optimization Letters* titled "Nested-Solution Facility Location Models" about a methodology for practical location decision strategy. The Thorsens and their research team gave three related presentations at the Institute for Operations Research and the Management Sciences (INFORMS) Healthcare Conference in July, followed by a talk by McGarvey at the INFORMS Annual Meeting in October. Several other manuscripts are currently in progress.

Meanwhile, Maggie Thorsen provided feedback and advising on maternal health data collection projects with organizations such as Project MOMS (Montana Obstetrics and Maternal Support), funded by the Montana Department of Public Health and Human Services (DPHHS) and Billings Clinic, as well as the U.S. Health Resources and Services Administration Secretary's Advisory Committee on Infant Mortality. This engagement has supported important data collection efforts for maternal health including the latest survey for Montana of the Center for Disease Control and Prevention's Levels of Care Assessment Tool, as well as the most recent survey instrument of the CDC's Pregnancy Risk Assessment Monitoring System. In August, Maggie Thorsen [presented their CAIRHE study's research](#) as part of a webinar series related to the DPHHS State Health Improvement Plan. The Thorsens are currently writing an NIH R01 grant application for a planned submission in March. They continue to work with their CAIRHE mentor, College of Nursing Dean **Sarah Shannon**, Ph.D., RN.

**Lauren Davis**, Ed.D. ([A Trauma-Informed Intervention for Positive Youth Development and Teacher Wellness in Rural Montana](#)), has begun recruitment for teacher participants in the Livingston school system and is developing partnerships with Park County high schools toward inclusion of their students and teachers in the study next year. The delivery of Year 1 of her study's trauma-informed yoga intervention is scheduled to begin in January. Meanwhile, Dr. Davis recently concluded a grant-writing workshop, begun in September, in which she laid the groundwork for a future R01 grant application. The workshop was sponsored by the School of Medicine at the University of Washington. Dr. Davis continues to work with **Elizabeth Rink**, Ph.D., as her CAIRHE mentor.

**Brandon Scott**, Ph.D. ([A Native Path to Courage](#)), has been able to travel to the Rocky Boy Reservation, site of his study, multiple times in recent weeks—the first such travel since early in the COVID-19 pandemic. The study's Community Advisory Board met in late November. The study team has developed a focus group guide for review by the Stone Child College Tribal IRB and MSU IRB, to be followed by several planned focus groups with tribal elders and work groups with adult community stakeholders and

youth. Dr. Scott has begun work with **Elizabeth Rink** as his CAIRHE mentor, and the two even plan to coauthor a paper on working with schools in Indigenous communities.

**Cara Palmer**, Ph.D. ([Sleep Health Disparities and Socioecological Risk Factors Among Montana Youth](#)), now in the second year of her pilot study work, recently developed and submitted three manuscripts and had another four accepted, including one paper based on a sample of middle schoolers from a rural Montana community. Findings from this study suggest that youth who are more socially isolated also experience more sleep disturbances. Data collection is underway for one aim of the study using a multi-informant, multi-method design to investigate predictors and psychological correlates of teen sleep disturbances within Beaverhead County. Dr. Palmer also has worked with MSU's HELPS Lab to collect a representative sample of teenagers across the state of Montana for the second and third aims of the study. This data will provide information on the rates of sleep health disparities across the state, an understanding of the barriers to sleep-based health care and education, and knowledge related to community-, family-, and individual-level risk and protective factors for sleep health. She continues to develop two R01 applications, including one with her CAIRHE mentor, **Jason Carter**, Ph.D., focused on the ways that sleep patterns predict how youth process and respond to positive experiences in ways that make them more or less susceptible to mental health difficulties.

**Miranda Margetts**, Ph.D. ([Investigating Healthcare for Rural Females with Complex Gynecological Conditions](#)), began her first-year pilot study with meetings to assemble a wide range of project partners, including those at Billings Clinic and Utah Primary Children's Hospital. Meetings with data scientists at the two locations have set parameters for data queries—within multiple large data sets—that will be the basis of the study's data analysis aims. Dr. Margetts also met with Margaret Anne Yellow Kidney of All Nations Health Center in Missoula to learn of priorities and challenges in provision of gynecological health care for urban and rural Native Americans. The project's Clinical Advisory Board met in early December. Earlier this fall, Dr. Margetts and several of her project collaborators were part of a team led by PI Alla Vash-Margita of Yale University that submitted an R03 grant application to NIH titled "The genetics and penetrance of Mullerian Anomalies: Addressing the challenges of the bench to bedside gap." Dr. Margetts also began work with her CAIRHE mentor, **Alex Adams**, M.D., Ph.D.

**Emily Tomayko**, Ph.D. ([Development and Community Evaluation of a Traditional Foods Resource](#)), worked with her Community Advisory Board to finalize the correct names and spellings of the 16 traditional foods to be included in her project's toolkit. Each will be identified in all three of the languages spoken by the Confederated Tribes of Warm Springs. Prior to the start of CAIRHE's project year, the study team participated in four summertime root-digging and berry-picking field visits led by a community member. The study team then trained on the photogrammetry method in September, and using this method they have produced two draft 3D digital images based on photos collected during the field visits. They have

(See "Research Highlights" continued on p. 9)

## CENTER NEWS

## CAIRHE HOSTS SUCCESSFUL PIRL 2021 WORKSHOP IN OCTOBER, DESPITE COVID

In October CAIRHE hosted 14 investigators from across the United States at Promoting Indigenous Research Leadership, or PIRL, a three-day workshop designed to promote the research careers of Indigenous and other early-career faculty working with Native communities.

Junior investigators traveled from as far away as Alaska and Hawaii to attend the event, held October 18-20 at the Emerson Center for the Arts and Culture in Bozeman. Ten senior mentors from across the country—each with a track record of funding success with the National Institutes of Health—gave presentations on various career and grant-writing topics and engaged in one-on-one and small-group mentoring with the investigators.

CAIRHE Director **Alex Adams**, M.D., Ph.D., and CAIRHE External Advisory Committee member **Donald Warne**, M.D., MPH, led the workshop's agenda. Warne is associate dean of Diversity, Equity, and Inclusion and director of the Indians Into Medicine and Public Health Programs at the University of North Dakota.

"This year's group of workshop participants was truly outstanding," Adams said, "and with eighty-five percent of them being young Native scholars, the program was especially supportive of the great careers and important work they have ahead."

Participating investigators represented 11 different universities or research organizations, including the University of Arizona, the University of Alaska Fairbanks, Johns Hopkins University, Washing-



PIRL participants and mentors pose on the last day of the workshop at the Emerson Center.

ton State University, the University of North Dakota, the University of Wisconsin, and Kaiser Permanente. CAIRHE Assistant Research Professor **Vernon Grant**, Ph.D., was the only participant from MSU.

The workshop was made possible through a subcontract from the National Cancer Institute and support from MSU's Office of Research, Economic Development, and Graduate Education. Two longtime NIH program officers, Shobha Srinivasan, Ph.D., from the National Cancer Institute and Kathy Etz, Ph.D., from the National Institute on Drug Abuse, attended and served as presenters and mentors during the event.

"We couldn't have staged PIRL in the way we did, where it costs nothing for investigators to attend, without the support from MSU and NIH," Adams said. "It demonstrates how committed NIH and many program officers are to upholding Native researchers and the important work they will be doing in Indigenous communities for the decades to come."

PIRL was originally scheduled for the summer of 2020, with most participants having applied in the early months of that year. The COVID-19 pandemic caused multiple postponements until workshop organizers concluded it could be presented safely in October, said CAIRHE Program Coordinator **James Burroughs**.

"We made every effort to reduce risks to our participants, and in that regard we were very successful," he said. "Some participants and presenters who had hoped to attend weren't able to because of COVID, but we're grateful to everyone who took part during this very unusual time."

In addition to Adams and Warne, faculty presenters and mentors at the workshop included Valarie Blue Bird Jernigan from Oklahoma State University; **Suzanne Held** and **Elizabeth Rink** from CAIRHE/MSU; David Huh and Cynthia Pearson from the University of Washington; Alicia Mousseau of the Oglala Sioux Tribe; Melissa Walls from Johns Hopkins University; and Nancy Whitesell from the University of Colorado Anschutz Medical Campus.

PIRL is the second such workshop hosted by CAIRHE. Its predecessor, called "Bridging the Gap: From Application to Funding," was held on the MSU campus in February 2019. That event focused more specifically on grant writing—in particular the resubmission of grant applications to the NIH—but was adapted and expanded in scope for the different cohort of investigators attending PIRL.

In post-event surveys, participants reported they were "very satisfied" or "satisfied" with the workshop overall. "I truly enjoyed spending time and meeting with my mentor, and to meet and hear from NIH program officers is invaluable," said one participant in an anonymous evaluation. "I am tremendously grateful for this event that may have been one of the most informative and practical workshops I have ever participated in."

## ADAMS AND A. THORSEN PRESENT AT NIH RURAL HEALTH DAY SEMINAR

CAIRHE Director **Alex Adams**, M.D., Ph.D., and research project leader **Andreas Thorsen**, Ph.D., each presented at a National Institutes of Health virtual seminar on November 18 to mark National Rural Health Day.

The National Organization of State Offices of Rural Health sets aside the third Thursday of every November to observe the annual day. The NIH Rural Health Special Interest Group hosts the rural health seminar as its main activity to stimulate multidisciplinary





## CENTER NEWS

discussions to advance rural health research. Four NIH institutes, including the National Institute on Minority Health and Health Disparities, co-hosted the event.

The 2021 virtual event featured panel discussions, presentations, and early-stage investigator talks organized in three tracks: socio-cultural and economic determinants of health in rural populations; physical environmental determinants of health in rural populations; and evaluation, measurements, and policy implications on rural health.

Adams served on a discussion panel for the first track, and Thorsen presented as one of five early-stage investigators from across the country.

Adams began with an overview of disparities observed by CAIRHE faculty working with rural and Native communities, including a lack of primary and preventive health care and high levels of food insecurity. One glaring issue emerging in rural areas is the health impact of climate change, she said. Fire, drought, flooding, and water shortages will be drivers of health disparities, including negative mental health outcomes, both now and in the future.

“I think it’s going to be worse in rural areas,” she said.

Adams cited CAIRHE’s work on last year’s [Climate Change and Human Health in Montana](#) special report. Then she discussed how communities assembling at the personal level can begin to tackle more widespread problems.

“What can we do to make large, system-scale changes possible, especially for these large issues such as climate change?” Adams asked. She began with an example from her work with the Menominee community in Wisconsin, where small individual- and family-level behavior changes in childhood obesity expanded upward to the community level to combat deeper issues, especially trauma.

“We learned that people coming together with a common vision for health in their community can make a big difference,” she said. “They brought themselves fully to that enterprise to find community-based solutions that could be helpful and then trickle up to make policy changes and inform larger changes in the state.”

Thorsen described the portion of his research, done in conjunction with co-investigator **Maggie Thorsen**, Ph.D., and others, that evaluates disparities in access to obstetric services for American Indian women in Montana. Maternal and infant health outcomes are significantly worse for American Indian and Alaska Native women,



The Thorsen project has identified significant disparities in access to obstetric services. Shown is a slide from Andreas Thorsen’s Nov. 18 presentation.

who are up to five times more likely to die from childbirth complications, he said.

Lack of access to services within a reasonable driving distance is a great barrier to care, and for rural American Indian women, it can be compounded by poverty and chronically underfunded health services. Thorsen defined Level 1 hospitals as those with OB units that offer services for uncomplicated cases. Level 2 facilities have specialty care units that offer care for most complicated cases, while Level 3 hospitals offer services for all complicated cases. Level 0 hospitals don’t have an OB unit and usually perform births in the emergency room.

Thorsen reported that Level 2 and 3 facilities in Montana generally align with counties where more white births occur. A majority of white women reside within an hour of a Level 2 facility, while only about a quarter of American Indian women reside that close.

Looking at the facilities where women have actually delivered, births to white women were more likely to occur at a Level 2 facility than a Level 1, while births to American Indian women were more likely to occur at a Level 1 facility.

“However, American Indian women were over 20 times more likely to give birth at a hospital that lacked an obstetric unit, or Level 0,” he said.

American Indian women also tended to travel significantly farther to give birth, even when compared to white women living in similarly rural areas.

“Even with policy efforts to increase the number of professionals in underserved areas, our findings suggest that racial disparities and access to complex obstetric care will persist unless facility-level infrastructures also expand to reach areas serving American Indian women,” Thorsen said.

## HERB VISITS ST. IGNATIUS, BUTTE WITH MONTANA SHAKESPEARE IN THE PARKS

By MSU News Service

In partnership with [Montana Shakespeare in the Parks](#) (MSIP), CAIRHE’s Health Education and Research Bus, known as HERB, made appearances prior to MSIP productions last summer in St. Ignatius and Butte.

HERB was on hand at Good Ole Days Park in St. Ignatius on Friday, August 27, and at Butte’s Stodden Park on Thursday, September 2, where the public visited displays before performances of Shakespeare’s *A Midsummer Night’s Dream* in both towns. CAIRHE Program Coordinator **James Burroughs** drove HERB to each location and oversaw the presentations.

[Montana INBRE](#) researchers Dan Autenrieth and Julie Hart of Montana Tech and Clay Comstock of Salish Kootenai College, along with students, shared information on how to make do-it-yourself air cleaners to control wildfire smoke exposures and talked about their wildfire smoke research.

CAIRHE and Montana INBRE maintain HERB as a research



Andreas Thorsen

## PEOPLE

and educational outreach facility serving Montana’s rural and frontier communities. Since 2019, the 25-foot RV, acquired with funding from the National Institutes of Health, has promoted partnerships among health researchers and rural and Native communities, health organizations, and other public health stakeholders across Montana.

Besides being a hub for health research activities, HERB is a place where communities can talk with health investigators and learn about health topics, said **Susan Higgins**, M.S., at the time



Photo by James Burroughs

Presenters from Montana Tech and Salish Kootenai College prepare for visitors before the MSIP show in St. Ignatius on August 27. The set for *A Midsummer Night’s Dream* stands nearby.

the community research associate with CAIRHE and INBRE who coordinated the event with MSIP.

“We so appreciate all that Montana Shakespeare in the Parks brings to our Montana communities, and we’re happy to showcase HERB in conjunction with these two productions,” Higgins said in August.

Having recently completed its 49th summer season, Montana Shakespeare in the Parks is the only professional theater touring program in its five-state region that produces Shakespeare’s plays. The program engages more than 61 communities, many of which are rural and underserved.

## SUE HIGGINS RETIRES FROM CAIRHE AND MONTANA INBRE IN OCTOBER

**Susan Higgins**, M.S., community research associate for CAIRHE and Montana INBRE since 2017, retired from MSU on October 1. Her final year with both programs included co-authoring the



Sue Higgins

[Climate Change and Human Health in Montana](#) special report, hosting the 2020-21 Health Equity Webinar Series, serving as part of the Montana IDeA Community Engagement Core, and compiling the *Resources of the Week* email newsletter for health researchers, which she continues to produce in retirement.

“Sue was a crucial part of CAIRHE’s community engagement efforts over the past four years, and she really helped us expand meaningfully into rural communities across the state,” said CAIRHE Director **Alex Adams**. “While we’re excited for her well-deserved retirement, we’re also sad to see her go. She has left big shoes to fill.”

Higgins joined CAIRHE in November 2017, and in the years since she was instrumental in helping CAIRHE faculty establish community partnerships in rural areas across the state, as well as developing the CAIRHE Health Equity Network. She also oversaw the acquisition of the Health Education and Research Bus (HERB) and helped manage its use.

“Coming from a background in water resource planning and then working alongside the fine people at CAIRHE and INBRE confirmed in me that human health and the health of our environment are vitally linked,” Higgins said. “Our investigators are dedicated to ensuring that their research is both relevant and invited in our small communities, and that makes all the difference.

“It’s been an honor to work with them, and to elevate collaborations between academia and statewide groups,” she added.

In the early weeks of her retirement, Higgins has continued to stay involved with the community through service on a few boards and in helping to produce a film on the impacts of climate change on health in Montana.

“Sometimes I wake up and think I’ve made a big mistake to retire,” she said. “I will miss this great team, but I’m not going to disappear.”

## BYKER SHANKS ASSUMES NEW POSITION WITH GRETCHEN SWANSON CENTER

**Carmen Byker Shanks**, Ph.D., RDN, a CAIRHE research project leader for three years (2018-21), assumed a new post at the Gretchen Swanson Center for Nutrition beginning in August. She remains affiliated with MSU as research and teaching faculty after serving as an assistant and associate professor in the Department of Health and Human Development for 10 years.

Working remotely from Bozeman for the Center, which is based in Omaha, Neb., Byker Shanks is principal research scientist, providing a high level of leadership on complex research and evaluation projects. The mission of the Swanson Center, an independent research institution, is to “provide scientific expertise, partnership, and resources to improve diet and physical activity behaviors among youth and their families to help grow a healthier next generation.”

At the time of her move Byker Shanks already had close collaborators at the Center, including Executive Director Amy Lazarus Yaroch, Ph.D.

“The position at the Center provides me with the opportunity to grow immensely as a scientist and expand my experiences in public health nutrition research,” Byker Shanks said. “A large part of my role is dedicated to leadership in the [GusNIP NTAE](#), which evaluates the impact of nutrition incentives nationwide on dietary quality, food security, and health.”

She added that the decision to leave MSU and CAIRHE was a difficult one.

“This decision to accept a new position is bittersweet,” she said. “I’ve cherished my tenure-track role at MSU for the past decade, but am excited to strengthen my skills and network in my new position.”

(See “Byker Shanks” continued on p. 9)



Carmen Byker Shanks



## PEOPLE

## Q&amp;A WITH ALEX ADAMS: YOUR NUTRITION AND HEALTH

(The following interview with CAIRHE Director Alex Adams appeared as part of a larger article, [Most Overweight & Obese States in America](#) by Adam McCann, that appeared on the website [WalletHub](#) on November 15. It is reprinted here with permission from [WalletHub](#).)

## What are some tips for eating healthy without breaking the bank?

**Alex Adams:** One of the biggest misconceptions is that eating healthy is more expensive. And it can be, but it really depends on what you are purchasing. A high-quality plant-based diet with plenty of legumes, beans, rice, and fruits and vegetables is not only high in fiber, antioxidants, and phytonutrients, but also is cheaper and healthier than a more meat-based diet.

Learning to cook simple plant-based meals is critical, as is learning to use unprocessed ingredients that are cheaper. For example, it is much cheaper to make homemade rice than to buy packaged rice products. While this can be more time-consuming, there are so many sites, recipe books, and plant-based diet experts that can detail ways to cook meals or staples such as beans ahead of time that save time and money weekly. Eating out is also much more expensive than eating at home, so this is really important. Packaged and processed foods found in the frozen, boxed, or canned goods sections found in the center of the grocery store tend to be the most expensive.

## What are the biggest mistakes people make in trying to lose weight?

**A.A.:** One of the most common mistakes is that people think that exercise will help with weight loss. Exercise can do all sorts of wonderful things for your body and your mood, but the amount of exercise necessary for weight loss is huge, and often exercise causes more hunger, so weight loss does not occur. However, the increase in muscle mass, increase in insulin sensitivity, and motivation that exercise can produce may cause people to work harder at actual weight loss.

Another big mistake is not understanding that weight gain is not merely a matter of calories in vs. calories burned, but that many hormonal factors come into play, particularly insulin. For example, something I saw regularly in my medical practice was people addicted to soda consumption. These patients were drinking a soda or other sugary drink or food every 2 to 3 hours throughout the day, causing their blood sugar levels to spike, and then insulin would be released to bring these levels down to normal. This continual swing of high to low caused not only weight gain but also mood swings and headaches.

The upward swing in insulin level and then the crash afterward over and over during the day can not only cause short-term gain, but also lead to insulin resistance and eventually to diabetes. The condition of high fasting insulin levels and borderline blood sugars

in pre-diabetes is extremely common and underdiagnosed in the U.S. This condition both causes weight gain and is a precursor to additional weight gain, and this vicious cycle must be addressed. Other issues that can cause weight gain are lack of sleep, increased stress, and a sedentary lifestyle—all of which cause hormonal imbalances and weight gain. I think we often overlook the simple solutions such as improving sleep, stress reduction, eating more fruits and vegetables, and avoiding fast food as critical to weight loss. And eliminating sugared drinks and alcohol can go a long way toward reducing calories and normalizing insulin levels.

Lastly, stress is a highly overlooked factor in weight gain. Stress is associated with increased cortisol levels, which in turn have been associated with increased intake of hyperpalatable foods, which are foods high in salt, fat, and sugar. Our bodies may also metabolize food more slowly when under stress. In addition, stress and high cortisol levels are associated with increased amounts of belly fat, which increases the risk of heart disease and type 2 diabetes. Finally, high cortisol levels can reduce lean muscle mass, which lowers your metabolic rate or the number of calories you burn at rest. Stress can also reduce the quality and quantity of restful sleep.

**The CDC has expanded the risk for severe illness to include not just obese people, but overweight people as well. What proactive measures can overweight people take to prevent severe complications in the event they contract COVID-19?**

**A.A.:** There is no research in this area yet, but following CDC guidelines, I suggest eating the healthiest foods possible when sick, including fruits and vegetables; decreasing or eliminating added sugars; and continuing to include good food sources of vitamin D, as lower vitamin D levels have been found in more seriously ill patients with COVID.

Vitamin D levels are low in the U.S. in most populations, and five to 10 minutes of sun exposure on some or most days of the week to the arms, legs, or back without sunscreen will enable you to make enough of the vitamin if you are able in season. Good food sources of vitamin D include fatty fish (such as tuna, mackerel, and salmon), foods fortified with vitamin D (such as dairy products, soy milk, and cereals), cheese, and egg yolks. Avoiding unproven treatments such as ivermectin is critical, and watch for newer antiviral treatments that should be approved this year.

## What has been the effect of limited access to fitness and recreational facilities on overweight and obese people during this last year?

**A.A.:** A very large [recent study](#) showed that nearly as many people lost weight (35%) during the pandemic as gained weight (39%). The lack of fitness and recreational facility access may have affected people and had a negative effect on weight gain, but weight changes



## THE LAST WORD

## ("John-Henderson" continued from p. 3)

programs and traditional teachings that strengthen community cohesion for better health."

John-Henderson is the third CAIRHE investigator to receive a multiyear, multimillion-dollar NIH R01 grant since the center's founding in 2014. **Elizabeth Rink**, Ph.D., of the Department of Health and Human Development received hers in 2018, while **Monica Skewes**, Ph.D., of the Department of Psychology received her \$3.2 million grant [earlier this year](#). All three studies use a community-based participatory research approach founded on an equitable partnership between the MSU faculty member and tribal community colleagues.

Since joining MSU in 2016, John-Henderson also has received research support from [Montana INBRE](#) and the [American Indian/Alaska Native Clinical and Translational Research Program](#). Her new NIH-funded study will begin in early 2022.

## ("Research Highlights" continued from p. 4)

presented these draft images to the Warm Springs Culture and Heritage Committee for early feedback. In the coming months, the project will complete an entire set of materials for at least one food (to include the 3D digital image, a 3D polymer model, and educational materials) and will finalize the approach for testing these materials with focus groups. Dr. Tomayko has sought feedback on a project name from the CAB and other community members. At MSU, she recently began work with her CAIRHE mentor, **Suzanne Held**, Ph.D.

## ("Byker Shanks" continued from p. 7)

CAIRHE Director **Alex Adams**, M.D., Ph.D., congratulated Byker Shanks on her new post. "Carmen has been an important

research leader at CAIRHE in recent years, and we look forward to our continuing collaboration," Adams said. "Her opportunity to advance her career while still keeping in touch with us at CAIRHE and MSU is the best of both worlds."

Byker Shanks transitioned to her new post beginning in June. Her official start at the Swanson Center was August 6. Her multi-year CAIRHE study, the [UnProcessed Pantry Project](#), wrapped up in late August.

## ("Nutrition and Health" continued from p. 8)

may be more a product of how people responded to the pandemic—such as increased comfort eating due to stress and anxiety caused by the pandemic. So, how much of the COVID weight gain is due to lack of gym access is uncertain and, given my comments on exercise above, is perhaps much less of an issue than comfort eating. Many people turn to food in times of stress or anxiety.

## What is the impact of obesity on the economy and worker productivity?

**A.A.:** Obesity has a significant economic impact, as people who suffer from obesity have higher medical expenses and more chronic medical conditions. According to the CDC, obesity and its associated health problems have a significant economic impact on the U.S. health care system. This includes direct medical costs such as preventive, diagnostic, and treatment services. Indirect costs are related to higher rates of sickness and death and also include lost productivity. This includes employees being absent from work for obesity-related health reasons, decreased productivity while at work, and premature death and disability. According to the [National League of Cities](#), the annual costs of obesity are close to \$190 billion, or 21% of all medical spending annually in the U.S.

## Center for American Indian and Rural Health Equity (CAIRHE)

Health Sciences Building  
P.O. Box 173485  
Montana State University  
Bozeman, MT 59717-3485  
Web: [www.montana.edu/cairhe](http://www.montana.edu/cairhe)



## ADMINISTRATION

Alexandra Adams, M.D., Ph.D., *Director and Principal Investigator*  
James Burroughs, *Program Coordinator*  
Tel: (406) 994-4407; E-mail: [jburroughs@montana.edu](mailto:jburroughs@montana.edu)  
Maya Bronston, *Grants Management Specialist*  
Erik Adams, M.D., Ph.D., *Director, Health Education and Research Bus (HERB)*  
Selena Ahmed, Ph.D., *Director, Translational Biomarkers Core*  
Julia Barkelew, *Student Assistant*  
Nicole Carnegie, Ph.D., *Statistical Consultant*  
Stephen Martin, Ph.D., *Director, Translational Biomarkers Core Laboratory*  
Eliza Webber, MPH, *Research Project Manager*

## CAIRHE PROJECT LEADERS AND RESEARCH FACULTY

Lauren Davis, Ed.D., *Department of Education*  
Vernon Grant, Ph.D., *Center for American Indian and Rural Health Equity*  
Miranda Margetts, Ph.D., *Dept. of Land Resources and Environmental Sciences*  
Cara Palmer, Ph.D., *Department of Psychology*  
Brandon Scott, Ph.D., *Department of Psychology*  
Andreas Thorsen, Ph.D., *Jake Jabs College of Business and Entrepreneurship*

Maggie Thorsen, Ph.D., *Department of Sociology and Anthropology*  
Emily Tomayko, Ph.D., R.D., *Center for American Indian and Rural Health Equity*

## CAIRHE MENTORS

Jason Carter, Ph.D., *Vice President of Research, Econ. Develop., & Grad. Educ.*  
Suzanne Held, Ph.D., *Department of Health and Human Development*  
Ron June, Ph.D., *Department of Mechanical and Industrial Engineering*  
Elizabeth Rink, Ph.D., MSW, *Department of Health and Human Development*  
Sarah Shannon, Ph.D., RN, FAAN, *Dean, College of Nursing*  
Monica Skewes, Ph.D., *Department of Psychology*

## COMMUNITY RESEARCH ASSOCIATES

Emily Matt Salois, MSW  
Susan Higgins, M.S. (through Oct. 1)

## EXTERNAL ADVISORY COMMITTEE

Dennis Donovan, Ph.D., *Professor Emeritus, University of Washington*  
Donald Warne, M.D., MPH, *University of North Dakota*  
Jack Westfall, M.D., MPH, *Robert Graham Center*

*Research reported in this publication is supported by a Centers of Biomedical Research Excellence (COBRE) award from the National Institute of General Medical Sciences of the National Institutes of Health, award number P20GM104417. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.*

*Writer, Editor, Layout:* James Burroughs  
*Design:* Kristen Drumheller, MSU

Copyright © 2021 by the Center for American Indian and Rural Health Equity