Southwest Health Equity Research Collaborative (SHERC)

Julie A. Baldwin, PhD PI

Funded by NIMHD: U54MD012388
Today’s Agenda

I. Welcome
II. Overview of SHERC & RCMI Program
III. SHERC Accomplishments
IV. Description of Each Core
V. Services/Resources of Each Core
VI. Questions and Discussion
SHERC is an initiative of the Center for Health Equity Research (CHER), supported by funding from the National Institute on Minority Health and Health Disparities of the National Institutes of Health.

SHERC’s Overall Goal

Increase basic biomedical, clinical, social, and behavioral research at NAU to address health disparities and health equity among diverse populations of the Southwestern United States.
Develops and strengthens research infrastructure and fosters the next generation of researchers from underrepresented populations.

Provides grants to institutions that award doctoral degrees in the health professions or health-related sciences and have a historical and current commitment to serving students from underrepresented populations.

Currently, there are 20+ funded RCMI s throughout the US
- US Southwest RCMI s: NAU, UC Riverside, SDSU, UTEP
**NAU Vision:** NAU aims to be the nation’s preeminent engine of opportunity, vehicle of economic mobility, and driver of social impact by delivering equitable postsecondary value in Arizona and beyond.

**NAU Mission:** NAU transforms lives and enriches communities through high-quality academics and impactful scholarship, creative endeavors, and public service.
SHERC Investigators Making NAU History

Julie Baldwin
First AI/AN faculty at NAU to achieve Regents’ Professor status and to be elected to the National Academy of Medicine

Ricky Camplain
First NIH K01 funded at NAU

Amanda Hunter
First MOSAIC K99-R00 funded at NAU
## SHERC Research Projects (2017-2022)

### Pilot Research Projects

- High-throughput Characterization of Health Disparities Related to Viral Infections
- A Remote Heart Monitoring System for Early Prediction of AFib for Rural Population
- Multivalent Display of HPV Antigens using Self-Assembling Peptides
- Addressing Health Disparities in Childhood Obesity, One Summer at a Time
- Addressing Asthma Health Disparities through Diet-based Manipulation of the Gut Microbiome Airway Axis
- Characterization of Populations Linked to Neonatal Abstinence Syndrome: Infants with NAS and their mothers
- Novel Ionic Liquid Formulations to Combat Diabetic Foot Ulcer Infections
- Developing Room Temperature Preservation and Storage Strategies for Medicinally-relevant Biological Molecules
- ARORA: Using Augmented Reality to Gamify a Universal Social Emotional Learning Intervention in Low-infrastructure Environments
- Synergistic Toxicity of Depleted Uranium and UV radiation in a Humanized Zebrafish Model with Melanoma
- Physical Activity among Women Incarcerated in Jail
- Latino Fathers’ Stress and Their Children’s Obesity Risk
- Opioid Use Recovery Help in an Online User Support Environment (OUR HOUSE)
- Developing a Methodology for Exploring Health Inequities Tied to Wildfire Smoke
- Examining School Wellness in Underserved American Indian Communities
- Parents Taking Action to Improve Autism Services Access for Navajo Families in Northern Arizona
- Epidemiological Modeling to Predict Spatial Disparities in West Nile Virus Infection Risk in the Southwest
- Testing the Utility of Biocrust Restoration to Stabilize Soils and Reduce Coccidioides Abundance
- Navajo Children with and without Speech Sound Disorders
- Native Spirit: Development, Implementation, & Evaluation of a Culturally-grounded After-school Program

### Major Research Projects

- Do Pathogen Genotypes, Carriage, and Social Network Differences Lead to Health Disparities in MRSA/MSSA Infections?
- Elucidating Effects of Arsenic and Estrogen on Wound Healing
- Fibrilogenesis Mediated Phenotype Switching of Breast Cancer Cells
- Investigating Anti-Tumor Cytotoxicity of Reovirus Treated NK Cells for Cancer Therapy
- Defining Microbiological Drivers of Early Childhood Caries in Preschoolers in Southern Arizona
# SHERC Supplements (2017-2022)

## 9 supplements
- worth over **$3.1 million**

## 26 investigators
- 12 ESI & 10 UR faculty

## 3 COVID-19 supplements
- 8 faculty new to SHERC
- 6 UR faculty & 3 ESIs

<table>
<thead>
<tr>
<th>Supplements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Multilevel Examination of Health Equity among Ethnic and Rural ADRD Caregivers</td>
<td></td>
</tr>
<tr>
<td>Defining Microbiological Drivers of Early Childhood Caries in Preschoolers of Native Hawaiian and Other Pacific Islander Descent</td>
<td></td>
</tr>
<tr>
<td>Racial Differences in Transition of Care among Medicare Beneficiaries with Alzheimer’s Disease and Related Dementias after Hip Fracture</td>
<td></td>
</tr>
<tr>
<td>Disparities in Early Childhood Caries among Native Hawaiian and Other Pacific Islander Pre-school Aged Children (Diversity Supplement)</td>
<td></td>
</tr>
<tr>
<td>Rapid Assessment of Immediate and Potential Long-term Implications of Changing Telehealth Regulations for Substance Use Treatment in the Context of COVID-19</td>
<td></td>
</tr>
<tr>
<td>Building Trust and Awareness to Increase Arizona Native Nation Participation in the COVID-19 Vaccine Trials</td>
<td></td>
</tr>
<tr>
<td>Ending the HIV Epidemic in Rural Oklahoma (e-HERO)</td>
<td></td>
</tr>
<tr>
<td>The Baakalaaxdeete (To have good memory) Study of Risk and Protective Factors for ADRD among American Indians Across the Life Span</td>
<td></td>
</tr>
</tbody>
</table>
SHERC Affiliated Faculty Grant Success

- SHERC faculty submitted 311 external grants
- Awarded 78 grants worth $41.6 million
- NIH awards represent 40% of funded grants
- Over half of NIH awards include Early-Stage (58%) or Underrepresented (55%) investigators
SHERC Early-Stage & Underrepresented Investigators

98 SHERC affiliated faculty:
- 58% Early-Stage Investigators (ESIs)
- 20% Underrepresented* Investigators (URIs)

<table>
<thead>
<tr>
<th>Years</th>
<th>ESIs</th>
<th>URIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>2022</td>
<td>55</td>
<td>20</td>
</tr>
</tbody>
</table>

Five-fold increase in the number of ESIs
Ten-fold increase in the number of URIs

PPP Investigators
- 95% ESIs
- 35% URIs

ESIs
- 75% of SHERC publication authors
- 60% of SHERC external grant award investigators

URIs
- 47% of SHERC publication authors
- 31% of SHERC external grant award investigators

*Based on self-reported race/ethnicity
SHERC Community Partnerships & Health Equity Research

Dr. Ricky Camplain

2019
IDC Pilot Project Funded
Recruitment Core Research Start-up

2019
NIH K01 Funded 1st in NAU History

2022
SHERC Research Project

Coconino County Sheriff’s Office, Coconino County Detention Facility, and Yavapai County Detention Center

Community-Campus Partnerships (CCPS)

- 16 CCPS Projects
- 4 Grant Awards
- 7 Presentations
- 4 Manuscripts
- 1 University/Tribal Nation Data Agreement

- 81% Early-Stage Investigators (ESIs)
- 68% Continued to work with their community partners after CCPS project

Dr. Heather Williamson (NAU) and Russ Randall (Northern Arizona Community of Practice Transition Team), CCPS Partners
SHERC Student Engagement in Research

91 students engaged by SHERC*: (2017-2021)
• 17 Graduate Research Assistants
• 77 Trainees (Student wage positions)

23 cores/projects supported students
• 14 pilots
• 4 supplements
• 3 research projects
• 2 cores

*7 students worked on multiple projects or in multiple roles
Grant Renewal (2022-2027)

The SHERC program was renewed in September 2022!!!
Integrated Strategies & Innovations for Advancing Health Equity
## Core Goals (2022-2027)

<table>
<thead>
<tr>
<th>Cores</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>Increase capacity for an effective and sustainable RCMI (SHERC) and support SHERC investigators to address health disparities and advance health equity in AZ &amp; Southwest US.</td>
</tr>
<tr>
<td>Research Capacity</td>
<td>Provide methodological, statistical, and informatics support for SHERC investigators to maximize the quality and productivity of all research.</td>
</tr>
<tr>
<td>Investigator Development</td>
<td>Foster research career enhancement, with a special emphasis on UR faculty &amp; ESIs.</td>
</tr>
<tr>
<td>Community Engagement</td>
<td>Engage community-based orgs., leaders, policy experts, &amp; researchers in accountability, relationship building, action, &amp; reflection to enhance community assets.</td>
</tr>
<tr>
<td>Recruitment</td>
<td>Recruit 2 faculty members with established health equity research programs to NAU and support their research.</td>
</tr>
</tbody>
</table>
SHERC Research Projects (2022-2027)

Gender differences in physical activity opportunities and impacts while incarcerated

Evaluation of soluble fiber as a strategy to decrease asthma morbidity in underserved populations

SSCIMA: Integrating analysis of socio-economic sub-population dynamics to improve spatial models of infectious disease

SHERC Pilot Projects…applications for 2022-2023 are underway!
Aim 1: Continue to build and sustain the **leadership infrastructure** of SHERC at NAU

Aim 2: Strengthen and maintain an **effective collaborative** of community, institutional, organizational, and government partners

Aim 3: Develop and expand the ability of SHERC investigators to participate in **team science and translational approaches** in health equity research in Arizona and the southwestern US

Aim 4: Build and maintain an **interactive, comprehensive evaluation** feedback system to support data-driven decision making for program improvement and innovation
Research Capacity Core (RCC) Team

Cathy Propper, PhD
Professor, Biological Sciences
Role: Lead

Monica Lininger, PhD, LAT, ATC
Associate Professor, PT & Athletic Training
Role: Co-Lead; TAG-SC Director

Bob Trotter, II, PhD
Regents’ Professor Emeritus
Role: Co-Lead

Indrakshi Roy, PhD
Assistant Research Professor
Role: Biostatistician, Senior

Mark Remiker, MA
Role: Research Coordinator, Senior

Christine Kirby, MA
Role: Research Coordinator, Senior

Amy Gelatt, MPH
Role: Research Coordinator

Marcelle Coder, MA
Role: Assistant Director, CHER
Research Capacity Core: Aims (2022-2027)

Aim 1: Renovation of computational core facility

Aim 2: Ensure sustainability of Technical Assistance Group Service Center (TAG-SC)

Aim 3: Expand the Methodological Dissemination Program (MDP) by providing cutting-edge expertise, training, and collaborative opportunities for innovative research development with an emphasis on enhancing multidisciplinary team science approaches, data science and community-engaged research

Aim 4: Expand the Capacity Enhancement Program to support equipment, data, and computing resource acquisition and maintenance, and enhance core facility collaboration for health equity research
Technical Assistance Group Service Center (TAG-SC)

• Faculty and staff assist NAU investigators with health-related research

• Services include:
  o Qualitative or quantitative methods and analyses
  o REDCap assistance
  o Machine learning
  o Big data

• Brief consultation (1-2 hours) or up to 10 hours of assistance
Advanced Methodological Capacity

- NAU internal workshops (live and prerecorded)
- External workshops financial support
- Publicly available software training

NAU Internal Workshop Examples

<table>
<thead>
<tr>
<th>Social Network Analysis</th>
<th>Factor Analysis</th>
<th>R &amp; Animint2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community-Based Participatory Research</td>
<td>Power Analysis</td>
<td>SPSS &amp; SAS</td>
</tr>
<tr>
<td>Focus Groups</td>
<td>Structural Equation Modeling</td>
<td>Atlas &amp; NVivo</td>
</tr>
</tbody>
</table>

Research Capacity Core Fall 2022 Workshops

Register today! nau.edu/hr/erc-event-registration-form/

Tuesday, Sept. 27 | 1-3 p.m.
JMPing to the Next Level: Intermediate Statistical Analysis using the JMP Platform
Catherine Propper, PhD, Professor, Biological Sciences
This workshop will demonstrate some of the advanced features within the JMP statistical platform. We will cover how to set up your data for ANOVA and two-way ANOVA of Kruskal-Wallis Tests. Participants will need to view the introduction to JMP workshop (https://nau.edu/hr/erc/pre-recorded-workshops) prior to the upcoming intermediate level workshop. We will follow a similar workflow of hypothesis testing and interpreting the results to evaluate outcomes.

Tuesday, Oct. 4 | 1-11 a.m.
SPSS for Intermediate Level Users
Monica Lininger, PhD, Associate Professor, Athletic Training Program
Have you attended an introductory workshop on SPSS and need the next level of instruction? This interactive workshop will provide instruction for intermediate statistics including t-tests, ANOVA, chi-squares using SPSS. SPSS is available through NAI’s Information Technology Services. Participants will be asked to download the software prior to the workshop. Participants will also need to view the Introduction to SPSS workshop (https://nau.edu/hr/erc/pre-recorded-workshops) prior to the upcoming intermediate level workshop.

Tuesday, Oct. 11 | 11:30 a.m.–1 p.m.
Intro to Covidence for Systematic Review Management
Pamela Buzzard, Health Sciences Librarian, MLS, Clinic Library
Covidence is software designed for managing and streamlining your systematic reviews. It can perform the following functions to make review production more efficient: upload search results, screen abstracts and full text studies, create data collection, conduct risk of bias assessment, resolve disagreements, export data into Medline or Excel. In this session, librarians will show how the software could support your systematic review production and answer questions from researchers.

Thursday, Oct. 20 | 11 a.m.–1:30 p.m.
Basic Inferential Statistics Using R
Indrakshi Roy, PhD, Biostatistician, Center for Health Equity Research
This interactive workshop will provide instruction for inferential statistics including t-tests, ANOVA, chi-squares using R. R is a free statistical software; participants will be asked to download R software prior to the workshop. Participants will also need to view the Introduction to R workshop prior to this workshop (https://nau.edu/hr/erc/pre-recorded-workshops).

Thursday, Nov. 3 | 1-3 p.m.
Navigating the Mix of Mixed Methods Projects
Robert Trotter, PhD, Regents’ Professor, Anthropology
This workshop covers three models for mixed-methods research design. Model 1: Explaining the Numbers. This model presents a mixed methods design that focuses on a sequential quantitative-qualitative mixed methods process where the qualitative research is designed to be an enhancement and a translational process for understanding a hypothesis-driven research program. Model 2: Overview questions and tests and Model 3: Comparison of Designs. The workshop will present a longitudinal iterative mixed methods design that is valuable for creating and implementing program impact designs.
Data, Tools, and Infrastructure Support

- **Adams Remote Server**
  - Secure server with software for analysis and data storage
  - Access through the Regulatory Compliance Office

- **Secondary Datasets**
  - Medicare dataset
  - Publicly available health-related electronic databases

- **Laboratory Equipment Support**
  - Financial support for equipment repair and/or service contracts
  - Equipment used health equity related research.
Investigator Development Core (IDC) Team

Dirk de Heer, PhD, MPH
Professor, Department of Health Sciences
Role: Lead

Nicky Teufel-Shone, PhD
Professor, Department of Health Sciences
Role: Co-Lead

Christine Smith
Project Manager
Role: Organizational/Administrative Support

Taylor Lane, PhD
Research Scientist
Role: Scientific Support
Aim 1: Expand the Pilot Project Program (PPP) portfolio to support Early-Stage Investigators (ESIs) and Underrepresented (UR) faculty conducting health equity research in basic biomedical, behavioral, and clinical sciences with a focus on translational research and team science.

Aim 2: Expand and evaluate a newly developed Individualized Mentoring Program (IMP) to enhance development of ESIs and UR faculty conducting health equity research in basic biomedical, behavioral, and clinical sciences with a focus on translational research and team science.
Potential Funding Opportunities

Pilot Project Program

• Initial seed funding for Post-docs and ESIs to establish new impactful programs in health disparities research
  • $50K/year, up to 2 years
  • Call for Proposals sent out Fall

Administrative Supplements

• Need to be affiliated with SHERC to apply
  • When NIH makes available
Individualized Mentorship Program

Individualized Mentorship
• One-on-one meetings
• Building mentorship team
• Brief career development plan
• Training in team science, translational research, and mentorship
• Other resources, career enhancement activities, and professional development

Outcomes: productivity, career advancement, mentorship quality
Professional Development

- **Manuscript writing workshop** (NAU campus-wide)
  - Help faculty improve their writing productivity and quality

- **Manuscript writing support** (for health equity research)
  - Help faculty improve their writing productivity and quality
  - Review overall manuscript structure and content
  - Revise paragraph and sentence-level text
  - Improve copy-editing skills
  - Ensure manuscript appropriately addresses journal aims, scope, and editorial guidelines

- **External (non-NAU) faculty NIH proposal review** (for health equity research)

- **Mentor/Collaborator travel** (for SHERC funded and junior faculty)
Community Engagement Core (CEC) Team

Samantha Sabo, DrPH, MPH  
Associate Professor, Health Sciences  
Role: Lead

Nicky Teufel-Shone, PhD  
Professor, Health Sciences  
Role: Co-Lead

Heather Williamson, DrPH  
Associate Professor, Occupational Therapy  
Role: Co-Investigator

Carmenlita Chief, MPH  
Role: Research Coordinator, Senior

Mark Remiker, MA  
Role: Research Coordinator, Senior

Alexandra Samarron Longorio, RDN, MPH  
Role: Research Coordinator, Senior

Alex Olin  
Role: Public Health Student
Aim 1 (Accountability): Cultivate and maintain an active Community Expert Board (CEB) of multi-sectoral community stakeholders to advise overall Center and core operational activities.

Aim 2 (Relationships): Establish the Fairness First Network (FFN) to facilitate community-based dissemination and strategic planning for sustainable systems-level change.

Aim 3 (Action): Build and mobilize university and community researcher partnership capacity to enhance research relevance and dissemination of research findings.
Community-Engagement Resources

- **Community Campus Partnership Support**
  - Funding for community partner and NAU researcher to build partnership through meetings, conference attendance, etc.

- **Regional Health Equity Survey**
  - Survey of 200 northern AZ county-level leaders from various sectors who shared their knowledge, attitudes, and actions on health equity.

- **Community Partnership Video Series**
  - Features four community-university partnerships with a focus on the partnership development journey and a corresponding discussion guide.

- **Fairness First (FF) Campaign**
  - Opportunities for joint dialogue around regional topics of health equity, including Health Justice Futures, Fairness FirstX Talks, and FF blog
Recruitment Core

Julie Baldwin, PhD
Regents’ Professor, Health Sciences
SHERC Principal Investigator
Role: Lead
Recruitment Core Aims (2022-2027)

Aim 1: Recruit 2 mid-level or senior faculty members with established health equity research programs to fill gaps in institutional expertise, and to support the mission of SHERC

Aim 2: Support the new hires in establishing collaborative and independent health equity research programs at NAU and integrating them into SHERC as collaborators, mentors, and leaders
Contact Us

Julie A. Baldwin, PhD
SHERC Principal Investigator
julie.baldwin@nau.edu

Catherine Propper, PhD
Research Capacity Core Lead
catherine.propper@nau.edu

Dirk de Heer, PhD
Investigator Development Core Lead
dirk.deheer@nau.edu

Samantha Sabo, DrPH
Community Engagement Core Lead
samantha.sabo@nau.edu
Thank You!

Questions and Discussion