AHA RESEARCH IN FOCUS
FY 2022-2023

A RELENTLESS FORCE FOR ADDRESSING CRITICAL ISSUES

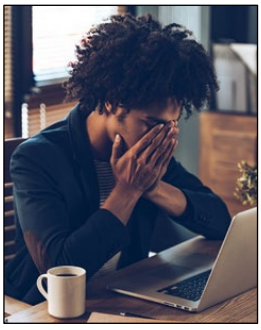
American Heart Association (AHA) Research Operations continued to focus on structural racism and health disparities and began to celebrate the AHA's Second Century of Science, while maintaining the organization's commitment to support investigator-initiated research excellence.

New Projects Strengthen AHA's Research Commitment to Address Structural Racism & Health Disparities

In November 2020, an AHA Presidential Advisory called for action across the association to address structural racism and health disparities and a $100 million commitment to the AHA's research portfolio through 2025 that was exceeded in the first year. AHA research programs continue to support investigators who identify as female and researchers from underrepresented racial and ethnic groups in science, and on new research initiatives focused on health equity and structural racism.

Strategically Focused Research Programs

- AHA Strategically Focused Research Network on Biologic Pathways of Chronic Psychosocial Stressors on Cardiovascular Health



Psychosocial stressors (PSS) have both a psychological and social component, such as situations such as work, relationship or marriage difficulties; living in isolation; lack of social support or basic resources; major life events; and being subjected to discrimination and systemic racism. is known to have adverse effects on cardiovascular health. Research teams will work collaboratively to better understand the impact of PSS on cardiovascular health.

Awardee teams in this network are at the University of California at Davis, Virginia Commonwealth University, and The Ohio State University. Their work will help the AHA achieve its 2024 Impact Goal to advance cardiovascular health for all, including identifying and removing structural racism and health disparities.

- Health Equity Research Network on Improving Access to Care and Other Health Inequities in Rural America

Teams of researchers received AHA grants to develop novel solutions to meaningfully impact rural health inequities. The health of rural Americans, including cardiovascular health, has been slipping compared to individuals living in urban areas. Access to care is one factor leading to this decline. This Health Equity Research Network (HERN) on Improving Access to Care and other Health Inequities in Rural America is part of the AHA's multi-pronged

unprecedented pledge to aggressively address social determinants of health while working to improve health equity for all communities.

Five targeted research projects began on July 1, 2023, and will run for four years:

- Implementation and Scale-up of the American Indian Structural Heart Disease Partnership (IN-STEP) at Children's Hospital Medical Center in Cincinnati, Ohio

- Developing and Testing Drone-Delivered AEDs for Cardiac Arrests In Rural America at Duke University School of Medicine in Durham, North Carolina

- Rural Community Peer Partnerships for Improving Methamphetamine-Associated Heart Failure Screening and Engagement at Oregon Health & Science University in Portland

- Implementation and Evaluation of Pharmacist-Based Management of Chronic Heart Failure for Rural Veterans (PHARM-HF) at VA Palo Alto Health Care System in Palo Alto, California

- GROW-RURAL: A Global to Rural Innovation Network to Adapt Evidence-Based Cardiovascular Interventions to Context at University of Washington School of Medicine in Seattle

AHA Programs to Support Diversity in the Biomedical Workforce

♥ Research Supplement to Promote Diversity in Science
Aligned with AHA's commitment to addressing inequities, the AHA Research Supplement to Promote Diversity in Science is a mechanism for AHA grant holders to support fellows from under-represented groups in science. In its first two years, the program supported 65 trainees over three years, with a total of $37.2 million.

♥ Supporting Undergraduate Research Experiences (SURE Scholars)
The AHA SURE program serves as a model for building multi-institutional relationships to provide research experiences that overcome institutional barriers and support students' interests, commitment, and ability to persist in science, technology, engineering, and math fields. The program supported 67 students over the past three summers with innovative ways to work around pandemic limitations.

♥ 2022-23 AHA/AMFDP Scholars
The AHA funds researchers through the Harold Amos Medical Faculty Development Program of The Robert Wood Johnson Foundation to support scholars with academic and research appointments in cardiology and stroke who come from historically disadvantaged backgrounds. Awardees commit to developing careers in academic medicine and serving as role models for students and faculty of similar backgrounds.

Robin Ortiz, MD, MS, FAAP, NYU Grossman School of Medicine Institute for Excellence in Health Equity
Exploring the Association Between the Caregiver-Child Relationship and Adult Cardiovascular Health: Implications for Positive Dyadic Experiences

This proposal is driven by the hypothesis that the power of the relationship of caregivers with their young children may, itself, serve as an agent of healthful lifestyle change for caregivers. Characterizing the caregiver-child relationship is a crucial first step to building a healthful lifestyle intervention that improves individual adult outcomes, with potential for indirect but profound (e.g., health and social) impacts at the child-level. This proposal will apply a mixed methods approach to phenotype adult child-caregivers with and without cardiovascular disease risk, characterize the role of child-caregiving in lifestyle behavior choices and change, and explore associations between caregiving and adult ideal cardiovascular health, and cardiovascular health change over the course of a 14-week lifestyle intervention.

Donald Lynch, MD MSCI , University of Cincinnati & Cincinnati Children's Hospital Medical Center
Targeting Thromboinflammation To Improve Outcomes Following Transcatheter Mitral Intervention

Mitral regurgitation (MR) affects 2.5% of the population and is the most common valvular heart disease in the U.S. In the absence of surgery, severe MR is associated with high mortality, frequent hospitalizations, and over $8 billion annual cost to the healthcare system. For the 50% of patients with severe MR for whom surgery is too risky, percutaneous mitral valve repair with the Mitraclip has recently been approved. Our preliminary data shows, for the first time, that the introduction of a Mitraclip may variably trigger an inflammatory response, thereby impacting patient outcomes. This study will provide novel mechanism-based strategies to improve outcomes following Mitraclip.

AHA's Second Century of Science Awards

As the American Heart Association approaches its 100-year anniversary, AHA leadership seeks novel approaches to address critical gaps in the health and well-being of all. To foster solutions to these gaps, the Board of Directors allocated additional special research funding in 2023 to support three innovative research initiatives.

- AHA's Second Century Implementation Science Award
  This program is supporting 19 early- and mid-career investigators proposing innovative implementation science studies that provide optimal approaches to improving public health aligned with the AHA's mission.

  Implementation research is scientific inquiry into the act of carrying an intention into effect, which in health research can be policies, programs, or individual practices (collectively called interventions).

- AHA's Second Century Early Faculty Independence Award
  This funding is supporting highly promising beginning investigators who are addressing one of several areas of critical, emerging priorities:
  - Technology-driven health care and diagnostics
  - Novel and emerging therapeutics

- Environmental impacts on health
- Research and solutions for issues affecting aging populations and the shrinking healthcare workforce

♥ AHA's Second Century Clinical Fellow Research Education Program
To foster research, research-related opportunities, and optimal implementation of practice guidelines for clinical fellows, this program is enabling cardiology and select neurology fellows to attend AHA's Scientific Sessions or International Stroke Conference. The fellows will also gain training and experience integral to development of research acumen. Funds were awarded to 59 program directors to support up to five clinical fellows each year for a three-year period.

Recognizing Research Excellence & Ambassadorship

Two new AHA Merit Award recipients join a group of distinguished researchers who have received this award since 2016. The funding is for exceptional scientists with established success track records, who propose novel approaches to major cardiovascular and cerebrovascular disease research challenges that can produce unusually high impact. Awardees must also have a history of AHA ambassadorship.

Alan Daugherty, Ph.D., D.Sc., FAHA
Therapeutic Advances in Aortopathies

Dr. Daugherty's research will focus on identifying and testing the effects of new drugs to treat diseases of the aorta, the largest blood vessel in the body. "While there have been major advancements in surgery to repair damaged aortas, there is an obvious desire to replace these complicated operations with a medication-based approach," Daugherty said. "Our work will evaluate whether approaches using existing and new medications will slow the aortic expansion progression. We will explore novel avenues of treatment to provide better options for the many individuals afflicted with these diseases." He is the associate vice president for research, director of the Saha Cardiovascular Research Center, and chair of physiology at the University of Kentucky College of Medicine.

Anthony Rosenzweig, M.D., FAHA
Exercise Pathways Promoting Repair and Recovery After Ischemic Injury in Hearts and Brains

Dr. Rosenzweig will explore how exercise can heal heart muscle and brain tissue after a heart attack or stroke. "Recently, we found that exercise dramatically enhances the birth of new heart muscle cells in the adult heart, and prior work by other groups demonstrated a similar effect of exercise in the adult brain," Rosenzweig said. "Understanding how exercise does this and learning whether these insights can be used therapeutically could lead to new approaches promoting recovery after heart attack and stroke." He is the director of the Institute for Heart and Brain Health at the University of Michigan Medical School.

For more information about AHA's research program,
please visit https://www.professional.heart.org/research