Strong Heart Study Newsletter

Investigating Cardiovascular Disease in American Indians

Updates for Community Members and Strong Heart Study Participants

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Recent Study Results

Gene and Brain Injury

A gene called APOE ε4 is reported as a strong risk factor of brain injury and the decrease of cognitive function caused by blood vessel diseases such as heart disease and stroke (also called vascular brain injury) in other U.S. populations. Those results could guide personalized prevention and management of vascular brain injury. However, this association has not been studied in Strong Heart Study communities. After months of research and data analyses, recently, Dr. Hayes and team found that, in SHS participants, the APOE ε4 gene did not cause changes in the brain and brain blood vessels over time. This indicates that the effect of APOE ε4 gene varies across different ethnic groups and the prevention and management strategy might differ in SHS participants. Dr. Steven Verney of the study team is a member of the *Tsimshian nation*.

If you want to know more about the study results, please scan the QR code to access the article.

Air Quality in the Strong Heart Study Communities

Air quality affects many parts of a human body that include lung and heart. There have been no reports on air quality in the SHS communities. Dr. Jada Brooks (a member of *the Lumbee Tribe of North Carolina*) and team used Strong Heart Study (Phases 4 and 5) and air quality data from the midwestern and southwestern United States to examine air pollution levels in each region and by year and season. They found air pollution levels were higher in the Southwest than in the Midwest. Levels differed by season in both regions. In the Midwest, air pollution levels were higher in the summer than in winter. Levels in the Southwest generally stayed constant. These findings help describe air quality in the Strong Heart Study communities. Public health researchers and policymakers can use this information to reduce air pollution and its related health problems.

If you want to know more about the study results, please scan the QR code to access the article.

A Farewell to Dr. Barbara Howard, Native Research Pioneer

With heavy hearts, the Strong Heart Study team shares the sad news of the passing of Dr. Barbara V. Howard, who developed the Strong Heart Study (SHS), served as the founding Principal Investigator for our Arizona Field Center, and also as Chair of the national SHS Steering Committee.

Barbara was a guiding force whose vision, dedication, and compassion shaped more than three decades of research in partnership with Native and tribal communities, not just in Arizona, but across the United States. She was a pioneer in the cardiovascular research field among Native American people and improved the health of our native communities in tangible ways.

Many people knew and loved Dr. Howard and will continue to remember her sincere efforts to establish longstanding relationships with the Native American communities here in the Southwest.

While launching the SHS here, Barbara also served as President of MedStar Health Research Institute and Professor of Medicine at Georgetown University. Indeed, she helped launch the partnership between Georgetown and MedStar and grew the research mission across the MedStar Health system. **(Continue to next page)**

In addition to the SHS and the Stop Atherosclerosis in Native Diabetics (SANDS) clinical trial, she also led other large studies to reduce risk, prevent, and improve outcomes in heart disease and diabetes in partnership with Alaska Natives and Native Hawaiians, as well as the Women's Health Initiative (WHI), a major study of post-menopausal women. Dr. Howard also served as the chair of several prestigious committees and sat on expert panels studying health and nutrition.

When Barbara spoke about her research, her voice amplified the energy and passion she had for the people in the communities where she worked. Strongly motivated and enthusiastic, her main goal was always to empower communities and improve health. In addition, she worked to attract more American Indian scientists and investigators into leadership positions. When asked what she enjoyed doing outside of work, she did not hesitate to say that she loved spending time with her family. She spoke affectionately about her three children and six grandchildren. It is evident that family played a strong role in her life. In addition to spending time with her family, she also spent her free time boating, walking, and reading. She is remembered for her tenacity, commitment to discovery, energy, and heart.

"Dr. Barbara Howard was an incredible researcher, humanitarian, and an even more remarkable person—passionate, energetic, and truly inspiring. She believed the best in everyone and that anything was possible. She believed in me before I believed in myself, helping to set the trajectory of my professional life. Rest In Peace. Your unwavering commitment made an everlasting difference in this world and the lives of everyone that knew you." **- Damon Davis, BSRN, Former SANDS Coordinator - SHS**

Dr. Howard was not just an extraordinary cardiovascular and diabetes epidemiologist, but a true pioneer in demonstrating the interconnectedness of diet, obesity, diabetes, and coronary heart disease. Her landmark efforts in the SHS, the WHI, and the SANDS clinical trial were truly practice-changing by focusing on cardiovascular disease, its risk factors, and prevention in two historically understudied populations: women and American Indians. Prior to her work, it was widely believed that American Indians were biologically protected from heart disease; Dr. Howard and the Strong Heart Study decisively disproved this assumption, leading to better outcomes from better prevention and care.

"Dr. Barbara Howard was not only the director who hired me in 1989. I worked for her until 2005. Dr. Howard became a close friend of mine who taught me so many good things about working in Native American communities in a respectful way. She was a treasure in so many ways. Her true nature was to nurture, teach, mentor, and hire within the communities we served. Dr. Howard had a way with people, and she believed in them. Very few people had what Dr. Howard had; she was smart and had heart. She truly took the time to understand the communities she worked with and spent the time connecting and learning about their ways. She had a way of making people feel valued, important, and heard. I don't think any of us who worked with Dr. Howard in the early years knew how deep and Important what she so diligently started would influence and change research and the lives of so many people today. She will be missed and remembered by all." **-Betty (Jarvis) Herron, BSRN, Former AZ Field Office Manager - SHS 1989-2005**

"Our Strong Heart Study team was heartbroken to hear of Dr. Barbara Howard's passing. She was a true, supportive, energetic leader of our SHS Team! She made huge efforts focusing on cardiovascular disease and its risk factors in Native Americans, which is very important to us, being Native Americans ourselves. Collectively, we have had the pleasure of knowing and working with Dr. Howard for over 25 years at the Strong Heart Study. Dr. Howard will be greatly missed." **-The Arizona Strong Heart Study Team**

Just as importantly, Dr. Howard recruited and mentored a generation of researchers across many scientific and medical disciplines from around the world and from groups that had historically been excluded from research to build upon the foundation she established in pursuit of health equity.

"I was already an established scientist when Barbara recruited me 20 years ago to lead the central lab for the SHS and to assist her in our Arizona Center. With generosity and patience, she taught me the enormous good that could result from careful research done in respectful partnership with Native communities who had not had the opportunity to benefit from cutting-edge research in the past. I was honored that she trained and then trusted me to lead the SHS in Arizona after her retirement, while generously continuing to guide me with her wisdom. I honor her gift to me by continuing the research needed to defeat heart disease and diabetes among Native Americans and by mentoring my younger research colleagues to continue that work until we succeed."- **Jason Umans, MD, PhD, SHS Arizona Center**

In lieu of flowers, Barbara's loving husband, Jim, their children Jeffrey, Sandra, and Laura, and their spouses, and six grandchildren request gifts to be made to the Barbara V. Howard Endowed Fund, which will support junior investigators from under represented groups.

(Use the QR Code to donate)

Until we meet again
May the great spirit make sunrise in your heart, and may your moccasins make tracks in many snows yet to come……An Indian Fairwell

A principled leader, a pioneer of community based participating research, and a beloved mentor: remembering Dr. Barbara Howard

It was a shock to hear of Dr. Barbara Howard's passing. She was full of energy. It is hard to believe that she is gone. Yet, in many ways, she remains with me. Whenever I encounter challenges, I am reminded that I have extraordinary role models to follow.

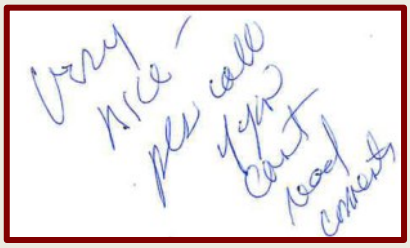
Barbara was a principled leader. As one of the three founding Principal Investigators (PI) of the Strong Heart Study, she led through vision, service, courage, and personal example. She worked tirelessly, but always with remarkable efficiency and purpose.

Barbara was also a pioneer in community-based participatory research (CBPR). From the very beginning of the SHS, Barbara and the other PI established guiding principles that have had a lasting impact on population research in American Indian communities. Most SHS field staff were hired from local tribal nations, helping to build research capacity within those communities.

Many early-career American Indian investigators whom Barbara mentored have gone on to become leading scientists in their fields.

On a personal level, Barbara was a beloved mentor. I am a first-generation immigrant, and English is my second language. My first SHS manuscript was reviewed and revised by Barbara at least ten times. This was in the late 1990s, when communication relied on regular mails. Time after time, I would open an envelope and saw Barbara's handwritten comments. We worked back and forth until it was finally ready.

I have kept some of Barbara's handwritten comments (below). They remind me how much care and efforts she invested in mentoring each early-career investigator, including me. I am lucky to be mentored by Barbara. I hope to pay it forward to the next generations of researchers. **(Ying)**



Teaching Indigenous Health in Medical School Curricula

On May 20, 2026, the New England Journal of Medicine published an article about the Indian Health Pathway (IHP), an extracurricular program at the University of Washington School of Medicine (UWSOM) designed for medical students to care for Indigenous populations. The program focuses on the historical determinants of health and strength-based approaches to care in Indigenous communities. UWSOM serves the Washington, Wyoming, Alaska, Montana, and Idaho (WWAMI) region, which is home to around 270 federally recognized tribal nations. Most IHP students come from the WWAMI region and graduate with local service obligations. The program helps inform their medical careers and serves as a recruitment pathway for rural community clinics.

An essential component of the IHP is Tribal outreach and relationship building, with a strong emphasis on Tribal sovereignty. The program also includes extensive community-service activities, such as hosting an elders' dinner, operating blood-pressure screening booths at local powwow, and mentoring elementary school students from local reservations who are interested in science and medicine. The authors call for sustained institutional commitment, adequate resources, and systemic change so that future physicians can better serve Indigenous patients and help reduce longstanding disparities in health outcomes.

This article was co-authored by Jason Deen M.D., Co-Principal Investigator of the Strong Heart Study Arizona Field Center and a descendent of the Blackfeet Nation.

Please scan the QR code to access the article.

How the CATNAP study can help you

Did you know that sleep apnea is more than snoring? It is a serious condition often misunderstood in American Indian populations. It occurs when throat muscles relax and block the airway (obstructive sleep apnea, OSA) or when the brain fails to signal breathing muscles (central sleep apnea, CSA). Symptoms include snoring, daytime sleepiness, dry mouth, breathing pauses, and mood changes, along with increased risks of heart disease, stroke, type 2 diabetes, dementia, high blood pressure, and accidents caused by excessive sleepiness.

The Cognition After Obstructive Sleep Apnea Treatment Among Native American People (CATNAP) study follows a two-step process:

1) To screen individuals for OSA and cognitive impairment
2) Conduct randomized trials with CPAP devices to improve quality of sleep.

The CATNAP study has had a significant impact on participants, as illustrated by Denise Casillas. A highly educated professional, she became the sole caretaker for her aging parents and, after their passing, realized she had "slowly stopped taking care of me." This led to her health journey, starting with an in-patient sleep apnea test where her doctor warned of potential health problems if she didn't address her condition. Initially struggling with a claustrophobic mask, the durable medical equipment team gave her three more options to test and try, until she found one that allowed her to sleep soundly and wake refreshed.

Living with her young Takoja (grandchildren), she gently taught them that the equipment was part of Unci's medicine. Initially, they tried on her masks but came to understand it as part of how Unci honors her health.

Today, using her CPAP is a way of life. Though Denise initially questioned whether the technology fit her Lakota beliefs, she grew comfortable with it and, as her sleep improved, felt more alert, active, and better able to participate in community activities. She sees focusing less on the equipment and more on self-care as a very Lakota concept and is grateful for how the technology has improved her well-being. She also emphasizes that snoring is a health issue, not a personal failure.

The CATNAP study is being conducted in the Dakota SHS Center.

If you're interested to learn more. Call: 605-964-1260 and ask for Marcia, Karen or Lyndsey. Or 605-867-2486 and ask for Tracy, Leslie or Donnell

WELCOME KIMBERLY COPELAND

Hello, I am Kimberly Copeland. I am the new Clinical Research Nurse Manager for the Lawton and Anadarko field offices. I have always worked in a service-oriented field throughout my 22 years with the State of Oklahoma. I decided to make a change in my career path and began nursing school in 2016. I obtained my BSN in May 2018 and passed the Oklahoma Board of Nursing in July 2018 as a Registered Nurse. I have experience in medical-surgical, long-term care, and geriatric psychology.

I have been married for a little over 9 years to the love of my life. We enjoy traveling, attending sporting events, and spending lots of time with our seven wonderful grandchildren. I also assist my husband in coaching a co-ed T-ball team (Tiny Tornadoes) for children aged 3-6 years (several of whom are my grandchildren). I am a Co-Founder and Volunteer for the Stephens County Nurses' Honor Guard. We provide a service (similar to military honors) to honor a nurse at the celebration of life and/or funeral service.

I joined the Strong Heart Study in November 2025. I am currently learning about all aspects of the program. I started working on community engagements in January and am looking forward to many more of them. I am extremely excited to be part of this team and am excited to see where the future of the Strong Heart Study takes us.

FOOD IS MEDICINE

Navajo Squash Blossom Soup

Ingredients:

3 cups Water
1 cup Navajo White Corn
1 Tbsp Chicken Base, no msg
½ cups Diced Potatoes
½ cups Diced Zucchini Squash
4 Large Squash Blossoms, washed & cut in strips
¼ cups Milk
1 Tbsp Butter
1/8 cups Chopped fresh green onions
½ tsp Parsley
¼ tsp Salt
¼ tsp Pepper

Instructions:

Bring water to boil in medium size pot, add butter and chicken base.

After it dissolves add corn, onions, potatoes, zucchini and seasonings.

Boil at medium heat for about 20 minutes.

Add squash blossoms, simmer for 15 minutes.

Courtesy of the https://www.firstnations.org/recipes/

Green Tomato Salsa: courtesy of the Osage Community Supported Agriculture Study

Makes about 2 cups

Ingredients

1 pound green tomatoes
1-2 jalapeños (for a milder salsa, remove seeds and membranes)
½ cup chopped white onion
¼ cup fresh cilantro
¼ cup lime juice
1 teaspoon salt, to taste

Directions

1. Place green tomatoes in a large saucepan and cover with 1-2 inches of water. Bring to a boil, then reduce heat and simmer for 8-10 minutes, until the tomatillos have softened.
2. Drain and place in a blender. Add the jalapeños, onion, cilantro, lime juice, and salt. Blend until smooth. Store in an airtight container in the refrigerator for up to 1 week.

To Freeze: Allow the salsa to cool completely and then transfer into freezer-safe Ziploc bags. Freeze for up to 6 months. To save storage space, place bags flat in the freezer.

Chef's notes: Again, another favorite on this recipe. If you like to add a smoky and spicy note, we recommend roasting tomatillos over fire to char and blister. The best part of tomatillos is that you can then puree the entire thing to retain great roasted flavor. Also try adding diced green chilies (fresh or canned) or blister over fire, then sweat for five to ten minutes in sealed container, the remove the skin, dice and add to step two. If using fresh chilies and roasting, we recommend anaheim or poblano peppers.

Onion: ᒪᐱᐧᔨᐱᐧᓂᐢ

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Biomedical Research Institute

The Biomedical Research Institute (BRI) in Rockville, Maryland, is a non-profit scientific organization that is home to the BRI Biorepository and the Schistosomiasis Resource Center. This past year, 2025, the University of Oklahoma, BRI, and MedStar worked together to relocate 41 -80°C freezers of clinical samples, for the Strong Heart Study, to BRI from the MedStar biorepository.

BRI has been in operation for over 75 years and has a long-standing history of supporting biomedical research aimed at improving the health of under-resourced communities. The cold-storage facility holds over 300 ultra-low freezers that are super cold: -80 degrees Celsius (-112 degrees Fahrenheit)! This temperature is needed to freeze and store human clinical samples such as blood, serum, and urine.

The freezers hold over 800,000 biospecimens from volunteer participants of the SHS, going back to 1989. Three additional freezers are 'back-up' units that are on standby in case a freezer holding the precious SHS biospecimens malfunctions.

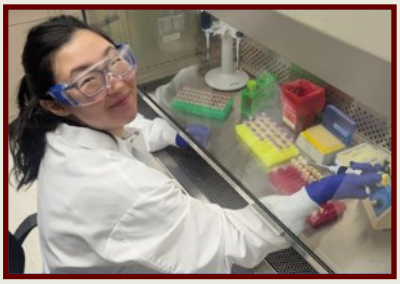
BRI partners with the SHS Steering Committee to ensure the integrity, security, and release of the SHS biospecimen collection in accordance with approved, study-specific requirements. To support this effort, BRI has committed to:

Secure, stable, long-term preservation of SHS biospecimens in ultra-cold, temperature-controlled conditions.

Establish a Laboratory Information Management System (LIMS), which is a database that tracks where specific samples can be found in the freezer and how much of the sample can be released for scientists to test and analyze.

Develop protocol standards for sample shipping, tracking, and receiving.

BRI ensures the highest standards of biorepository operations. Our efforts are aimed at supporting the long-term stewardship of SHS biospecimens and enabling the success of current and future studies aligned with the Strong Heart Study's mission.



A BRI biorepository technician preparing Biospecimens for shipping.