



2025
**Milestones
in Research**

Innovation & Impact

Banner Research drives medical breakthroughs through 1,300 clinical and translational studies, approximately 400 team members, and strategic partnerships with leading institutions around the world. In 2025, our research contributions advanced multiple therapies toward FDA approval across Alzheimer's disease, cardiology and oncology.

Banner Research is conducting transformative research that is reshaping patient care.

In partnership with the University of Arizona, for example, we're building a research accelerator to significantly reduce clinical trial initiation time — dramatically expediting patient access to experimental treatments and ensuring Arizona families benefit from medical innovations years before they reach the broader market.

The examples in this report represent just a few of the breakthroughs we're achieving through expertise, collaboration and dedication. This integrated approach to research — spanning prevention, diagnosis and treatment — positions Banner Research as a national leader in transforming medical discovery into meaningful clinical impact.

Mission

We leverage our scale, expertise, and partnerships to drive research innovations that improve health locally and globally.

Vision

By 2030, Banner Research will be a national leader in efficient and innovative biomedical and clinical research.

Message from Dr. Corey Casper, Chief Research Officer

At Banner Health, we are deeply committed to advancing patient care through the power of clinical research. Every day, our research efforts propel the most promising medical innovations from the laboratory directly to the bedside, helping deliver better treatments and pioneer new prevention strategies that empower people to live longer, healthier lives, not only at Banner but around the world.

With a reach that impacts 1.2 million individuals each year, Banner Health stands as one of America's largest and most influential health care delivery systems. Our scale and expertise position us uniquely to answer critical questions about health and wellness that only large, diverse populations can address with precision and accuracy.

We have forged exceptional collaborations with leading institutions such as the University of Arizona and MD Anderson Cancer Center, as well as with government agencies and companies developing tomorrow's medicines, devices, and digital health technologies. Together with our world-class clinicians and dedicated researchers, we have built the foundation for transformative discoveries that can truly change lives.

The progress we've made over the past year has been extraordinary:

- Our cardiovascular team pioneered minimally invasive treatments for valvular heart disease and arrhythmias, offering patients new options.
- Banner MD Anderson Cancer Center clinicians devised advanced methods to target solid tumors, enhancing the effectiveness of immunotherapy and chemotherapy.
- At Banner Alzheimer's Institute, researchers improved blood tests for diagnosing Alzheimer's and related dementias, enabling some of the first population estimates of dementia and highlighting the need for prevention trials.

Looking forward, Banner Research is poised to turn discovery into healing — ensuring every advance we achieve today becomes tomorrow's standard of care, saving lives and shaping the future of health care.



2025 Key Statistics

8 Banner-led NIH grants for Banner Alzheimer's Institute & Banner Sun Health Research Institute, totaling over \$26 million in funds obligated to date



\$8.5 million

in philanthropic investments in Banner Alzheimer's Institute & Banner Sun Health Research Institute

Banner
Research

Experts co-authored more than

315 publications



\$80.5 million in revenue



Brain and Body Donation Program shared

16,389

samples with scientific groups in 10 countries and across 32 U.S. states



371 team members



The Fluid Biomarker Program conducted

158,470

tests for collaborators



1,300

clinical and translational research studies

38 new grant awards totaling

\$25.6 million



Leading breakthroughs in brain health and neurological care

Banner Health is an international leader in researching and discovering new therapies for neurological disorders.



Alzheimer's Disease & Neurodegenerative Disorders

Banner Alzheimer's Institute and Banner Sun Health Research Institute are revolutionizing how we detect, treat and prevent Alzheimer's disease and related disorders, transforming laboratory discoveries into tangible hope through groundbreaking clinical trials, biomarker research and global collaborations.

Advancing Prevention Therapies

- We continue to be a world leader in helping to develop the first treatments to prevent memory and thinking problems in cognitively unimpaired individuals.
- The Banner Alzheimer's Prevention Initiative launched a landmark \$74.5 million NIH-funded Colombia study (co-led with the University of Antioquia) to test whether combination medications can clear and prevent amyloid plaques in people at exceptionally high genetic risk for early-onset Alzheimer's, with enrollment beginning in mid-2026.
- As part of a \$32 million NIH grant supporting several research initiatives, we completed a groundbreaking clinical trial with over 600 participants nationwide, comparing how people understand their Alzheimer's test results through traditional doctor visits versus new online tools. This partnership with the University of Pennsylvania will make brain health information more accessible and empower informed decisions about care.

Leading Blood Test Breakthroughs

- The Fluid Biomarker Program at Banner Sun Health represents one of the few facilities worldwide where biomarker blood tests are both developed and engineered for large-scale deployment, with the goal of making these tests as simple as a finger prick.
The program is developing pioneering plasma spot assays and working to create the first blood tests for Lewy body dementia and Chronic Traumatic Encephalopathy (CTE), paving the way for life-changing diagnostics in communities everywhere.

- Banner Alzheimer's is co-leading a \$15.3 million NIH study to diagnose CTE in living patients for the first time — a progressive brain disease currently only detectable after death — using blood biomarkers and brain imaging to help former athletes and others at risk.
- In studies published in *Nature* and *Nature Medicine* led by Dr. Nicholas Ashton, researchers used blood tests to show Alzheimer's is more common than previously thought in older adults and demonstrated that finger-prick tests can be collected at home and mailed to labs without special handling, opening new possibilities for worldwide research and faster progress toward detection and treatment.

Understanding Risk Factors & Disease Causes

- The NIH awarded Banner and a team of research partners a landmark \$21.6 million grant to explore how high blood pressure — one of the biggest modifiable risk factors for dementia — may contribute to brain disease, seeking critical clues about who is most at risk for Alzheimer's and related diseases.
This first-of-its-kind study will analyze nearly 40,000 frozen blood samples using biomarker research to enable more personalized approaches to managing blood pressure and reducing dementia risk, while creating one of the largest public databases of its kind to accelerate future discoveries.
- Researchers at Banner and Arizona State University discovered a unique subtype of Alzheimer's that may affect 25% to 45% of people with the condition — linked to a chronic intestinal infection caused by cytomegalovirus. The team is developing a blood test to identify individuals with this infection and evaluating whether existing antiviral drugs could treat or prevent this form of Alzheimer's.

Banner neuroscience research drives clinical innovations with a focus on real-world applications for neurological conditions.

Additional Neuroscience Research

Spinal Cord Injury Discoveries

- Banner and University of Arizona researchers finished developing two novel devices for treating acute spinal cord injury, anticipated to enter first-in-human trials at Banner – University Medical Center Phoenix in 2026. Dr. Nicholas Theodore, physician executive of Banner’s neuroscience service line and Professor and Chairman of Neurosurgery at the University of Arizona College of Medicine – Phoenix, led the research. The ACMI catheter monitors pressure, temperature and biomarkers, while the MUSIC device measures spinal cord blood flow and delivers therapeutic stimulation.
- Through our partnership with Johns Hopkins University, we’re developing a unique blood test for acute spinal cord injury that has the potential to revolutionize early detection and treatment planning, enabling clinicians to make faster, more informed decisions during the critical window following injury.

Artificial Intelligence for Spinal Disorders

- Banner researchers made substantial progress in building a robust AI platform designed to enhance diagnosing and treating spinal disorders, leveraging advanced algorithms to support clinical decision-making, improve diagnostic accuracy and personalize treatment approaches for patients with complex spinal conditions.



Bringing advanced cancer research to our communities



Banner MD Anderson Cancer Center

Banner MD Anderson Cancer Center is elevating precision immunotherapy through promising clinical trials in some of oncology's most challenging areas. Through our strategic partnership with MD Anderson Cancer Center in Houston, we're bringing leading cancer research to patients through 162 active clinical trials in Arizona and Northern Colorado.

Precision Diagnostics & Personalized Immunotherapy

- We're conducting an innovative trial using sophisticated imaging and fluid analysis to improve diagnosis of pancreatic cystic lesions and determine whether they require monitoring or early surgical intervention.
- Banner MD Anderson is one of 20 sites nationwide testing a personalized immunotherapy for glioblastoma — a deadly brain cancer — created uniquely for each patient. Early results showed 88% of patients alive at one year, compared to 60% with standard treatment.
- Banner MD Anderson is becoming an international leader in localized approaches to solid tumors that offer minimal toxicity and high response rates. In one dramatic example, a 21-year-old man with advanced esophageal cancer saw his tumor shrink and become responsive to immune therapies after a minimally invasive localized treatment.

Treatments for Advanced Cancers

- A clinical trial at Banner MD Anderson found that a genetically engineered virus combined with immunotherapy significantly shrank tumors in one in three patients with treatment-resistant melanoma. Notably, 15% experienced complete remission, and more than half remained cancer-free two years later.
- After 40 years of research, we're leading Arizona in a global trial testing targeted therapy for nearly all patients with metastatic pancreatic cancer — one of the deadliest cancers. *Nature Medicine* named it one of "11 Clinical Trials that Will Shape Medicine in 2026."

Expanding Access to Clinical Trials

- We expanded oncology clinical trial capabilities to Banner – University Medical Center Phoenix and Banner Thunderbird Medical Center, broadening patient access to cancer research across the region.

University of Arizona Cancer Center Partnership

Banner Health's collaboration with the University of Arizona is driving innovation in cancer detection and treatment through 231 active trials, creating breakthrough technologies that transform early diagnosis and improve outcomes.

Revolutionary Early Detection for Ovarian Cancer

- A groundbreaking Banner and University of Arizona collaboration is bringing the first reliable early detection method for ovarian cancer closer to reality through the falloscope — the first endoscope capable of imaging and collecting cells from fallopian tubes. Ovarian cancer's five-year survival rate is 92% when caught early but drops to 32% after metastasis, yet only a quarter of cases are diagnosed before spreading.

Next-Generation Breast Cancer Screening

- Researchers at the University of Arizona Cancer Center are using a \$3.3 million National Cancer Institute grant to test an advanced breast CT system at Banner – University Medicine Breast Imaging Center in Tucson that eliminates physical compression, creates high-resolution 3D images in 10 seconds per breast, and significantly improves detection in women with dense breasts.



Children's Oncology Group

Banner Health supports the National Cancer Institute-funded Children's Oncology Group, the world's largest organization devoted exclusively to childhood and adolescent cancer research.

Banner Children's at Desert in Mesa and the Banner/University of Arizona program at Diamond Children's Medical Center in Tucson offer comprehensive research studies for children with various cancer diagnoses — from leukemia and lymphoma to osteosarcoma and central nervous system tumors.

In 2026, we're expanding these life-saving research services to Banner Thunderbird Medical Center, furthering our mission to make excellent health care more accessible to children and families throughout the state.



Trailblazing life-saving treatments for heart disease

Banner Health's cardiology research program is establishing Phoenix as a premier academic center for cardiovascular innovation. With over 70 active clinical trials and a strategic focus on first-in-U.S. and first-in-human studies, Banner is accelerating treatments for complex heart conditions and positioning itself as a trusted partner in life-saving cardiovascular research.

Leading Minimally Invasive Heart Valve Treatment

- In a major milestone, Dr. Paul Sorajja and Banner physicians pioneered the first FDA-approved device for severe mitral annular calcification — a heart valve condition affecting up to 30% of elderly Americans that previously required open-heart surgery. This spares patients from major surgery, with nearly 90% of patients experiencing dramatic improvements in symptoms and quality of life. Dr. Sorajja is a Banner leader in interventional cardiology and Professor of Medicine at the University of Arizona College of Medicine – Phoenix.
- We're the first in the U.S. to participate in Valcare's AMEND study, testing a device that repairs leaky mitral valves through a catheter procedure instead of open-heart surgery — offering new hope for patients with severe valve problems who can't undergo traditional open-heart surgery, with faster recovery and potential to go home the next day.

Revolutionary Treatment for Dangerous Heart Rhythms

- As one of four U.S. centers in the CIRCAE study, Banner enrolled 9 of 20 patients in the first FDA study using ultra-cold cryoablation to treat complex heart rhythm disorders. By streamlining approval from six to twelve months down to two to three months, patients gain faster access to next-generation treatments through this partnership with the University of Arizona.

// **This is what medicine is all about – taking something that seemed impossible and making it possible. We're giving patients and families hope where there wasn't any before.** //

— Dr. Paul Sorajja, Banner leader in interventional cardiology and Professor of Medicine, University of Arizona College of Medicine - Phoenix



Leading Multicenter Cardiac Research

- The University of Arizona and Banner are leading a 14-center investigator-initiated trial examining the most effective approach for treating dangerous heart rhythm disorders, supported by a \$3.49 million grant from Abbott and partnerships with premier institutions, including Mayo Clinic, Cleveland Clinic and Johns Hopkins.
- We're also collaborating with the University of Arizona on a landmark two-center, NIH-sponsored trial comparing pacemaker strategies for heart failure patients. The trial prioritizes enrolling women and minority patients — historically underrepresented in heart disease research — and follows participants for two years to measure improvements in heart strength, symptoms and daily functioning.

Accelerating Cardiovascular Achievements

- Banner is poised to expand its leadership in cardiovascular innovation with multiple first-in-human and first-in-U.S. trials across structural heart disease, electrophysiology and device technologies, in partnership with the University of Arizona.
- Looking ahead, Banner envisions the formalized creation of a cardiovascular research accelerator in 2026, designed to rapidly activate studies and further streamline research capabilities.

Improving care for athletes & active patients

Banner's orthopedics and sports medicine research program is accelerating musculoskeletal care through clinical trials and technology. Leveraging Banner Sports Medicine's state-of-the-art facilities — including motion capture, force measurement and sports simulation technology — we're creating new approaches to surgical outcomes, injury prevention and athletic performance.



Optimizing Shoulder Surgery Outcomes

- Dr. Evan Lederman led a multicenter study of 134 patients to determine the best surgical approach for shoulder replacement, providing evidence that will help surgeons optimize outcomes for this increasingly common procedure. Dr. Lederman is the chief of sports medicine for Banner and a clinical professor of orthopedic surgery at the University of Arizona College of Medicine – Phoenix.
- We started a study using Banner Sports Medicine's golf simulator and motion tracking technology to enhance recovery for shoulder replacement patients returning to golf and recreational activities.

Improving ACL Reconstruction

- Addressing one of sports medicine's most critical challenges — safe return to play after ACL injury — we are using Banner Sports Medicine's biomechanical assessment tools to identify objective markers that guide when athletes can safely return to sport.

Protecting Young Athletes from Concussion

- Researchers are using a grant from the American Psychological Foundation to study how to help parents and coaches of elementary school-aged athletes identify, manage and prevent concussions. This age group is underserved in concussion research.
- The team published research on concussion testing in young athletes, contributing evidence to improve how concussions are assessed and managed in children under 12.

Collaborating to accelerate medical discovery

As one of the nation's largest health care delivery systems, Banner Health is uniquely positioned to forge powerful research partnerships that translate scientific discoveries into practical solutions.

By collaborating with leading institutions, we accelerate clinical trials, establish new research centers and provide irreplaceable biorepository resources that improve patient care and address critical public health challenges.



“Our achievements reflect the power of collaboration — from the courage of our participants to the commitment of our partners and supporters.”

— Dr. Nicholas Theodore, Chairman of the University of Arizona College of Medicine – Phoenix’s Department of Neurosurgery at Banner – University Medical Center Phoenix



Accelerating Translational Medicine

- Through a research pilot project with the University of Arizona, we’re giving families in our region earlier access to cutting-edge treatments close to home — often years before they become widely available — by streamlining research operations, supporting a new first-in-human clinical trials program and significantly reducing the time from clinical trial proposal to first patient enrolled.
- Banner Health serves as the key clinical partner for the new Southwest Center for Advancing Clinical and Translational Innovation (SW CACTI), supported by a \$43.6 million NIH award through the National Center for Advancing Translational Sciences, to accelerate biomedical advances and develop the next generation of clinical researchers across Arizona and New Mexico. Partners include the University of New Mexico Health Sciences and University of Arizona Health Sciences.

Enhancing Lewy Body Dementia Research & Care

- Banner Sun Health Research Institute co-leads a prestigious Center of Excellence with Mayo Clinic to improve research and care for Lewy body dementia, the second-most common neurodegenerative disease in seniors, while hosting free community education events throughout metro Phoenix.

Investigating Environmental Threats to Brain Health

- With a grant from the Arizona Alzheimer’s Consortium, researchers at Banner and ASU are exploring whether

micro- and nanoplastics influence Alzheimer’s disease using Banner’s unique Brain and Body Donation Program, which houses samples spanning decades — including donors from the 1980s before many modern plastics existed.

Protecting Communities from Extreme Heat

- We’re collaborating with the University of Arizona to protect vulnerable populations from extreme heat — a critical threat in Arizona, where Maricopa County has the most heat-related deaths in the U.S. Banner is providing health record data for AI analysis to create a Heat Susceptibility Score and develop solutions, including wearable monitors and cooling kiosks with telemedicine capabilities.

Leading the Nation in Precision Medicine Research

- Banner’s strong community engagement and dedication to improving health across diverse populations is especially reflected through the NIH *All of Us* Research Program partnership with University of Arizona. Together Banner and the university have enrolled over 89,000 participants since inception, more than any site nationally, accelerating the development of personalized prevention strategies and treatments. The Arizona consortium maintained its position as the most productive in both enrollments and Researcher Workbench Initiatives, capturing approximately 65% of all pediatric participants nationally.



Fueling Outstanding Programs & Services

Banner Health's commitment to advancing medical research is built on a diversified and strategic approach to funding that ensures sustainability, innovation and impact.

Our funding portfolio includes competitive federal grants from the National Institutes of Health, industry partnerships that bring new therapies to patients years before widespread availability, philanthropic support enabling high-risk, high-reward discoveries, and direct institutional investment in research infrastructure.

This diversified approach positions Banner to remain resilient and aligned with community health needs, while ensuring our research investments deliver the greatest impact for the communities we serve.

Generous donors gave \$8.5 million to the Banner Alzheimer's Foundation in 2025 to support the Banner Alzheimer's Institute and Banner Sun Health Research Institute.

Two families who understand firsthand the urgency of Alzheimer's research each contributed \$1 million, accelerating a scientific breakthrough that will transform how we diagnose and treat Alzheimer's and related brain diseases. Their gifts support the Fluid Biomarker Program's two complementary laboratories: the Michael T. Zuendel Family Biofluid Lab and the Kuhle Family Biomarker Discovery Lab. Together, these facilities represent one of the few places worldwide where biomarker tests are both developed and engineered for deployment at the scale of large health systems.

Charitable gifts help drive innovation, expand access to care, advance medical research, and support programs and services that make life better for the patients and families in our care.

To learn more, visit us online at bannerhealthfoundation.org or call 602-747-4483.



