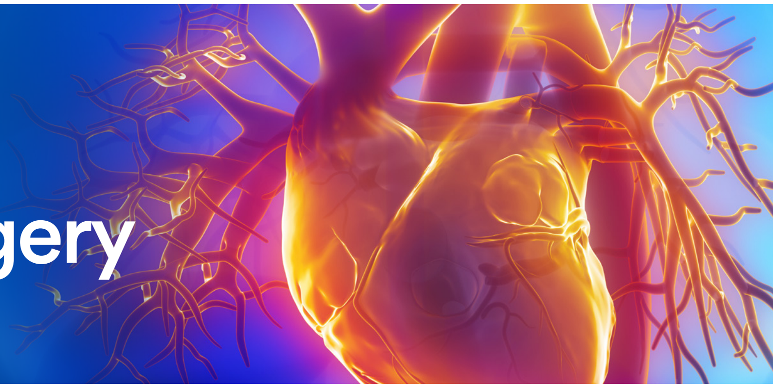
Baylor St. Luke's Medical Center
Texas Heart Institute
Baylor College of Medicine

2026 BSLOutcomes.org

Cardiology and Heart & Vascular Surgery



The exemplary team of physicians, caregivers and researchers at Baylor St. Luke's Medical Center continues to push the boundaries of what is possible in patient care through meaningful medical advancements and notable clinical achievements. This document highlights just a few of the stories that reflect our commitment to advanced services, innovative technology and forward-thinking care. Together, these accomplishments demonstrate how we remain at the forefront of medicine—bringing leading-edge solutions, improved outcomes and exceptional care to the patients and communities we serve.

Cardiovascular care at Baylor St. Luke's Medical Center.

A Message from Joseph G. Rogers, MD, Director
The Texas Heart Institute at Baylor College of Medicine

Baylor St. Luke's Medical Center (BSLMC) continues to distinguish itself as one of the nation's leading centers for advanced cardiovascular care, delivering exceptional outcomes across the full spectrum of heart and vascular disease. Anchored by the integration of The Texas Heart Institute and Baylor College of Medicine to form a world-renowned cardiovascular center, The Texas Heart Institute at Baylor College of Medicine, BSLMC serves as the primary clinical site where this expertise is translated into complex, high-acuity patient care. As a destination center for the most challenging cardiovascular cases, BSLMC combines clinical excellence, a multidisciplinary team-based approach, access to the most cutting-edge therapies, and a culture of innovation to care for patients whose needs extend far beyond routine treatment.

Over the past year, BSLMC has further elevated its national leadership through landmark clinical achievements that reflect both technical skills, innovation, and a relentless focus on patient-centered outcomes. The successful completion of the first fully robotic heart transplant in the United States exemplifies this commitment, demonstrating how advanced technology, when paired with elite teams, can reduce surgical trauma, accelerate recovery, and redefine what is possible.

BSLMC remains a destination center for the most advanced cardiovascular therapies. From endovascular aortic grafts specifically tailored to a patient's anatomy to one of the largest ECMO programs in the US, BSLMC's ability to deliver complex, resource-intensive care with consistency and safety make the extraordinary seem routine.

The hospital's cardiovascular strength is reinforced by a deeply integrated care model that brings together surgeons, cardiologists, anesthesiologists, and cardiac intensivists in a high-volume, high-complexity environment. This model enables BSLMC and The Texas Heart Institute at Baylor College of Medicine to translate research advances into real-world clinical impact, ensuring that patients benefit directly from new therapies, refined procedures, and evidence-driven care.

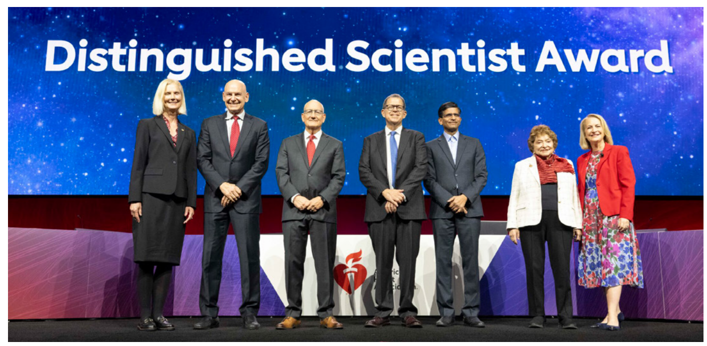
Collectively, these accomplishments demonstrate BSLMC's sustained commitment to excellence in cardiovascular medicine, defined by its superior outcomes, national firsts, and a proven ability to care for the sickest patients. As cardiovascular disease continues to evolve in complexity, BSLMC remains at the forefront, setting standards that influence care well beyond Houston and across the nation.

Baylor St. Luke's Medical Center
Texas Heart Institute

Baylor St. Luke's Medical Center cardiologist named a 2025 Distinguished Scientist by the American Heart Association.

Dr. Christie Ballantyne, a cardiologist practicing at Baylor St. Luke's Medical Center and Director of the Center for Cardiometabolic Disease Prevention at Baylor College of Medicine, was named a 2025 Distinguished Scientist by the American Heart Association, an honor reserved for investigators whose sustained, original contributions have materially advanced cardiovascular and stroke science. Since the award's inception, only a small number of physicians worldwide have received this recognition, underscoring the global impact of Dr. Ballantyne's work in lipids, inflammation, atherosclerosis, genetics, and cardiovascular prevention.

Over a career spanning decades, Dr. Ballantyne has led major clinical and research programs focused on cardiometabolic disease prevention, maintained continuous NIH funding since 1988, and authored more than 1,000 scientific publications. His research has directly influenced patient care, including contributing to FDA approval of cardiovascular risk biomarkers and therapies for lipid and atherosclerosis management. His work exemplifies the physician-scientist model that drives innovation, improves outcomes, and advances cardiovascular care for patients locally, nationally, and globally.



Baylor St. Luke's researchers design first-of-its-kind injectable electrode that promises to transform cardiac implant therapy.

ACCREDITED AMERICAN COLLEGE OF CARDIOLOGY ELECTROPHYSIOLOGY

A new medical device initiated by researchers at Baylor St. Luke's Medical Center and The Texas Heart Institute at Baylor College of Medicine has the potential to transform cardiac patients' experience with life-saving cardiac rhythm management.

Designated by the FDA as a "Breakthrough Device," the Injectable Electrode System, now in pre-clinical development, is a first-of-its-kind technology designed to deliver painless, imperceptible defibrillation and cardiac pacing. The device is a soft, conductive hydrogel that acts as the electrode itself, delivered through a needle directly to target tissue. Once in place, it forms a stable electrical interface compatible with existing implantable cardioverter defibrillators (ICDs) and pacemakers, converting conventional high-voltage shocks into gentle, patient-friendly therapy.

This approach represents a radical shift from traditional metal leads and shocking coils, which can be painful and traumatic, sometimes causing patients to delay or disable therapy. The novel hydrogel device creates a new standard of care for cardiac pacing management that is both effective and humane by eliminating the pain and making these therapies imperceptible.

The Baylor St. Luke's researchers are innovating this new technology through a medical device startup company advancing bioelectronic therapies in cardiac rhythm management. The company, Rhythio Medical, is now preparing for first-in-human studies.

Read more about the Injectable Electrode System

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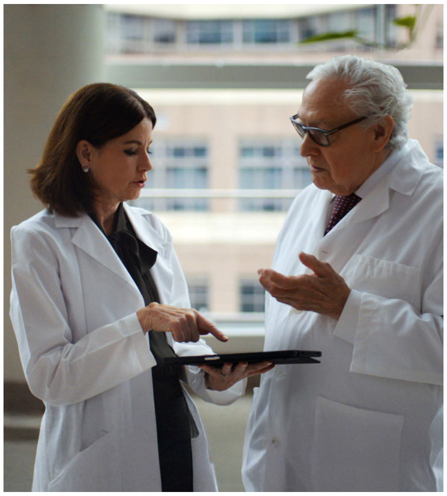

Heart surgeons at Baylor St. Luke's Medical Center perform medical first with successful fully robotic heart transplant.

In a medical first, surgeons at Baylor St. Luke's Medical Center in Houston successfully performed a fully robotic heart transplant on a 45-year-old patient, who had been hospitalized for months with advanced heart failure. The medical milestone, achieved in June 2025, was the first fully robotic heart transplant in U.S. history, and only the second in the world—and represents a major leap forward in transplant surgery.

Baylor St. Luke's cardiothoracic transplantation surgical team performed the first-in-human implantation of the BiVACOR® Total Artificial Heart as part of a groundbreaking clinical trial. This innovation provides renewed hope for patients with end-stage bi-ventricular heart failure who previously had limited treatment options.

The surgeons used a robotic platform, called the da Vinci Xi Surgical System, to remove the patient's diseased heart and implant a new donor heart. Baylor St. Luke's lead surgeon on the team, Dr. Kenneth Liao, MD, PhD, chief of cardiothoracic transplantation, has performed more than 1,000 robotic cardiac procedures in his surgical career.

The robotic procedure avoids the typical approach to transplantation, which involves a large incision to open the chest and the breaking of the breast bone to get to the diseased heart.

Instead, the da Vinci Xi robot can perform a minimally invasive procedure in which the robot's "arms" make small, precise incisions, guided by the surgeon using a high-definition, 3D visualization camera. The procedure also preserves the chest wall's integrity, reduces blood loss and the need for transfusions; and lowers the risk of developing antibodies against the transplanted heart.

After a month at the hospital, the patient was discharged to home with no complications and after a few months' recovery was able to resume his favorite physical activities including hiking.

Watch coverage of this historic medical achievement on CBS News.

Can the heart heal itself? Promising clinical trial underway at Baylor St. Luke's Medical Center shows promise of regenerative gene therapy for treating heart failure.

For decades, cardiologists have focused on managing the symptoms of heart failure, with the common knowledge that cardiac muscle cannot regenerate. Now, a landmark clinical trial investigating a gene therapy designed to regenerate damaged heart muscle is underway at Baylor St. Luke's Medical Center.

The trial marks the first clinical investigation of a genetic medicine intended to induce endogenous cardiac regeneration. The investigational therapy, YAP101, is a first-in-class adeno-associated virus (AAV) genetic medicine designed to activate the heart's own regenerative pathways. The novel approach aims to find whether it's possible to help the heart heal itself, addressing the primordial cause of heart failure.

The investigational therapy works by using a cardiomyocyte-specific promoter to express short hairpin RNAs (shRNAs) that transiently suppress Hippo signaling (a crucial signaling network controlling heart size, development, and regeneration) and activate YAP—pathways known to stimulate cardiomyocyte renewal. The goal is to trigger controlled, self-limiting regeneration of heart muscle in patients with advanced ischemic heart failure with reduced ejection fraction (HFrEF).

The first dosing of the initial cohort in the trial resulted in favorable safety findings by an independent Safety Review Team, which has recommended advancement to the second of three total dose levels.

With the successful regeneration of cardiomyocytes in preclinical studies, Baylor St. Luke's researchers are excited about the next step—healing the hearts of patients with limited treatment options.

Read more about the regenerative heart therapy clinical trial.

Electrophysiology research team at Baylor St. Luke's Medical Center demonstrates transformative potential of battery-free implants in arrhythmia care.

A new landmark study by a multi-institutional team of researchers including those from Baylor St. Luke's Medical Center could replace current pacemaker and defibrillator technology with new, battery-free implants powered wirelessly through magnetoelectric materials.

Current implantable devices such as pacemakers and defibrillators rely on wires (leads) threaded through blood vessels into the heart. While lifesaving, these leads can limit how many pacing sites physicians can use, restrict optimal placement, and increase the risk of complications.

Researchers from Baylor St. Luke's Medical Center's Electrophysiology Clinical Research & Innovations Lab at The Texas Heart Institute at Baylor College of Medicine introduced a new approach: miniature, battery-free implants powered wirelessly through magnetoelectric materials. These materials convert magnetic fields into usable electricity, allowing multiple implants—each about the size of a grain of rice—to be powered and controlled by a single external transmitter. Remarkably, the system becomes more efficient as more implants are added, enabling coordinated stimulation across multiple points in the heart.

Researchers successfully tested three wireless pacemaker nodes on the surface of a pig's heart, showing they could coordinate activity to modify and stabilize heartbeat rhythms. This proof-of-concept directly addresses limitations in cardiac resynchronization therapy (CRT), a treatment for heart failure. CRT is currently constrained by how many leads can be safely placed in the heart. By contrast, the wireless approach is less invasive, can be customized by positioning the implants at optimal sites, and potentially can be deployed more simply, through small catheters.

Defibrillator shocks, though lifesaving, can be traumatic for patients. By enabling the distribution of current across multiple pacing sites, this technology could vastly improve how patients experience these medical events. With further refinement, these wireless pacing nodes could become a viable alternative to traditional pacemakers and resynchronization devices, reshaping how clinicians treat complex heart conditions.

Read more about the potential of battery-free implants in arrhythmia care.

Cardiovascular researchers at Baylor St. Luke's Medical Center win prestigious grant to study heart's immune cells, laying groundwork for advancing new therapies to treat heart failure.

Heart failure remains a major cause of death and disability worldwide, affecting more than 6 million people in the United States alone. Although existing therapies can slow disease progression and improve quality of life, they often cannot stop the gradual decline in heart function.

To overcome this limitation, researchers at Baylor St. Luke's Medical Center are examining the role of macrophages, immune cells in the heart, in heart failure. A team at The Texas Heart Institute at Baylor College of Medicine has been awarded a highly competitive NIH R01 grant from the National Heart, Lung, and Blood Institute to support this innovative research, examining how the heart's immune system contributes to the progression of heart failure.

Macrophages, which normally help maintain healthy heart tissue by clearing damage and supporting balance, can change in disease. In heart failure, these cells may become dysfunctional or "aged," shifting from protective roles to ones that promote inflammation and tissue injury. Understanding how and why this transformation occurs is a central focus of the newly funded research.

The research project will address three key questions: how aged macrophages drive harmful inflammation in the failing heart, whether they lose their ability to clear damaged cellular components, and whether preventing or reversing this aging process can restore healthier heart function. To answer these questions, the research team will use advanced approaches such as single-cell genomics, computational analysis, patient-derived heart tissue models, and animal studies.

Targeting dysfunctional macrophages could slow or even halt disease progression, offering hope for more effective treatments and entirely new immune-based therapies. This work represents an important step forward in advancing cardiovascular science and improving outcomes for patients with heart failure worldwide.

Read more about the study.