

# "TEMPUS

## Tempus Launches First Cardiology Prospective Study for its AI-Enabled Predictive Tests

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*In collaboration with iRhythm, Tempus is studying its predictive, AI-enabled algorithmic tests via a network of researchers to determine the impact of detecting patients at increased risk of developing cardiovascular disease*

Tempus, a leader in artificial intelligence and precision medicine, today announced the launch of a multi-center study titled, "Electrocardiogram-based Artificial Intelligence-Assisted Detection of Heart Disease," or ECG-AID. The study aims to evaluate the impact of the company's investigational, AI-enabled, predictive tests in cardiology and focuses on finding patients at high risk of developing atrial fibrillation (AFib) or any of seven structural heart diseases (SHD), including diseases of the mitral, aortic and tricuspid valves, abnormal heart function, and abnormal heart thickening. The study investigates whether layering a machine learning model onto a clinically acquired electrocardiogram (ECG) can make it smarter with new functionality.

Millions of Americans suffer from undiagnosed heart disease, leading to debilitating outcomes, such as stroke, that can potentially be avoided with early diagnosis. Tempus' [AI-enabled technology](#) aims to help clinicians find these patients. The ECG-AID study will be conducted in collaboration with a growing network of providers and cardiologists, which currently includes Geisinger (Danville, PA) and TriHealth (Cincinnati, Ohio), and will welcome additional research sites over the coming months.

Patients who have received a 12-lead ECG during routine clinical care are eligible for the study. Their ECG data will be analyzed using Tempus' investigational ECG Analysis Platform algorithms to identify which patients are at high risk of developing heart disease. The patients participating in the study who are over the age of 65 with no known history of AFib and who are identified as high risk will receive a ZioXT, iRhythm's long-term, continuous cardiac monitor, to assess for AFib and other abnormal heart rhythms. Additionally, study participants over the age of 40 with no prior history of SHD who are identified as high risk will undergo an echocardiogram. Those participants who receive new diagnoses from cardiac monitoring or the echocardiogram will be routed to the appropriate physician for further care and potential treatment with their provider.

"As a practicing cardiologist, I'm excited to be launching a study with the goal of finding treatable heart disease before it is too late. We owe it to patients to build technology like the Tempus ECG Analysis Platform to deliver on the promise of data-driven precision medicine," said John Pfeifer, MD, MPH, Vice President of Clinical Cardiology at Tempus.

These new algorithmic tests, created by Tempus in collaboration with Geisinger, use a type of AI called a deep neural network to automatically interpret a 12-lead ECG—a widely used clinical test that measures the electrical signals of the heart—to identify patients at high risk of developing heart diseases. The algorithms are being developed to provide results that, when interpreted in conjunction with other available clinical information, can support clinicians in pursuing early and proactive diagnoses with the goal of enabling improved clinical management of these conditions and their associated health risks. In 2021, the U.S. Food & Drug Administration (FDA) granted Tempus Breakthrough Device Designation for its ECG Analysis Platform to aid clinicians in identifying patients at increased risk of developing AFib (or a similar and often co-existent arrhythmia called atrial flutter).

The teams at Tempus and Geisinger have published numerous studies on this new approach in high impact journals, including a [Nature Medicine](#) paper which demonstrated that AI can predict mortality directly from ECG data even in the large subset of ECGs interpreted as normal by physicians; a [Circulation](#) paper showing that an AI model can predict risk of new AFib and AFib-related stroke; and another [Circulation](#) paper demonstrating how AI models can predict any one of seven structural heart diseases that are diagnosable by echocardiography.

### About Tempus

Tempus is a technology company advancing precision medicine through the practical application of artificial intelligence in healthcare. With one of the world's largest libraries of clinical and molecular data, and an operating system to make that data accessible and useful, Tempus enables physicians to make near real-time, data-driven decisions to deliver personalized patient care and in parallel facilitates discovery, development and delivery of optimal therapeutics. The goal is for each patient to benefit from the treatment of others who came before by providing physicians with tools that learn as the company gathers more data. For more information, visit [tempus.com](https://tempus.com).