

Lifespan researcher develops first blood test to predict risk of sudden cardiac death

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A researcher at the Cardiovascular Institute (CVI) at Rhode Island, The Miriam and Newport hospitals has found that a simple blood test can predict a person's risk for sudden cardiac death, enabling physicians to more quickly and accurately assess a patient's need for an implantable cardiac defibrillator (ICD). That paper by Samuel C. Dudley, M.D., Ph.D, chief of cardiology at the CVI, is published online in advance of print in the *Journal of the American College of Cardiology*.

"This is the first test of its kind; never before have clinicians been able to accurately assess a patient's risk of sudden cardiac death by performing a blood test," Dudley said. "The primary prevention model for at-risk patients in the U.S. is to implant an ICD before a cardiac event happens. While it's better to be safe, this has led to widespread overuse of ICDs throughout the U.S. and abroad."

Dudley continued, "With this blood test, we can refine the need for such a device, and instead implant the cardiac defibrillators only in the most severe cases of [sudden cardiac death](#) risk."

Currently, risk assessments are determined by measuring the fraction of blood ejected from the heart in any one heartbeat, the ejection fraction. When the [ejection fraction](#) falls below 35 percent, a patient may benefit from an ICD. It is believed that approximately 60 percent of patients who receive defibrillators as a result of these assessments may not actually need one. This blood test will determine more accurately which patients do in fact need the defibrillator.

The new blood test is in a pilot phase and will be validated in a large, multi-site trial led by Dudley and other researchers at Lifespan's CVI anticipated to start this fall.

"Health care is much more advanced here, but in developing countries, doctors wait until a person

has survived a cardiac event before implanting a defibrillator – and only 10 percent survive the initial event," Dudley said. "But with a blood test, patients could be easily tested before an event and be implanted with an ICD, if appropriate."

Dudley continued, "It's sort of a double-edged sword.— With current mechanisms in place, we can't be sure that a patient needs an ICD, but if we believe the risk to be present, it would be irresponsible not to implant an ICD that could save the patient's life. If the next trial proves what we believe to be true, this [blood test](#) will serve as a much more appropriate and cost-effective tool to measure risk."

Sudden cardiac death is an unexpected death caused by loss of heart function, or sudden [cardiac arrest](#). It is the most common cause of natural death in the U.S., resulting in approximately 325,000 adult deaths in the U.S. each year.

Provided by Lifespan

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