

A 'guardian angel' to watch over your heart

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When a heart attack begins, a stopwatch starts. With each passing minute heart tissue is deprived of blood, causing it to deteriorate or die. In order to minimize damage to the heart, blood flow must be restored promptly, or the effects can be serious, often even fatal. Research shows that the length of time between when a heart attack starts and when treatment begins is fundamental to improving survival rates; so what if an alarm sounded at the onset of a heart attack signaling the immediate need for medical attention?

Researchers at Northwestern Memorial's Bluhm Cardiovascular Institute are currently investigating a new device that triggers a pager that patients carry when concerning changes occur in the heart. If the technology is capable of recognizing the earliest signs of heart attack, up to two hours before they manifest clinically, patients could seek help more quickly.

"While survival rates have improved over the last several years, far too many patients still die from heart attacks each year," says Liviu Klein MD, [cardiologist](#) and director of the [Heart failure](#) Device Program at Northwestern Memorial's Bluhm Cardiovascular Institute. "If we could identify a heart attack sooner, we may be able to save more lives."

Northwestern Memorial is among 50 centers nationwide participating in the ALERTS trial examining use of the AngelMed Guardian® implantable device. About the size of a silver dollar, the device monitors heart activity 24 hours a day, seven days a week using a wire inserted in the heart muscle to constantly monitor its electrical activity. When changes such as the heart not getting enough oxygen occur, an antenna

on the device sends a signal to a pager the patient carriers, notifying them that a heart attack may be imminent.

"Heart attack symptoms are often misunderstood, causing patients to unknowingly delay treatment," says Klein. "This device makes it clear that medical attention is needed, allowing the patient to seek help quickly and providing us a chance to start treatment before a heart attack results in irreversible damage."

The AngelMed Guardian is designed for patients who have already experienced a heart attack and are at high risk for another heart attack. It is implanted as a pacemaker via a minimally invasive surgical procedure and has the potential to detect a heart attack at its earliest stage.

"We often find ourselves playing catch up when symptoms don't present soon enough and the heart suffers damage," said Klein. "Our hope is that a device such as this could limit that occurrence and allow us to treat patients before the [heart attack](#) reeks havoc on the heart."

For patients who have experienced heart trouble previously, the device sounds promising.

"Once you've had heart trouble, you often wonder if it will happen again, and if so, when. You ask yourself, will I get to the hospital in time? Will I survive?" said Patricia Mahoney, Klein's patient. "It's exciting and reassuring there may be a way to identify heart problems early."

Provided by Northwestern Memorial Hospital

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