

'Just the beginning'

The dual chamber leadless pacemaker is the latest effort to give heart patients a better quality of life

After a pair of heart procedures, Michael Burk admits he has a long road to recovery ahead. But for the 75-year-old from Champaign, Illinois, life now is a far cry from years ago. He recalls a time when he was so winded, he fell in his backyard.

"He wasn't able to do this before," Burk's wife Gloria whispers as Michael walked unassisted into [OSF HealthCare Heart of Mary Medical Center](#) in Urbana, Illinois, to talk about the most recent heart procedure that changed his life: a dual chamber leadless pacemaker.

Old vs. new

Pacemakers work to pace a slow heartbeat, which left unchecked can cause fatigue, shortness of breath and fainting. A typical pacemaker includes the battery and circuitry in a device about the size of a Post-it note that's implanted in the upper chest. Two wires – called leads – wind their way to the heart. One is typically in the right atrium, and the other ends in the right ventricle.

"That type of pacemaker works very well, but there are limitations," says [Michael Broman, PhD, MD](#), a cardiac electrophysiologist at OSF Heart of Mary who performed Burk's procedure. "You have a bump here [on the chest]. There's a scar involved with having the battery placed. Having leads in veins can also cause problems. You can get vein obstructions. Infections can occur."

Luckily, Dr. Broman says pacemaker technology is evolving yearly. Dual leadless pacemakers, using technology from [Abbott](#), can be an answer to some of the challenges of a traditional pacemaker. It means another option for patients, too. In downstate Illinois, OSF Heart of Mary is the only hospital implanting dual leadless pacemakers outside of a medical trial.

"No battery in the chest. No scar on the chest," Dr. Broman explains. "Instead, we deploy the system through the leg veins. We use a catheter to deliver very small batteries – about the size of pen caps. One of them sits inside the heart in the right ventricle. The other sits in the right atrium."

"I was positive about it," Burk says, recalling when Dr. Broman suggested he try this new option.

Dr. Broman says the devices last 15 to 20 years, longer than the traditional option (also called a transvenous pacemaker). Infection risk is lower, and the devices can communicate with each other within the person and an outside computer that programs the pacemakers.

"The top device says 'I'm pacing now, and I want you to pace 30 or 40 milliseconds later' or whatever the interval is," Dr. Broman says. "They talk to each other and tell each other what to do."

Dual leadless pacemaker patients typically have to spend the night in the hospital to allow things to heal. But afterward, they have less post-surgery restrictions. No running, jumping or heavy lifting for a couple days instead of weeks.

On the horizon

Dr. Broman says someone who simply has a slow heartbeat can be a candidate for a dual leadless pacemaker. If you have a slow heartbeat *and* your weak heart can't pump blood properly, you'd likely need a traditional system.

Still, Dr. Broman recognizes that this is a major advancement in heart care. It's technology he says electrophysiologists have been waiting for for decades.

"This is just the beginning," he says. "We're going to have more cardiac technologies that involve this type of wireless and small devices that fit inside the heart instead of big, bulky devices outside the heart. I'm very excited to see what the future brings."

It's a problem worth solving, adds Dr. Broman, who notes he does at least two or three pacemaker procedures a week. Americans are living longer, exposing more of them to age-related heart disturbances. There's not much to do about it aside from daily healthy habits. This leads to medical intervention.

Burk today

After taking part in cardiac rehabilitation at OSF Heart of Mary, Burk now continues his recovery at home.

"It cleared up my balance. I wouldn't stand up and feel faint," Burk says. "As it was explained to me, these pacemaker [devices] stimulated the bottom of my heart and increased oxygen flow. That makes me capable of walking a lot better. It'll improve as time goes on."

Burk worked for a quarter-century as a railroad car inspector before slowing down in retirement. What's he looking forward to now with his new lease on life? Taking a train to Portland, Oregon, where he lived for a few years as a child.

"I'll take what comes in life," he says with a smile.

Learn more

Read more about keeping your heart healthy on the [OSF HealthCare website](#).