She had barely gotten home when the doctors told his wife to go and get some rest. She was exhausted and needed to recover. The doctors also delivered a balloon pump: a tiny motor powers this device—it’s less than an inch long and thinner than a pen. The pump that saved Noel Zuniga’s life was snaked in through an artery in his leg. Approved by the FDA in 2008, it’s among the first generation of devices that can shoulder half or more of a heart’s work without requiring open-heart surgery.

**THE VALUE OF MEDICAL TECHNOLOGY: IMPROVING PATIENT HEALTH & DELIVERING VALUE**

Noel Zuniga’s life was saved by innovative medical technology.

**ADVERTISMENT**

STEVEN VOTE

NOEL ZUNIGA, an AVID RUNNER and father of three, had just gotten back from a weekend of snorkeling with his family when the heart attack hit. It was March in Panama City, where he was stationed as an NCIS agent at the U.S. embassy. Sunday night at the gym, he suddenly felt his chest tight up as if on fire. A clot was choking his heart.

The cardiologists in Panama were well versed in the latest techniques. Through an endoscopic tool, they snaked a tube all the way to his heart to release a dye that helped show on x-rays where the blockage was. Once the doctors found the clogged artery, they widened it with a balloon so blood could flow through the clot. A metal tube—a stent—then held the artery open. Zuniga’s heart was still straining though, so up through his leg the doctors also delivered a balloon pump: a device parked just outside his heart that could beat in sync and help move blood.

Zuniga seemed stable after this, and the doctors told his wife to go and get some rest. She had barely gotten home then when they called her again with crushing news. Her heart had gone into shock, and the lack of oxygen was causing his organs to fail. This was the worst-case scenario. “They told me he had about a 20 percent chance of living,” she said.

Zuniga’s colleagues at the embassy made frantic calls to other cardiac experts. Professors at the University of Miami Hospital recommended a stronger pump. There was one that the FDA had approved a couple of years ago. It used a pen-size propeller that fit inside an artery and could move more than twice the amount of blood per minute that the balloon pump could. And crucially, it was tiny enough that it could snake through the same route up Zuniga’s leg. No open-heart surgery was necessary. By then, Zuniga was so weak that he wasn’t likely to survive a medevac flight to Miami. So the Miami team flew to Panama that night. Zuniga, still strapped to the spinning pump that Zuniga was still strapped to the spinning pump that Zuniga had in his heart—used to save money by reducing the risk of complications and shortening the hospital stay. Endoscopic surgery is a classic example. Surgeons operate using a fiberoptic camera and tools threaded through small incisions made in the skin. The cuts are smaller, there is less scarring, and patients can quickly get up into a statistic about how much Americans spend on healthcare. But the benefits—more working years, fewer disability payments, improved quality of life—go unrecorded.

Researchers find those who receive knee replacements net society about $19,000 per year, hip replacement surgery allowed 11,000 people to continue working, saving the nation’s welfare system $56.5 million each year they are employed. Diane Lancaster, a cancer survivor and grandmother of eight, understands the value of joint replacement. Lancaster had part of her knee replaced three years ago. She had always suffered from a lot of knee pain, but it had gotten progressively worse as she passed through her fifties. First she stopped dancing in her church choir. Then she stopped doing any kind of exercise at all because of the pain. She started gaining weight. “I’m an accountant so I was lucky,” she said. “I could sit at a desk for eight hours and not have to stand.”

When Lancaster first found herself completely unable to walk during a family vacation to Disney World. Her grandsons had to push her around in a wheelchair so she could get to her favorite ride, Space Mountain. “They actually liked doing that,” she said, but Lancaster was frustrated because she couldn’t take care of herself. “When I got back I knew it was time to get the surgery because I didn’t want to go through that again.”

These days, Lancaster is back in the yoga studio. She no longer pops Aleve to get through the day. She is astonished to have found herself able to walk pain-free again. The turning point came when she found herself able to walk pain-free again. She no longer pops Aleve to get through the day. She is astonished to have found herself able to walk pain-free again. The turning point came when she found herself able to walk pain-free again.