

In Memoriam:

Edward B. Diethrich, MD

(1935–2017)

Edward B. “Ted” Diethrich, MD, the revolutionary cardiovascular surgeon who pioneered many of the minimally invasive endovascular techniques currently at the forefront of cardiovascular medicine, died on 23 February 2017 at the age of 81.

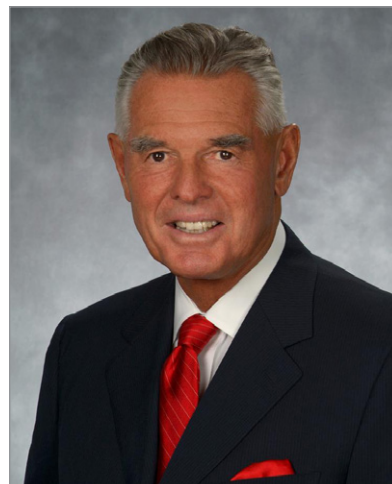
Ted Diethrich was born in Hillsdale, Michigan, in 1935.¹ His father managed a hamburger restaurant, and his mother was a surgical nurse. His mother’s influence set him on the path to becoming a surgeon. As a child, he used to “operate” on his stuffed animals, taking out the cotton and stuffing it back in. When he was an adolescent, his mother allowed him to accompany her to the operating room, where he witnessed and sometimes assisted in procedures such as vasectomies and tonsillectomies.² Ted completed his undergraduate education at the University of Michigan in Ann Arbor and went on to attend medical school at the same institution. While attending school in Ann Arbor, he also had a job in the operating room and scrubbed in whenever possible, further increasing his knowledge of many surgical fields.

When he was in medical school, Ted considered becoming a neurosurgeon and took his first steps towards becoming a medical innovator by modifying a Sears & Roebuck saber saw to test whether it could be used to open the skull. When it failed to work as desired for that purpose, he wondered whether the modified saw could be used to open the sternum for open-heart procedures. When tested, the saw split the sternum cleanly and effectively. From then on, the Diethrich sternal saw became a device favored by cardiovascular surgeons.³ Diethrich graduated from medical school in 1960 and then did his surgical residency training at St. Joseph’s Mercy Hospital in Ann Arbor and at the Henry Ford Hospital in Detroit. Afterwards, he was offered a thoracic surgical residency in Dr. Michael DeBakey’s renowned group at Baylor College of Medicine.

Dr. Diethrich’s relationship with Dr. DeBakey was contentious at first: frequent admonishments by DeBakey led to Diethrich’s being relegated to secondary tasks. This relationship changed on the day that Diethrich proceeded to finish an operation when he was supposed to wait for DeBakey. Upon seeing that performance, DeBakey turned to Diethrich and told him that, starting the next day, he could begin operating in operating room number 5—the training room set aside for DeBakey’s associates. Diethrich had passed the test and would join DeBakey’s service as an associate upon completion of his residency.⁴

In 1968, Diethrich worked with DeBakey on a case in which multiple organs from one patient (the heart, both kidneys, and a lung) were transplanted into 4 recipients. In this case, which received widespread publicity, Diethrich played a crucial role in organizing the 4 simultaneous operations.⁵

Wanting to make his own mark on the world, Diethrich left Baylor in 1971, after serving as one of DeBakey’s associates for 5 years, and moved to Phoenix, where he



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established the Arizona Heart Institute and its research organization, the Arizona Heart Foundation.⁶ The Arizona Heart Institute was the site of the first outpatient heart clinic (1971) and the first outpatient cardiac catheterization laboratory (1979); it also hosted the first live, worldwide broadcast of an open-heart surgical procedure, which Diethrich performed in 1983. In addition, he performed the first heart transplantation in Phoenix in 1984 and the first heart-lung transplantation in Arizona in 1985. Dr. Diethrich founded the Arizona Heart Hospital in 1998 and served as its Medical Director and Chief of Cardiovascular Surgery from 1998 to 2010.

Dr. Diethrich appeared on multiple television talk shows and news segments in order to raise awareness about the importance of prevention and early diagnosis for maintaining heart health. Profiled in *Life* magazine in 1972 under the nickname “Ted Terrific,” Diethrich gained a reputation for performing the coronary artery bypass procedure.⁴ Because he supported new technologies and methods, Diethrich often experienced both backlash from his fellow surgeons and international acclaim.

Dr. Diethrich’s *modus operandi* was “Make it simpler, make it safer,” which many consider the maxim of endovascular technology as a discipline.⁷ During the late 1980s, Diethrich realized that many surgical fields were heading towards less invasive techniques and that this transition could affect cardiothoracic and vascular surgery, as well. Through his early adoption of this idea, his mastery of catheter and wire skills from arteriography, and his knowledge of laser technology, Diethrich helped usher in the endovascular revolution, using stenting and catheters to repair blood vessels from the inside out. In 2000, Diethrich performed the first endovascular aneurysm repair (EVAR) for ruptured abdominal aortic aneurysm and proceeded to perform thousands more. As part of his efforts to help build the field of endovascular surgery from the ground up, Diethrich started the International Society of Endovascular Therapy and established the *Journal of Endovascular Therapy*, one of the world’s principal sources of endovascular literature.

Ted Diethrich used his propensity for innovation to start several businesses, including the Sarns Company, which produced his first invention, the sternal saw; an ultrasound company, which now produces products for obstetrics; and 2 companies that produce aortic endografting devices, Endologix and Endomed.⁸ In addition, he received many honors throughout his life, such as the Frederick A. Collier Award and the presidency of the Denton A. Cooley Cardiovascular Surgical Society. He was also the founder and a past president of the International Society of Endovascular Specialists. In 2012, Diethrich was honored by his colleagues, staff, and patients for his years of commitment to cardiovas-

cular medicine at a tribute event held at the Arizona Heart Institute, during which Dr. Cooley highlighted Dr. Diethrich’s contributions to the field.⁹

During endovascular procedures, vessels must be viewed concurrently via imaging, to assure the precise placement of the catheter. After frequent exposure to the low-level radiation associated with this imaging over a span of many years, Diethrich developed a brain tumor (oligodendroglioma) in 2012, as well as cataracts in both eyes and dense, calcified plaque in his carotid artery.⁷ He then made it his mission to educate other healthcare workers about the dangerous effects of radiation, joining with the Organization for Occupational Radiation Safety in Interventional Fluoroscopy to release a documentary describing the effects that radiation had visited upon him.

“Ted Terrific” always set the highest possible standards for himself and never accepted less than perfection. A surgeon with the mindset of an athlete, Dr. Diethrich was always confident and determined to “win” his surgical cases. According to *Life* magazine,¹⁰ Ted proclaimed, “I would hate to be operated on by someone who didn’t have the philosophy that we *must win this game*. . . . He’s got to be the guy who walks onstage and says: ‘Okay. The curtain’s going up, the lights are going on, the movie’s starting to roll, and we’re going to fix your heart for you.’”

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