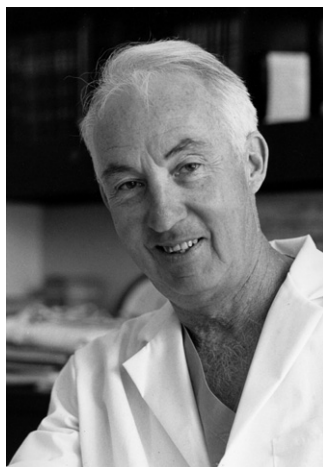


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## Norman Edward Shumway, MD (1923–2006)



Norman Edward Shumway, MD, a pioneer of cardiac transplantation, died of metastatic squamous cell carcinoma on February 10, 2006, one day after his 83rd birthday.

Born on February 9, 1923 in Kalamazoo, Michigan, Shumway was educated in the public schools. He entered the University of Michigan with the intention of studying law but was soon drafted into the Army (1943). Because an aptitude test suggested a career as a doctor or dentist, he enrolled in premedical studies at Baylor University. He later transferred to Vanderbilt University, receiving his Doctor of Medicine degree in 1949.

For further surgical training, Dr Shumway entered the University of Minnesota. There he became involved in cardiovascular research under the direction of C. Walton Lillehei, MD, whose technique of cross-circulation for cardiopulmonary bypass permitted some of the first open-heart operations. Shumway began to seek a means of applying induced hypothermia to protect the myocardium and other tissues during temporary ischemia. Although he also experimented with the pulmonary valve as an autograft for treating aortic regurgitation, he never performed this technique in humans; Donald Ross later perfected the approach, which became known as the Ross procedure.

With a colleague, Richard Lower, Shumway laid the basis for cardiac transplantation by performing canine experiments in which the donor's atria were opened and sutured to the recipient's atria. These experiments were watched with interest by another University of Minnesota research fellow, Dr Christiaan Barnard. In December 1967, having returned to South Africa, Barnard became the first surgeon to perform a human heart transplant. Only by chance was this breakthrough not achieved by Shumway himself. In January 1968, he did the first such transplant in the United States. Many other surgeons around the world followed suit, including our team at the Texas Heart Institute. Unfortunately, long-term survival was limited by tissue rejection and problems with immunosuppressive methodology. For this reason, in the early 1970s most surgeons abandoned heart transplantation. Dr Shumway continued to perform the procedure, remaining the only investigator in the field for about a decade. Not until the 1980s, with the advent of the immunosuppressive drug cyclosporine, did cardiac transplantation begin to be widely performed and to fulfill its initial promise.

Dr Shumway's legacy includes not only his achievements in transplantation but also his activities as an educator. The clinical and research training programs that he founded at Stanford University produced many fine cardiovascular surgeons, including Richard Lower, Edward Stinson, Vaughn Starnes, and William Frist (now a US senator). Another Shumway trainee, Bruce Reitz, did the first experimental heart-lung transplants in primates. In 1981, he and Shumway performed the first such clinical transplant. Admired and well liked by his students, Shumway inspired his young associates both in the laboratory and in the clinical arena. He considered himself the best "first assistant" in surgery. In addition to pioneering the use of heart transplants, he made important contributions in the areas of repair of congenital anomalies, valvular lesions, and aneurysms.

From the Texas Heart Institute, Houston, Tex.

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For his innovative accomplishments Shumway received the Rene Leriche Prize of the International Surgical Society (1971), the Texas Heart Institute Medal for outstanding contributions to cardiovascular science (1992), the American Surgical Association Medallion for Scientific Achievement (1993), and the Lister Medal of the Royal College of Surgeons of England (1994). In addition to numerous other awards, he received many honorary degrees and fellowships. From 1986 to 1987, he served as president of the American Association of Thoracic Surgeons. After retiring from clinical surgery in 1993, he continued to attend hospital events.

Over the years, Norman Shumway and I maintained a close friendship. We particularly enjoyed belonging to the

Senior Cardiovascular Surgical Society, a small, exclusive group devoted to golf and camaraderie. His sharp wit was notorious, as were his interesting views on events and personalities.

Dr Shumway is survived by his former wife, Mary Lou, and by four children—Michael, Sara, Amy, and Lisa. An outstanding cardiac surgeon in her own right, Sara directs the University of Minnesota's cardiopulmonary transplant program. Through her and through Shumway's other children—as well as through his trainees, patients, and admirers—his legacy can be expected to live on, benefiting humanity in untold new ways.

*Denton A. Cooley, MD*

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