

Medical Firsts: Advances Pioneered at America's Medical Schools and Teaching Hospitals

The nation's medical schools and major teaching hospitals are the research engines of the U.S. health system. For more than a century, medical researchers at these institutions have worked to develop life-saving vaccines; create new and better treatments to fight such diseases as diabetes, cancer and heart disease; and pioneer new technology to improve the quality of life, from artificial joints to minimally invasive techniques. Following are just a few examples of the medical firsts achieved by the nation's medical schools and teaching hospitals.

To learn more about medical firsts achieved in your state or local medical school and teaching hospital, go to the *Fulfilling the Promise* Web site (www.aamc.org/ftp) and click on life-saving innovations to access the AAMC's Discoveries and Innovations in Patient Care and Research Database.

- 1960 First intensive care unit for newborns
- 1966 First successful pancreas transplant
- 1967 First successful liver transplant
- 1968 First successful bone marrow transplant
- 1968 First adult human heart transplant in the U.S.
- 1969 Development of an influenza vaccine, the first genetically engineered vaccine

- 1970s First telephone-based cancer help line
- 1972 First hospital-based comprehensive screening program for sickle cell anemia
- 1972 First implantable, rechargeable pacemaker for cardiac disorders
- 1973 First use of a laser to remove growths from the larynx
- 1974 First production of recombinant DNA, the seminal step in the creation of the biotechnology industry and the rejuvenation of the field of biology
- 1974 Development of positron emission tomography (PET), an advance in imaging technology
- 1975 First microcomputer-controlled implantable medical delivery system
- 1975 Identification and naming of Lyme disease
- 1976 First total shoulder replacement
- 1977 First human images with a magnetic resonance imager (MRI)
- 1977 Development of angioplasty
- 1978 First performance of radial keratotomy to correct myopia
- 1978 Development of an insulin infusion pump for diabetics

- 1979 First toll-free hotline for epilepsy information
- 1979 First use of the immunosuppressant drug cyclosporine, now standard therapy for organ-transplant patients

- 1980s Development of coronary angioplasty
- 1980 First acute spinal cord injury intensive care unit
- 1981 First successful surgery on a fetus in utero
- 1981 Establishment of the first Pediatric Trauma Center
- 1981 First successful human combined heart/lung transplant
- 1981 Development of the first artificial skin made from living human cells
- 1981 Descriptions and reports of the nation's first cases of AIDS
- 1981 Development of balloon angioplasty
- 1983 First performance of autologous bone marrow transplant for acute myeloid leukemia
- 1984 First successful pediatric heart transplant
- 1985 First Fetal Cardiovascular Center
- 1986 First hospital to initiate a lung transplantation program
- 1986 First use of lithotripsy to break up common duct gallstones
- 1988 First successful double-lung transplant
- 1989 First living-donor liver transplant, and in 1993, the first liver transplant from an unrelated living donor
- 1989 Identification of human umbilical cord blood as a suitable source for stem cell transplantation

- 1993 First Geriatric Research and Training Center
- 1993 First human gene therapy trial for cystic fibrosis
- 1993 First gene-therapy procedure on a newborn infant, correcting an inherited disorder of the immune system
- 1994 First use of functional MRI to provide rapid diagnosis of most strokes
- 1994 First gamete intrafallopian transfer for treatment of female infertility
- 1994 First human retinal cell transplant
- 1995 First implantable, artificial inner ear for treatment of deafness
- 1995 First deep brain stimulator implantation for the treatment of Parkinson's disease
- 1996 Development of computer-assisted stereotactic neurosurgery
- 1997 First use of gene therapy in cardiac disease in humans
- 1997 First stem cell transplant for active lupus
- 1997 First retinal transplant
- 1997 First transplant of human fetal tissue in patient with spinal cord injury
- 1998 First laryngeal transplant
- 1999 First hand transplant

- 2000 First quadruple transplant of four organs—a kidney, two lungs and a heart—from a single donor
- 2000 First bioengineered cornea transplant
- 2001 First implantable replacement heart that functions without a permanent attachment to a power source
- 2001 Discovery of stem cells within the pancreas that can generate insulin-secreting beta cells
- 2002 Development of a Rapamycin-coated stent, a breakthrough in the prevention of restenosis following cardiac catheterization
- 2003 First successful larynx reconstruction accomplished using tissue taken from patient's arm