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