

## NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

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**Mission:**

The National Heart, Lung and Blood Institute (NHLBI) provides leadership for a national program of basic research; clinical investigations and trials; observational studies; and demonstration and education projects on the causes, prevention, diagnosis, and treatment of diseases of the heart, blood vessels, lungs, and blood; and sleep disorders. The Institute plans and directs such research, as well as research on the clinical use of blood and all aspects of the management of blood resources. It also supports research training and career development of new and established researchers to enable them to conduct basic and clinical research related to heart, blood vessel, lung and blood diseases, and sleep disorders. The Institute coordinates with other research institutes and all federal health programs relevant to activities in the above areas, including the related causes of stroke. It conducts educational activities that translate research findings for the use of health professionals and the public, with emphasis on prevention, and maintains continuing relationships with institutions and professional associations; international, national, state, and local officials; voluntary agencies; and organizations working in the above areas. In addition, the NHLBI is responsible for administering the National Center on Sleep Disorders Research and the NIH Women's Health Initiative.

**Selected Achievements and Initiatives:**

*Heart Attack Diagnosis:* A collaborative program involving the NHLBI, the NIH Clinical Center, and Suburban Hospital has shown that advanced MRI technology can detect heart attack and unstable angina in emergency room patients with chest pain more accurately and faster than standard diagnostic tests. Cardiac MRI allows clinicians to view the heart and arteries in “real time” and determine how well the heart is pumping, how adequate the supply of blood is to specific areas of the heart, and whether permanent heart damage has occurred. Because patients can be scanned in under 40 minutes, use of MRI technology could save many lives and reduce disability among those who survive by allowing doctors to diagnose cardiac emergencies and start appropriate treatment substantially faster than at present. Researchers estimate that diagnostic cardiac MRIs could be used in hospital emergency departments nationwide within just a few years.

*Research Centers in Pediatric Cardiology:* The NHLBI has established four Specialized Centers of Clinically Oriented Research in pediatric heart disease. Their goal is to increase survival and enhance the quality of life for children with congenital cardiovascular malformations or acquired heart diseases. Multidisciplinary research teams will include pediatric cardiologists and cardiovascular surgeons, immunologists, geneticists, and other pediatric clinicians, as well as molecular biologists, cell biologists, and biostatisticians. It is expected that these collaborations will accelerate the translation of basic research advances into improvements in diagnosis, treatment, and prevention of pediatric heart disorders.

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*Infections and Chronic Lung Diseases:* The Institute has initiated a new research program to determine the role of bacterial, fungal, and viral infectious agents in the early origins of chronic lung diseases. Such diseases are major causes of illness and death among people of all ages, and much remains to be learned about their causes. Some studies have suggested that the inflammation, tissue remodeling, and progressive loss of function that characterize chronic lung diseases could be the result of incompletely resolved lung infections. New insights derived from research in this area could revolutionize approaches to therapy for diseases such as sarcoidosis and primary pulmonary hypertension, which have heretofore eluded understanding.

*Deep Vein Thrombosis (DVT):* An NHLBI multi-center clinical trial has demonstrated an effective approach to treating patients with DVT, a clotting condition that can lead to pulmonary embolism, a potentially fatal complication. DVT patients have generally been treated with heparin for 5 to 10 days to prevent clots from getting larger, then given warfarin, an anticoagulant drug, for several months to prevent DVT recurrence. However, 6 to 9 percent of patients develop additional clots after the therapy is completed, and prolonged use of warfarin is associated with an elevated risk of dangerous bleeding episodes. The NHLBI trial assessed whether warfarin given at a dose that causes a lower intensity of anticoagulation could prevent the recurrence of DVT and pulmonary embolism following completion of the standard, higher-intensity warfarin regimen. It found a 64-percent reduction in episodes of DVT and pulmonary embolism in study participants taking low-intensity warfarin compared with those taking a placebo. In addition, researchers found no evidence of significant risks such as major hemorrhage.

### Appropriations History

*(\$ in thousands)*

FY 2001	\$2,298,512 (+13.3%)
FY 2002	\$2,572,667 (+11.9%)
FY 2003	\$2,793,733 (+8.6%)
FY 2004	\$2,878,691 (+3.0%)
FY 2005	\$2,941,201 (+2.2%)

### Extramural Research Project Grants

*(Includes SBIR/STTRs)*

FY 2001	4,066
FY 2002	4,276
FY 2003	4,526
FY 2004	4,479
FY 2005	4,354

### Success Rate — Research Project Grants

FY 2001	36%
FY 2002	33%
FY 2003	34%
FY 2004	29%
FY 2005	27%

### Research Training Positions Supported

FY 2001	1,893
FY 2002	1,944
FY 2003	1,969
FY 2004	2,035
FY 2005	2,028

### Research Centers

FY 2001	79
FY 2002	76
FY 2003	77
FY 2004	73
FY 2005	69