

Progress in Heart, Lung, and Blood Research

Conquering Cardiovascular Disease

In the mid-20th century, deaths from cardiovascular diseases, and particularly coronary heart disease and stroke, were skyrocketing, yet no one was sure what caused cardiovascular diseases or how they could be treated or prevented. By 1950, more than twice as many Americans died annually from cardiovascular diseases as from cancer. Until the 1950s, most people thought cardiovascular diseases mainly arose later in life, so doctors were surprised to find that more than three-quarters of a sample of young and seemingly fit American soldiers killed in action during the Korean War already had the beginnings of atherosclerosis. It became clear that although cardiovascular diseases struck in mid-life or later, their origins could be found much earlier in life.

In 1948, President Truman signed the legislation that created what is now the National Heart, Lung, and Blood Institute (NHLBI) at the National Institutes of Health (NIH) to address America's emerging cardiovascular disease epidemic. In the decades since its founding, the NHLBI has funded research that has led to dramatic 40 percent reductions in annual deaths from heart disease and stroke and is now averting over 1 million deaths annually from coronary heart disease – a phenomenal return on the nation's public investment in medical research. The death rate from all cardiovascular diseases in the United States is now the lowest it has been in over a century.

Through the NIH, U.S. taxpayers have supported the basic and clinical medical research that has made these remarkable gains possible. Basic research studies, including some that have been recognized by the award of Nobel Prizes, provided important insights into the biology underlying cardiovascular diseases; community studies identified the factors that put people at risk; clinical trials developed and tested safe, effective treatments; and outreach efforts raised public awareness of the importance of preserving heart health.



Key to understanding the cardiovascular disease risks faced by Americans was the landmark Framingham Heart Study. NIH researchers launched the study in the late 1940s to determine the causes of cardiovascular disease by carefully examining over 5,000 healthy people in Framingham, Massachusetts, beginning in mid-life and following them for many years to see who developed cardiovascular disease and how they differed from those who did not. Now spanning more than five decades and involving three generations of participants, the study has documented the health of about 15,000 people. In 1961, the study yielded the first of its many major discoveries by identifying three primary risk factors for heart disease: high blood pressure, high blood cholesterol, and male gender.

Other NHLBI-supported research subsequently deepened our understanding of these and other risk factors and led to the development of medical and behavioral therapies to address them.

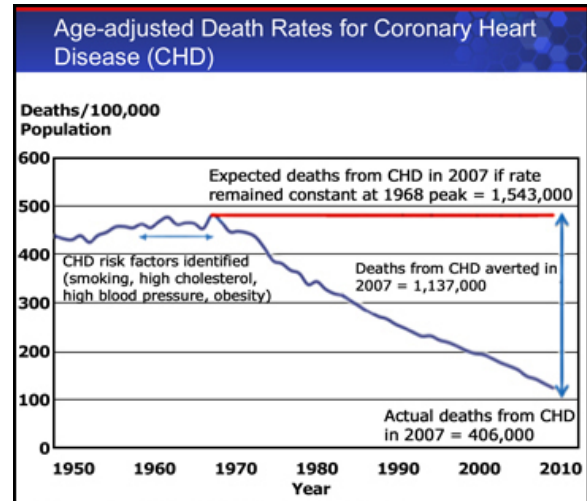
For example, research conducted and supported by the NHLBI:

- Demonstrated that lowering high blood pressure and high cholesterol saves lives.



- Identified LDL and HDL cholesterol levels as key measurements for defining cardiovascular disease risk.
- Provided the basic research results that, when combined with private-sector follow-up, led to the revolutionary cholesterol-lowering statin drugs as well as additional classes of drugs that are safe and effective for treating high blood pressure.
- Developed the evidence base for clinical practice guidelines that have enabled healthcare providers to improve patient care for high blood pressure and high cholesterol.

The Framingham effort continues to yield important contributions to scientific knowledge that will further benefit public health. Extensive genetic studies are now being performed using the samples and data collected over the past 60 years. Results from those studies – such as the recent identification of genetic markers for high cholesterol and high blood pressure, and the surprising discovery that obesity spreads through social networks – are providing the clues that will enable other researchers to develop more targeted and effective therapies. The NHLBI continues to work with domestic and global partners to share knowledge and cardiovascular health improvement strategies with the American public and abroad.



Source: *Vital Statistics of the United States*, CDC/National Center for Health Statistics

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