

Lung Cancer

Incidence and Mortality Rate Trends

Lung cancer is the second most common cancer and is the primary cause of cancer-related death in both men and women in the United States. The overall mortality rate for lung and bronchus cancers rose steadily through the 1980s and peaked around 1993. The trends in lung cancer incidence and mortality rates have closely mirrored historical patterns of smoking prevalence, after accounting for a lag period. Because the prevalence of smoking peaked later in women than in men, incidence and mortality rates for men have dropped in the past decade but have remained stable for women. Mortality rates are highest among African-American males, followed by white males.

It is estimated that approximately \$10.3 billion¹ is spent in the United States each year on lung cancer treatment.

Source for incidence and mortality data: Surveillance, Epidemiology, and End Results (SEER) Program and the National Center for Health Statistics. Additional statistics and charts are available at <http://seer.cancer.gov/>.

¹ Cancer Trends Progress Report (<http://progressreport.cancer.gov>), in 2006 dollars.

Trends in NCI Funding for Lung Cancer Research

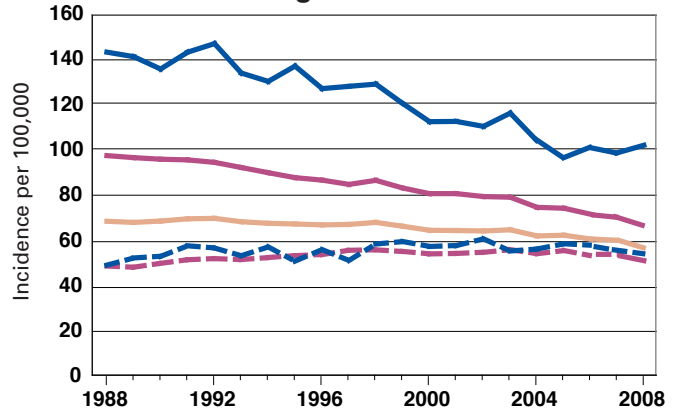
The National Cancer Institute's (NCI) investment² in lung cancer research increased from \$242.9 million in fiscal year (FY) 2006 to \$281.9 million in FY 2010. In addition, NCI supported \$69.3 million in lung cancer research in FY 2009 and 2010 using funding from the American Recovery and Reinvestment Act (ARRA).³

Source: NCI Office of Budget and Finance (<http://obf.cancer.gov>).

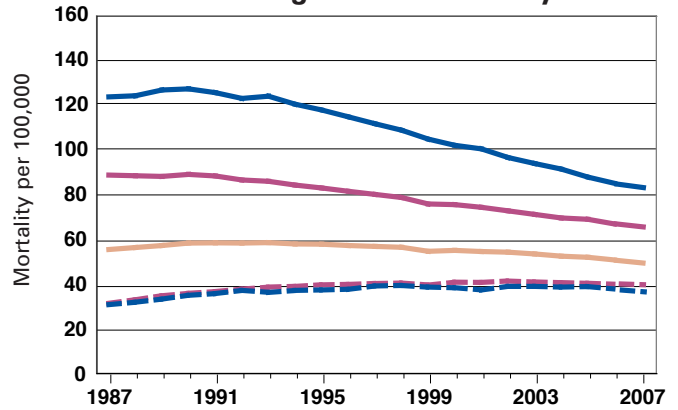
² The estimated NCI investment is based on funding associated with a broad range of peer-reviewed scientific activities. For additional information on research planning and budgeting at the National Institutes of Health (NIH), see <http://www.nih.gov/about/>.

³ For more information regarding ARRA funding at NCI, see <http://www.cancer.gov/aboutnci/recovery/recoveryfunding>.

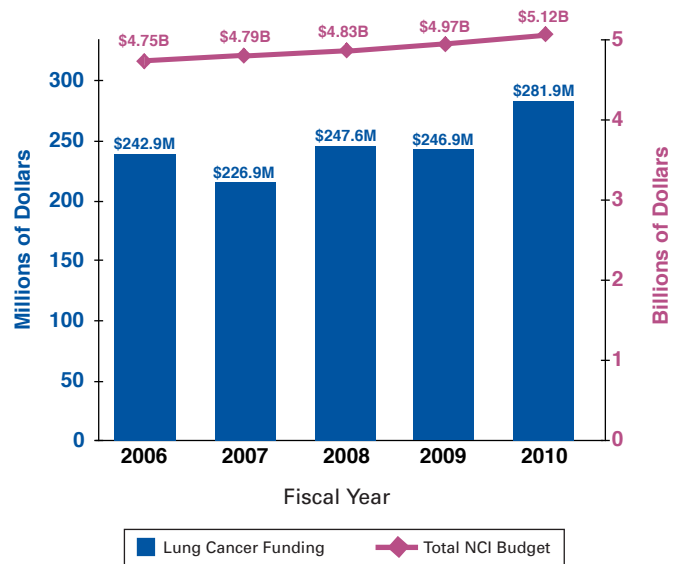
U.S. Lung Cancer Incidence



U.S. Lung Cancer Mortality

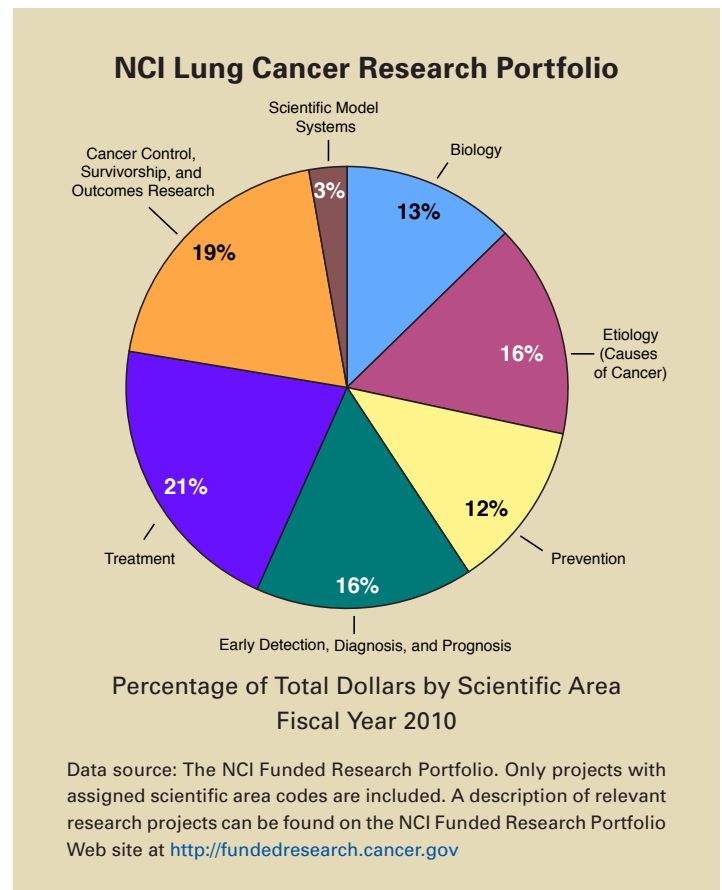


NCI Lung Cancer Research Investment



Examples of NCI Activities Relevant to Lung Cancer

- The **Cancer Genome Atlas (TCGA)** is assessing the feasibility of systematically identifying the major genomic changes involved in 20 cancers using state-of-the-art genomic analysis technologies. TCGA researchers are hoping to identify genomic changes that divide lung cancers into molecular subgroups that distinguish between lung squamous cell carcinoma and adenocarcinoma, and between lung cancer in smokers and nonsmokers. <http://cancergenome.nih.gov/>
- The **Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial** is determining whether certain cancer screening tests reduce deaths from prostate, lung, colorectal, and ovarian cancers. The lung cancer component of the PLCO is investigating whether regular chest X-rays will reduce deaths from lung cancer in both men and women. <http://dcp.cancer.gov/plco>
- **Environment and Genetics in Lung Cancer Etiology (EAGLE)**, a collaboration between scientists from the United States and Italy, aims to identify the genetic and environmental determinants of both lung cancer and smoking and to elucidate determinants of successful therapy and long-term survival. <http://eagle.cancer.gov/>
- NCI supports two **Lung Cancer Epidemiology Consortia**, the International Lung Cancer Consortium and the Genetic Epidemiology of Lung Cancer Consortium. These consortia promote collaborative research and sharing of data from ongoing and completed lung cancer studies. <http://epi.grants.cancer.gov/Consortia/tables/lung.html>
- The NCI-supported **National Lung Screening Trial** compared two ways of detecting lung cancer—low-dose helical computed tomography (CT) and standard chest X-ray—to determine the effects of these screening techniques on lung cancer mortality. <http://www.cancer.gov/clinicaltrials/noteworthy-trials/nlst>
- Eight lung-cancer-specific **Specialized Programs of Research Excellence (SPOREs)** are promoting



interdisciplinary research and moving basic research results from the laboratory to the clinical setting. <http://trp.cancer.gov/spores/lung.htm>

- The **What You Need to Know About™ Lung Cancer** booklet provides information about lung cancer diagnosis, staging, treatment, and comfort care. Information specialists can also answer questions about cancer at 1-800-4-CANCER. <http://www.cancer.gov/cancertopics/wyntk/lung>
- The **NCI Lung Cancer Home Page** provides up-to-date information on lung cancer treatment, prevention, genetics, causes, screening, testing, and other related topics. <http://www.cancer.gov/cancertopics/types/lung>

Selected Advances in Lung Cancer Research

- Results of a case-control study suggest that chronic inflammation from **infection with *Chlamydia pneumoniae*** may promote lung cancer development. http://dceg.cancer.gov/newsletter/nov10/1110_scientifichighlights.shtml and <http://www.ncbi.nlm.nih.gov/pubmed/20501758>
- Initial results of the **National Lung Screening Trial (NLST) show 20 percent fewer lung cancer deaths** among current or former heavy smokers screened by low-dose helical CT compared with those screened by chest X-ray. <http://www.ncbi.nlm.nih.gov/pubmed/21714641>
- Several genome-wide association studies have found that a **genetic locus associated with an increased risk of lung cancer** in smokers is also associated with lung cancer risk in nonsmokers. http://dceg.cancer.gov/newsletter/nov10/1110_scientifichighlights.shtml and <http://www.ncbi.nlm.nih.gov/pubmed/20700438>
- A phase I clinical trial demonstrated that an **experimental drug called PF299804 is well tolerated and may have antitumor activity** in patients with advanced lung cancer. <http://www.ncbi.nlm.nih.gov/pubmed/21220471>