A Snapshot of Lung Cancer

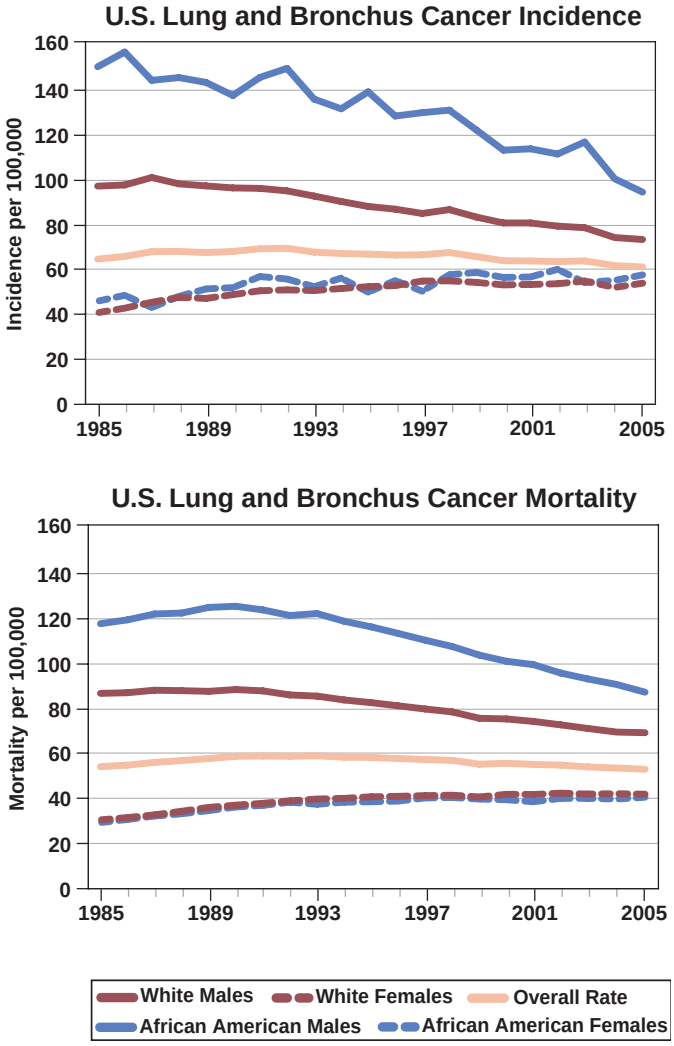
Incidence and Mortality Rate Trends

Lung cancer is the second most common cancer and the most common cause of cancer-related death in both men and women in the United States. The overall mortality rate for lung and bronchus cancer rose steadily through the 1980s and peaked around 1993. Although incidence and mortality rates for men have dropped in the past decade, a similar trend has not occurred in women. Mortality rates are highest among African American males, followed by white males.

It is estimated that approximately $9.6 billion[1] is spent in the United States each year on treatment of lung cancer.

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 2004 dollars, based on methods described in *Medical Care* 2002 Aug; 40 (8 Suppl): IV-104–17.

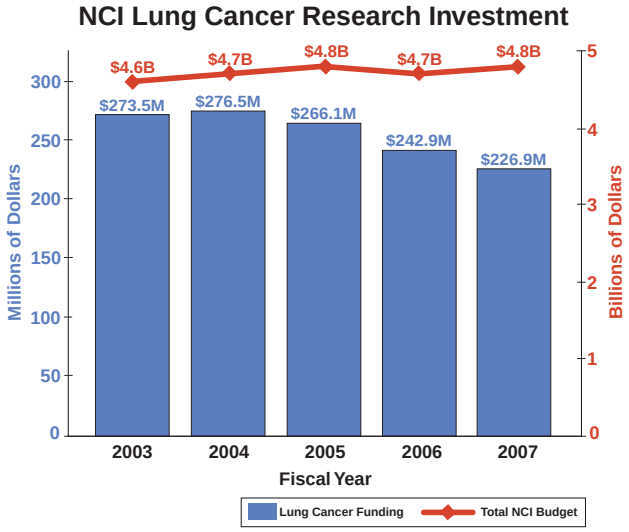


Trends in NCI Funding for Lung Cancer Research

The National Cancer Institute's (NCI's) investment[2] in lung cancer research decreased from $273.5 million in fiscal year 2003 to $226.9 million in fiscal year 2007.

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, see http://www.nih.gov/about/.

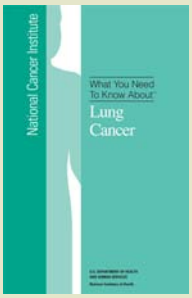


Developed by NCI's Office of Science Planning and Assessment (OSPA) with assistance from SAIC. Snapshots can be found online at: http://planning.cancer.gov/disease/snapshots.shtml.

Examples of NCI Activities Relevant to Lung Cancer

- Seven 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://spores.nci.nih.gov/current/lung/lung.html
- The **Lung and Aerodigestive Cancer Faculty** fosters collaboration among NCI researchers, identifies and shares resources to support member research, enhances interactions with other investigators, collaborates with the lung SPOREs, and fosters participation in clinical trials. http://ccr.cancer.gov/faculties/faculty.asp?facid=133
- **The Cancer Genome Atlas (TCGA)** is assessing the feasibility of systematically identifying the major genomic changes involved in cancer using state-of-the-art genomic analysis technologies. Lung cancer is one of the first cancer types to be studied in the TCGA pilot phase. http://cancergenome.nih.gov/media/news_9_13_2006.asp
- The primary aim of the **National Survey of Primary Care Physicians' Recommendations & Practice for Breast, Cervical, Colorectal, & Lung Cancer Screening** is to characterize physicians' knowledge, attitudes, recommendations, and practices related to screening for lung and other cancers. http://healthservices.cancer.gov/surveys/screening_rp/
- 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. http://dcp.cancer.gov/programs-resources/groups/ed/programs/plco

What You Need to Know About™ Lung Cancer



This booklet discusses possible causes, symptoms, diagnosis, treatment, and rehabilitation. It also has information to help patients cope with lung cancer.

Risk factors for lung cancer include: tobacco smoke, radon, certain occupations (exposure to asbestos and other substances in the workplace), air pollution, family history of lung cancer, personal history of lung cancer, and age over 65.

http://www.cancer.gov/cancertopics/wyntk/lung

Information specialists can also answer questions about cancer at 1-800-4-CANCER.

- NCI's **Lung Cancer Program (LCP)** supports research on early detection and treatment. http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_052306/page3
- The **Mouse Models of Human Cancers Consortium (MMHCC)** is developing models of lung cancer to aid in our understanding of lung tumor biology and to facilitate the development and testing of novel therapeutic approaches and methods for early diagnosis. http://emice.nci.nih.gov/mouse_models/organ_models/lung_models
- The **Lung Cancer Biomarkers Group** is developing sets of specimens that can be used to test biomarkers for the early detection or diagnosis of lung cancer. http://grants.nih.gov/grants/guide/notice-files/NOT-CA-07-016.html
- The **Lung Cancer Home Page** provides up-to-date information on lung cancer treatment, prevention, genetics, causes, screening, testing, and other topics. http://www.cancer.gov/lung

Selected Advances in Lung Cancer Research

- Methylation—incorrectly switching on or off a set of genes through a chemical modification to the DNA—appears to increase the risk of recurrence in patients with stage I non-small-cell lung cancer. http://www.ncbi.nlm.nih.gov/pubmed/18337602
- Recent studies show that cetuximab plus chemotherapy extends survival in patients with advanced lung cancer. http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_061008/page3
- Scientists have shown that smoking affects the way genes are expressed, leading to changes in cell division and regulation of immune response. http://www.cancer.gov/newscenter/pressreleases/GenesSmokingLandi
- Researchers have developed a test that analyzes the activity of 80 genes in cells from a patient's airway. They hope to use this test to determine whether smokers have lung cancer. http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_040108/page5