National Cancer Institute

A Snapshot of

Kidney Cancer

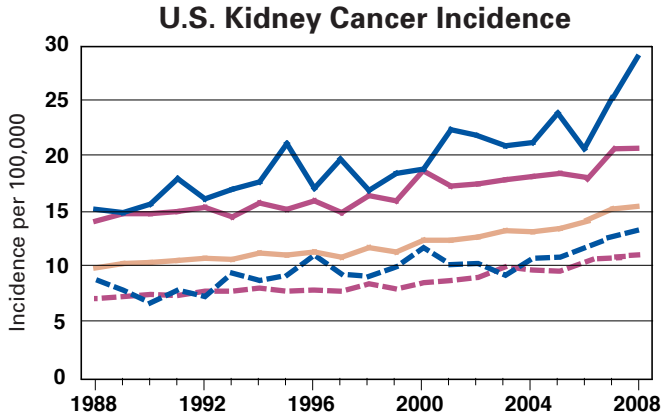
Incidence and Mortality Rate Trends

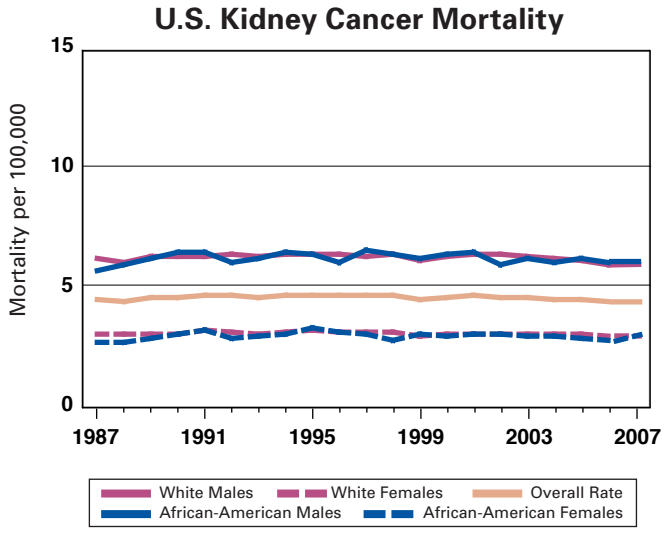
Kidney cancer incidence has been increasing steadily for the past 65 years. The two and three percent increases in incidence rates since the 1990s in men and women, respectively, have been due primarily to a rapid increase in local-stage disease. This may not represent a true increase in cancer occurrence; rather, it has been attributed in part to incidental diagnosis during abdominal imaging. The overall mortality rate from kidney cancer increased slightly over much of the past two decades but has recently begun to decrease. Kidney cancer incidence and mortality rates are more than twice as high in men as in women.

It is estimated that approximately $3.1 billion[1] is spent in the United States each year on kidney 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.





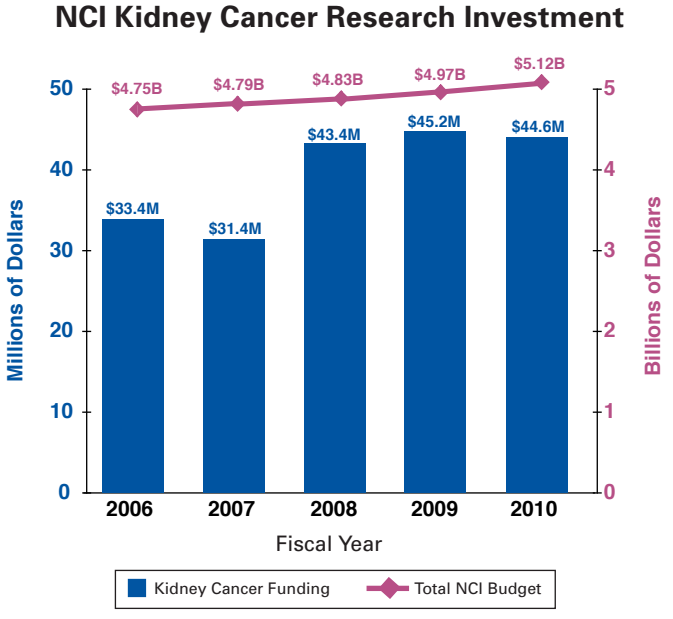
Trends in NCI Funding for Kidney Cancer Research

The National Cancer Institute's (NCI) investment[2] in kidney cancer research increased from $33.4 million in fiscal year (FY) 2006 to $44.6 million in FY 2010. In addition, NCI supported $7.6 million in kidney 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.



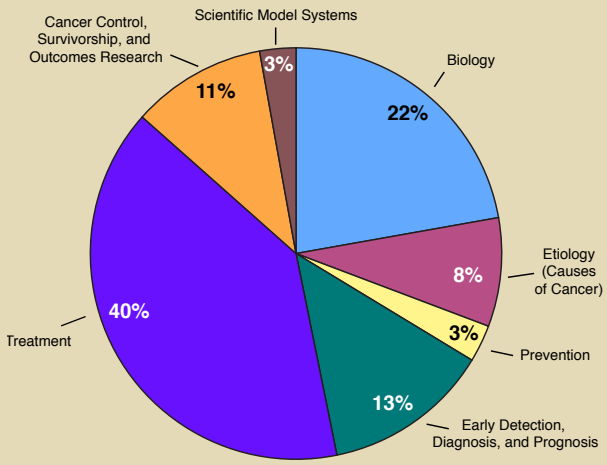
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Examples of NCI Activities Relevant to Kidney Cancer

- NCI's **Bevacizumab, Sorafenib, and Temsirolimus in Treating Patients With Metastatic Kidney Cancer** clinical trial is comparing different combinations of these drugs to see how well they work compared with bevacizumab alone in treating patients with metastatic kidney cancer. http://www.cancer.gov/clinicaltrials/search/view?cdrid=499788&version=patient
- The **Urologic Oncology Branch** conducts basic and clinical research on detection methods, prevention, and therapy for patients with genitourinary cancers. The branch is focused on studying genes involved in initiation and progression of kidney and prostate cancers. http://ccr.cancer.gov/labs/lab.asp?labid=92
- NCI's **Genitourinary Malignancies Center of Excellence** promotes collaboration between scientists studying genitourinary cancers, promotes opportunities for research, leverages research tools and resources to advance findings, and trains young investigators. http://gumalignancies.nci.nih.gov
- NCI's Division of Cancer Epidemiology and Genetics conducted the **Kidney Cancer Study in Chicago and Detroit** to elucidate the reasons for higher incidence of the disease among African Americans. Data analysis is ongoing. http://dceg.cancer.gov/research/healthdisparities/kidney
- **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 patterns of genomic change that divide kidney cancer into subgroups; to identify genomic differences that distinguish tumors across gender, race, and ethnicity; and to investigate patterns of genomic changes that are connected to tumor recurrence after therapy. http://cancergenome.nih.gov/
- A genitourinary-cancer-specific **Specialized Program of Research Excellence (SPORE)** is identifying kidney cancer early detection markers, developing novel kidney cancer treatments, and improving the understanding and treatment of kidney cancer that is resistant to standard therapies. http://trp.cancer.gov/spores/kidney.htm
- The **What You Need to Know About™ Kidney Cancer** booklet provides information about possible causes, symptoms, diagnosis, and treatment related to kidney cancer. Information specialists can also answer questions about cancer at 1-800-4-CANCER. http://www.cancer.gov/cancertopics/wyntk/kidney
- The **NCI Kidney Cancer Home Page** and **Wilms Tumor and Other Childhood Kidney Tumors Home Page** provide up-to-date information on kidney cancer treatment, prevention, genetics, causes, and other related topics. http://www.cancer.gov/cancertopics/types/kidney and http://www.cancer.gov/cancertopics/types/wilms

NCI Kidney Cancer Research Portfolio



Percentage of Total Dollars by Scientific Area
Fiscal Year 2010

Data source: The NCI Funded Research Portfolio. Only projects with assigned scientific area codes are included. A description of relevant research projects can be found on the NCI Funded Research Portfolio Web site at http://fundedresearch.cancer.gov

Selected Advances in Kidney Cancer Research

- A large study has found that **variants of a gene that helps regulate blood pressure** may be associated with an increased risk of kidney cancer in people who have high blood pressure or are overweight. http://dceg.cancer.gov/newsletter/nov10/1110_scientifichighlights.shtml and http://www.ncbi.nlm.nih.gov/pubmed/20047954
- Researchers demonstrated in cell models that a **microRNA downregulates a protein that helps control cell death**; this microRNA may be a potential target for inhibiting kidney tumor growth. http://home.ccr.cancer.gov/inthejournals/finalpox.asp and http://www.ncbi.nlm.nih.gov/pubmed/20562915
- Researchers have determined that **variants of microRNA-related genes** may be associated with disease recurrence and survival in kidney cancer patients. http://www.ncbi.nlm.nih.gov/pubmed/20732906
- Researchers have found that **occupational exposure to trichloroethylene** may be associated with increased kidney cancer risk, particularly among people who carry variants in genes whose products are important for metabolizing this chemical. http://dceg.cancer.gov/newsletter/nov10/1110_scientifichighlights.shtml and http://www.ncbi.nlm.nih.gov/pubmed/20663906