

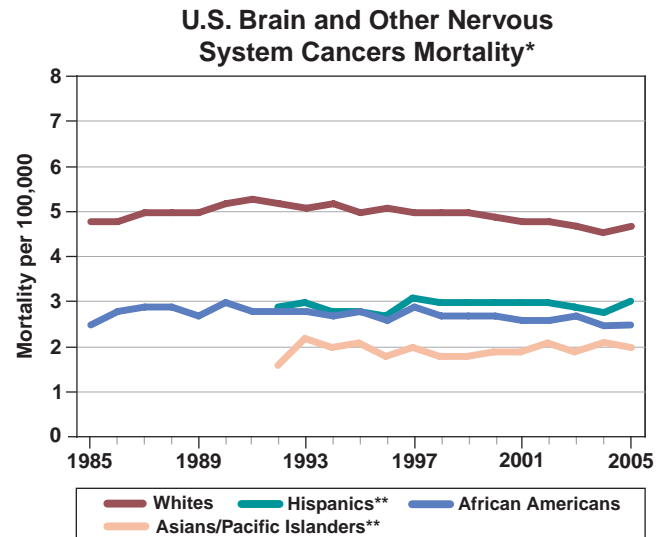
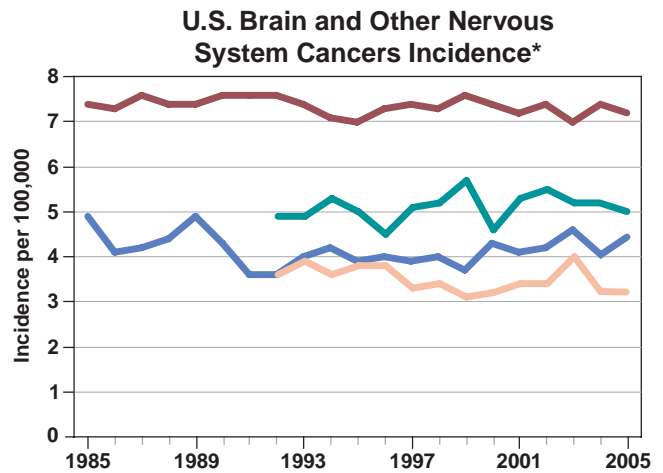
## Incidence and Mortality Rate Trends

It is estimated that 51,410 new cases of primary nonmalignant and malignant brain and central nervous system (CNS) tumors were diagnosed in the United States in 2007; of those, 3,750 were new cases of childhood primary brain and CNS tumors.<sup>1</sup> The incidence and mortality rates for cancers that originate in the brain and CNS have changed little in the past decade. Both incidence and mortality rates are substantially higher for whites than for other racial/ethnic groups. In all racial/ethnic groups, men have higher incidence and mortality rates than women.

Brain tumors are the leading cause of solid tumor cancer death in children; brain and CNS cancers make up 21 percent of all childhood cancers. The incidence rate of brain and CNS cancers in children has risen slightly over the past three decades, but the death rate has dropped slightly over this period.

<sup>1</sup>Central Brain Tumor Registry of the United States (<http://www.cbtrus.org/factsheet/factsheet.html>)

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/>.



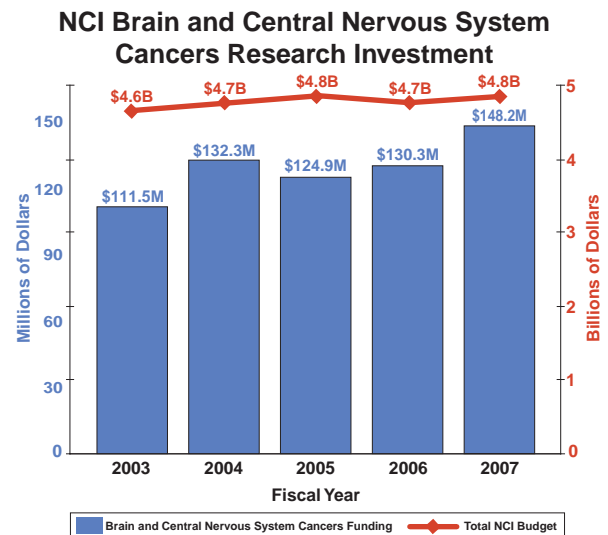
\*Significant data for American Indians/Alaskan Natives not available.  
\*\*Data for Hispanics and Asians/Pacific Islanders not available before 1992.

## Trends in NCI Funding for Brain and Central Nervous System Cancers Research

The National Cancer Institute's (NCI's) investment<sup>2</sup> in brain and CNS cancers research has increased from \$111.5 million in fiscal year 2003 to \$148.2 million in fiscal year 2007.

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

<sup>2</sup>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/>.



## Examples of NCI Activities Relevant to Brain and Central Nervous System Cancers

- Four brain tumor-specific **Specialized Programs of Research Excellence (SPOREs)** are moving results from the laboratory to the clinical setting. <http://spores.nci.nih.gov/current/brain/brain.html>
- The **Tumor Microenvironment Network (TMEN)** is exploring the role of the microenvironment, the cells and blood vessels that feed a tumor cell, in tumor initiation and progression. Network investigators are studying the interaction between brain tumors and the brain microenvironment. <http://tmen.nci.nih.gov/>
- 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. Brain cancer is one of the first cancer types to be studied in the TCGA pilot phase. <http://cancergenome.nih.gov/>
- The **Adult Brain Tumor Clinical Trials Consortium** supports the development of new therapies for adults with primary central nervous system cancers. <http://grants.nih.gov/grants/guide/rfa-files/rfa-ca-08-504.html>
- The **Glioma Molecular Diagnostic Initiative (GMDI)** is developing a comprehensive molecular classification system for human gliomas. The molecular, genetic, and clinical data from GMDI

## What You Need to Know About™ Brain Tumors



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

Risk factors for brain tumors include: gender, race, age, family history, and exposure to radiation or certain chemicals at work (such as formaldehyde, vinyl chloride, or acrylonitrile).

<http://www.cancer.gov/cancertopics/wyntk/brain>

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

will be housed in REMBRANDT (**REpository of Molecular BRAin Neoplasia DaTa**), a publicly accessible database with online analysis tools. <http://rembrandt.nci.nih.gov/>

- The **Neuro-Oncology Branch** is a joint program of NCI and the National Institute of Neurological Disorders and Stroke. The branch supports the development of novel experimental therapeutics for adults and children with central nervous system tumors. <http://home.ccr.cancer.gov/nob/>
- The **Brain Tumor Home Page** provides up-to-date information on brain cancer treatment, prevention, genetics, causes, and other topics. <http://www.cancer.gov/brain/>

## Selected Advances in Brain and Central Nervous System Cancers Research

- An experimental antiangiogenesis drug that prevents development of blood vessels that feed tumors could improve the treatment of glioblastoma, the most common and deadly type of brain cancer in adults. [http://www.cancer.gov/ncicancerbulletin/NCI\\_Cancer\\_Bulletin\\_041707/page2](http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_041707/page2)
- Iron oxide nanoparticles could potentially be used to deliver therapy directly into brain tumor cells without affecting non-cancerous cells. [http://nano.cancer.gov/news\\_center/2008/feb/nanotech\\_news\\_2008-02-15b.asp](http://nano.cancer.gov/news_center/2008/feb/nanotech_news_2008-02-15b.asp)
- People with a variant in the ALAD2 gene (a gene that affects the body's uptake of lead) who are exposed to lead occupationally are more likely to develop a brain tumor than people without the variant. <http://dceg.cancer.gov/newsletter/Linkage0707.html#article10>
- A gene that is improperly turned off during the development of certain CNS stem cell-like cells may lead to aggressive brain tumors; turning on this gene could lead to a new treatment strategy. [http://www.cancer.gov/ncicancerbulletin/NCI\\_Cancer\\_Bulletin\\_012208/page3#d](http://www.cancer.gov/ncicancerbulletin/NCI_Cancer_Bulletin_012208/page3#d)