

Incidence and Mortality Rate Trends

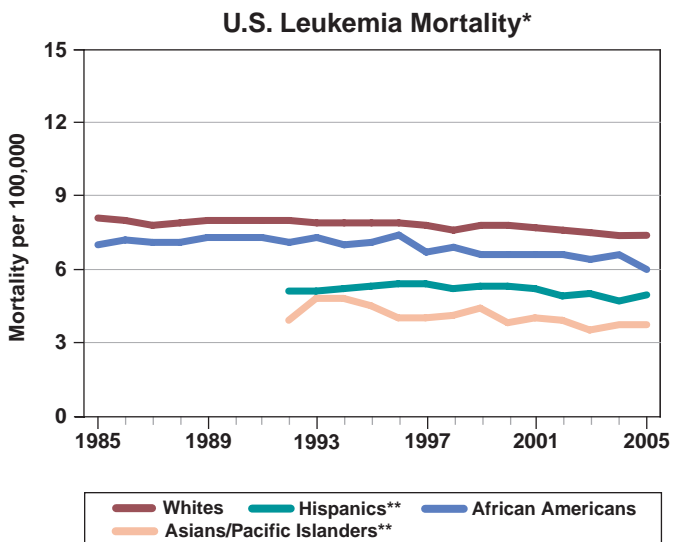
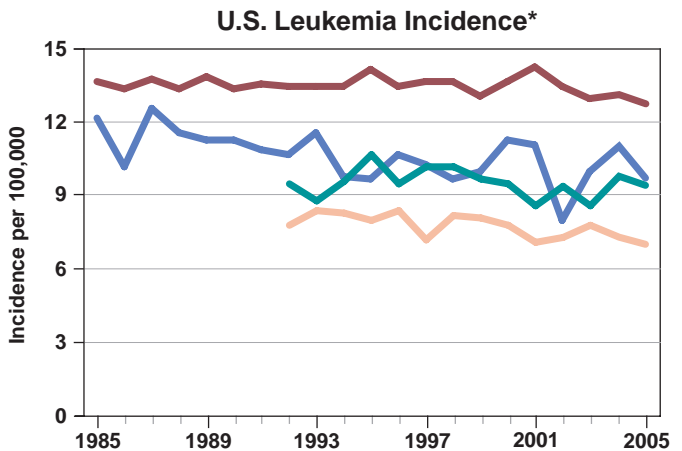
Leukemia, the most common blood cancer, includes several diseases. The four major types are acute lymphocytic leukemia (ALL), chronic lymphocytic leukemia (CLL), acute myelogenous leukemia (AML), and chronic myelogenous leukemia (CML). Although affecting approximately 10 times more adults than children, leukemia is the most common cancer among children, with ALL accounting for approximately 72 percent of all childhood leukemias. The most common type of leukemia in adults is AML, followed by CLL, CML, and ALL.

The incidence and mortality rates for leukemia have decreased slightly over the last 20 years and are higher in whites than in other racial and ethnic groups. Overall, men are more susceptible than women to leukemia.

It is estimated that approximately \$2.6 billion¹ is spent in the United States each year on treatment for leukemia.

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/>.

¹Cancer 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.



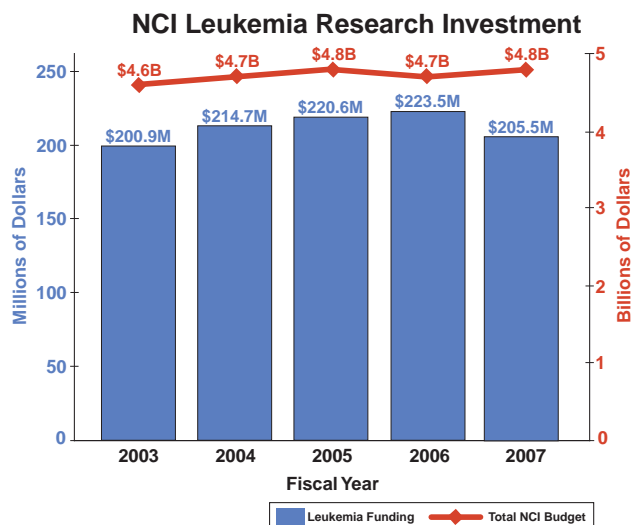
*Significant data for American Indians/Alaskan Natives not available.
**Data for Hispanics and Asians/Pacific Islanders not available before 1992.

Trends in NCI Funding for Leukemia Research

The National Cancer Institute's (NCI's) investment² in leukemia research increased between fiscal years 2003 and 2006 but decreased to \$205.5 million in fiscal year 2007.

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

²The 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 Leukemia

- The leukemia-specific **Specialized Program of Research Excellence (SPORE)** is identifying novel targets for leukemia therapy, causes of resistance to chemotherapy, ways to reduce or eliminate graft-versus-host disease following bone marrow transplant, and genetic risk factors for AML. <http://spores.nci.nih.gov/current/leukemia/leukemia.html>
- The **CLL Research Consortium** includes investigators studying the genetics of CLL, novel immunotherapy and gene therapy techniques, and treatment strategies. <http://cll.ucsd.edu>
- NCI's **Strategic Partnering to Evaluate Cancer Signatures (SPECS)** program is exploring the use of comprehensive molecular analyses to improve treatment outcomes. One SPECS project is classifying cancers of the lymphatic system, including leukemia, in genetic terms. The project is also identifying the genetic characteristics of clinical response that can be used to select appropriate therapy for patients. <http://cancerdiagnosis.nci.nih.gov/specs/index.htm>
- NCI's **Familial Chronic Lymphocytic Leukemia** program is studying families with several cases of CLL to find the gene, or genes, that cause CLL in families, determine whether families prone to CLL are at greater risk for other kinds of leukemia or cancer, and identify markers of risk in family members. <http://dceg.cancer.gov/geb/research/activeclinical/blood/cll-info>

What You Need to Know About™ Leukemia



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

Risk factors for leukemia include: very high levels of radiation, working with certain chemicals (such as benzene or formaldehyde), chemotherapy, Down syndrome, human T-cell leukemia virus (HTLV-1) infection, and myelodysplastic syndrome.

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

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

- The **Mouse Models of Human Cancers Consortium (MMHCC)** has developed several models available to the research community to study hematologic malignancies. http://emice.nci.nih.gov/mouse_models/organ_models/hema_models
- The **Leukemia Home Page** directs visitors to up-to-date information on leukemia treatment, prevention, genetics, causes, and other topics. <http://www.cancer.gov/leukemia>

Selected Advances in Leukemia Research

- A Phase II clinical trial found that the multitargeted drug dasatinib (Sprycel™) might be very beneficial in adults with ALL who do not respond to another targeted agent, imatinib mesylate (Gleevec®). <http://www.cancer.gov/clinicaltrials/results/dasatinib-ALL0507>
- The addition of two courses of arsenic trioxide (As₂O₃) therapy following remission significantly improves overall and event-free survival in adults with acute promyelocytic leukemia (APL). http://www.asco.org/portal/site/ASCO/menuitem.34d60f5624ba07fd506fe310ee37a01d?vgnextoid=76f8201eb61a7010VgnVCM100000ed730ad1RCRD&vmview=abst_detail_view&confID=47&abstractID=30310
- Cytogenetics, or the structure and behavior of chromosomes, is an important factor in predicting whether a treatment is likely to work in adults with ALL. <http://www.ncbi.nlm.nih.gov/pubmed/18156492>
- Researchers discovered how a novel drug, batracylin, blocks the DNA replication machinery of leukemia cells and eventually kills them. The team also discovered a method for tracking how well the drug works in patients. <http://www.cancer.gov/newscenter/pressreleases/batracylin>