

# Breast Cancer

## Incidence and Mortality Rate Trends

In the United States, breast cancer is the most common non-skin cancer and the second-leading cause of cancer-related death in women. Each year, a small number of men are also diagnosed with or die from breast cancer. Although the rate of diagnosis of breast cancer increased in the 1990s, it has decreased since 2000, and the overall breast cancer death rate has dropped steadily.

The incidence of breast cancer is highest in white women, but African-American women have higher breast cancer mortality rates than women of any other racial or ethnic group in the United States. The gap in mortality between African-American and white women is wider now than it was in the early 1990s.

It is estimated that approximately \$13.9 billion<sup>1</sup> is spent in the United States each year on breast 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/>.

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

## Trends in NCI Funding for Breast Cancer Research

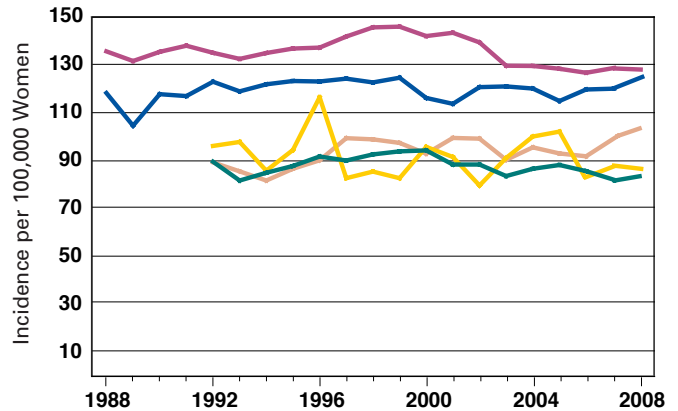
The National Cancer Institute's (NCI) investment<sup>2</sup> in breast cancer research increased from \$584.7 million in fiscal year (FY) 2006 to \$631.2 million in FY 2010. In addition, NCI supported \$112.4 million in breast cancer research in FY 2009 and 2010 using funding from the American Recovery and Reinvestment Act (ARRA).<sup>3</sup>

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

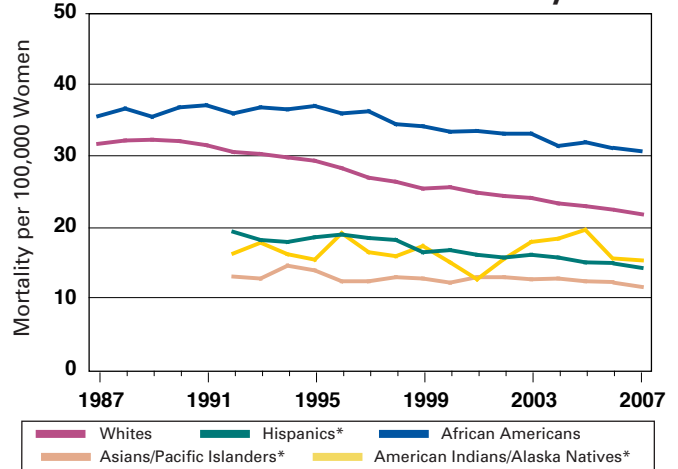
<sup>2</sup> The estimated NCI investment is based on funding associated with a broad range of peer-reviewed scientific activities. For additional information on research planning and budgeting at the National Institutes of Health (NIH), see <http://www.nih.gov/about/>.

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

U.S. Breast Cancer Incidence

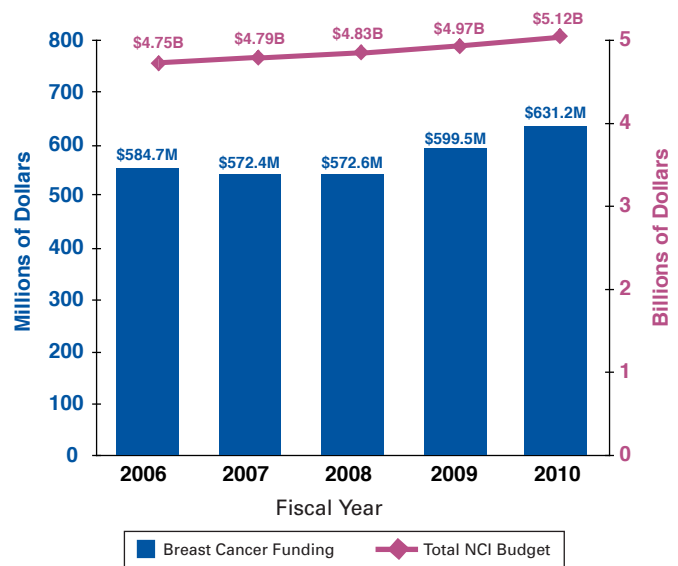


U.S. Breast Cancer Mortality



\* Incidence and mortality data not available before 1992.

NCI Breast Cancer Research Investment



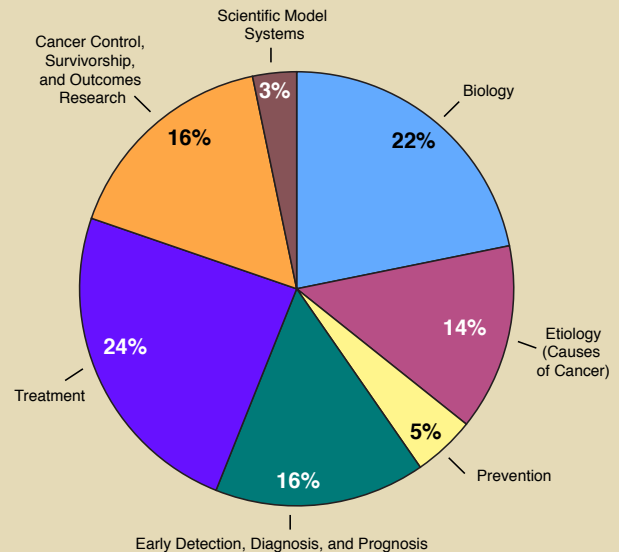
## Examples of NCI Activities Relevant to Breast Cancer

- The **Trial Assigning Individualized Options for Treatment (Rx)**, or **TAILORx**, is determining whether genes associated with risk of recurrence in women with early-stage breast cancer can be used to identify the most appropriate and effective treatments for these women. <http://www.cancer.gov/clinicaltrials/noteworthy-trials/tailorx>
- The **Integrative Cancer Biology Program** combines experimental and clinical research with mathematical modeling to gain new insight into cancer biology, prevention, diagnostics, and treatments. Three centers are developing breast-cancer-related computational models. <http://icbp.nci.nih.gov/>
- The National Cancer Institute and the National Institute of Environmental Health Sciences are jointly funding four **Breast Cancer and the Environment Research Centers (BCERCs)**. The Centers conduct transdisciplinary research on the effects of early environmental exposures on breast development and breast cancer risk. <http://www.bcerc.org/index.htm>
- The **Breast Cancer Risk Assessment Tool** helps health professionals assess a woman's risk of developing invasive breast cancer. The interactive tool is updated as new research results become available; it was recently updated to include African-American women and Asian and Pacific Islander women in the United States. <http://www.cancer.gov/bcrisktool/>
- The **Breast Cancer Surveillance Consortium** is a research resource for investigators assessing breast cancer screening practices and their relation to stage at diagnosis, survival, and breast cancer mortality. Seven mammography registries are part of the Consortium. <http://breastscreening.cancer.gov/>
- Seven breast-cancer-specific **Specialized Programs of Research Excellence (SPORs)** are moving results from the laboratory to the clinical setting. The SPORs support

## Selected Advances in Breast Cancer Research

- Researchers have found that **mammography screening in women with a personal history of breast cancer detects early-stage second cancers but is less accurate** than screening in women who have not had breast cancer. <http://www.ncbi.nlm.nih.gov/pubmed/21343578>
- A study has revealed a **genetic variation that may be associated with longer survival** in women with estrogen-receptor-negative breast cancer. <http://www.ncbi.nlm.nih.gov/pubmed/20308648>
- Whole-genome sequencing has revealed **genetic alterations linked to resistance to estrogen-lowering drugs** in patients with estrogen-receptor-positive breast cancer. <http://www.cancer.gov/ncicancerbulletin/040511/page3#e>
- Researchers have found that **changes in energy balance may affect the expression of the BRCA1 gene**, which is linked to breast cancer risk, by regulating the activity of a transcription factor. <http://www.ncbi.nlm.nih.gov/pubmed/21102443>

## NCI Breast 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>

research in the development of novel agents, technologies, and markers for the better diagnosis, prognosis, screening, prevention, and treatment of breast cancer. <http://trp.cancer.gov/spores/breast.htm>

- The **What You Need to Know About™ Breast Cancer** booklet contains important information about breast cancer, including possible causes, screening, symptoms, diagnosis, treatment, and supportive care. Information specialists can also answer questions about cancer at 1-800-4-CANCER. <http://www.cancer.gov/cancertopics/wyntk/breast>
- The **NCI Breast Cancer Home Page** directs visitors to up-to-date information on breast cancer treatment, prevention, genetics, causes, screening, testing, and other related topics. <http://www.cancer.gov/cancertopics/types/breast>