



Your Facility Name Here

This header text can be customized to deliver a specific message to your patients or to highlight programs and events at your facility.

Comprehensive Cancer Information for Patients, Families and Medical Professionals Printed from CancerHelp®

Disclaimer:

CancerHelp™ is not intended, nor should it be used to make medical recommendations. It is intended merely to provide information that may help you and your licensed physician make decisions about your care. Information is kept current through monthly updates.

Screening for Breast Cancer 02/03

-- Significance --

-- Incidence --

Breast cancer is the most common noncutaneous cancer in U.S. women, with an estimated 203,500 new cases of invasive disease (plus 54,300 cases of in situ disease) and 39,600 deaths in 2002.[1] Males account for only 1% of all breast cancer deaths in the United States. From 1973 to 1980, female breast cancer incidence rates increased slightly from 82.6 per 100,000 in 1973 to 85.5 per 100,000.[2] Then, coincident with the increasingly widespread adoption of screening mammography, incidence rates climbed to 110.4 per 100,000 in 1990 and 118.1 per 100,000 in 1998. By 1996-1997, 70.9% of U.S. women aged 40 or older reported having had a mammogram within the previous 2 years.[3]

The risk of breast cancer depends on age (Table 1). A lifetime risk of 1 in 8 is often quoted, however this is the cumulative risk from birth onward and can be misleading. For an average 40-year-old woman, her risk of developing breast cancer in the next 10 years is less than 1 in 60. For an average 70-year-old woman, her 10-year risk of developing breast cancer is 1 in 25.

=====
Table 1: Probability of developing invasive breast cancer among women who are free from invasive breast cancer at their current age, shown as risk over specific intervals of time (based on an analysis of data from the Surveillance, Epidemiology, and End Results (SEER) registry for 1997-1999) [4]

Current age (in years)	Risk interval (in years)			
	+10	+20	+30	Eventually
30	0.40%	1.85%	4.56%	13.48% (1 in 7)
40	1.47%	4.21%	7.53%	13.24% (1 in 8)
50	2.84%	6.25%	9.68%	12.16% (1 in 8)
60	3.67%	7.35%	9.54%	10.00% (1 in 10)

-- Mortality --

Breast cancer mortality is second only to that of lung cancer in the United States. In 2002, an estimated 39,600 women will die of breast cancer, compared with 65,700 women who will die of lung cancer.[4] The age-adjusted breast cancer mortality rate remained fairly constant between 1973 and 1990, increasing only about 1.5% over that 18-year period. Since 1991, there has been a sustained reduction in age-adjusted breast cancer mortality of about 2% per year which may be due to improved treatment, screening, changes in the demographic composition of the population, and

other factors. The relative contribution of these factors, and their interactions, to the observed decrease in breast cancer mortality is not clear, and would be very difficult to determine with confidence.

Breast cancer incidence increases much faster with age than does breast cancer mortality. For an average woman who is presently free of breast cancer, the chance of dying from breast cancer within the next 10 years is extremely small if she is young and it rises to about 1% if she is over age 65 (Table 2). The risk of dying due to breast cancer plateaus for older women because rates of death from other causes rise sharply.[5]

=====
 Table 2: Mortality risk according to age: Breast cancer and all causes [7]

For women aged:	Chance of dying of breast cancer in the next 10 years	Chance of dying from any cause in the next 10 years
40-44	0.3% (1 in 333)	2.1% (1 in 48)
45-49	0.4% (1 in 250)	3.3% (1 in 30)
50-54	0.6% (1 in 167)	5.1% (1 in 20)
55-59	0.7% (1 in 143)	8.1% (1 in 12)
60-64	0.8% (1 in 125)	12.0% (1 in 8)
65-69	1.0% (1 in 100)	18.0% (1 in 6)
70-74	1.1% (1 in 91)	27.0% (1 in 4)
75-79	1.2% (1 in 83)	41.0% (1 in 2)
80-84	1.2% (1 in 83)	67.0% (2 in 3)
85+	1.1% (1 in 91)	79.0% (4 in 5)

* (adapted from Woloshin & Schwartz, 1999) [6]

=====
 -- Other Risk Factors --

Older age is the most important risk factor for breast cancer. Additional risk factors include early age at menarche, late age at first birth, history of prior breast biopsies, especially proliferative benign breast disease,[7] [8] [9] [10] radial scars (also called radial sclerosing lesions because most are unrelated to previous surgery),[11] and family history of breast cancer. A model for estimating individual risk over time based on these risk factors (the Gail Model) has been developed and validated. The model is applicable to women 40 years or older who receive regular mammography.[12] [13] [14] (Refer to the Breast Cancer Risk Assessment Tool at <http://bcra.nci.nih.gov/brc/>.)

Women with a prior history of breast cancer, strong family history of breast cancer, and women with prior thoracic radiation are at increased risk of breast cancer. Women with a history of invasive breast cancer, ductal carcinoma in situ or lobular carcinoma in situ are at increased risk for breast cancer, which is approximately 0.6% to 1.0% per year.[15] Women who have received thoracic radiation, especially under the age of 30, may have a risk of breast cancer of 1% per year, starting 10 years after the irradiation.[16] Women with a family history of breast cancer, especially in first-degree relatives, are at increased risk. (Refer to the PDQ summary on Genetics of Breast and Ovarian Cancer for more information concerning the role of family history.)

Additional risk factors, such as radiologic dense breast,[17] [18] [19] and behavioral factors, such as hormone use or alcohol intake, are associated with an increased risk of breast cancer. Ionizing radiation is a carcinogen for breast tissue. (Refer to the PDQ summaries on Cancer Prevention Overview and Prevention of Breast Cancer for more information.)

Breast cancer incidence and mortality risk also vary according to geography, culture, race, ethnicity, and socioeconomic status, and are discussed more fully below (refer to the section on Special Populations). Behavioral or environmental factors may affect breast cancer risk.

References:

1. Jemal A, Thomas A, Murray T, et al.: Cancer statistics, 2002. *CA Cancer J Clin* 52 (1): 23-47, 2002 Jan-Feb.
2. Ries LA, Eisner MP, Kosary CL, et al.: SEER Cancer Statistics Review, 1973-1999. Bethesda, Md: National Cancer Institute, 2002. Also available online. Last accessed October 11, 2002.
3. Self-reported use of mammography and insurance status among women aged > or =40 years--United States, 1991-1992 and 1996-1997. *MMWR Morb Mortal Wkly Rep* 47 (39): 825-30, 1998.
4. American Cancer Society: Cancer Facts and Figures 2002. Atlanta, Ga: American Cancer Society, 2002. Also available online. Last accessed October 11, 2002.
5. Kerlikowske K, Salzman P, Phillips KA, et al.: Continuing screening mammography in women aged 70 to 79 years: impact on life expectancy and cost-effectiveness. *JAMA* 282 (22): 2156-63, 1999.
6. Woloshin S, Schwartz LM: How can we help people make sense of medical data? *Eff Clin Pract* 2 (4): 176-83, 1999 Jul-Aug.
7. London SJ, Connolly JL, Schnitt SJ, et al.: A prospective study of benign breast disease and the risk of breast cancer. *JAMA* 267 (7): 941-4, 1992.
8. McDivitt RW, Stevens JA, Lee NC, et al.: Histologic types of benign breast disease and the risk for breast cancer. The Cancer and Steroid Hormone Study Group. *Cancer* 69 (6): 1408-14, 1992.
9. Dupont WD, Page DL: Risk factors for breast cancer in women with proliferative breast disease. *N Engl J Med* 312 (3): 146-51, 1985.
10. Carter CL, Corle DK, Micozzi MS, et al.: A prospective study of the development of breast cancer in 16,692 women with benign breast disease. *Am J Epidemiol* 128 (3): 467-77, 1988.
11. Jacobs TW, Byrne C, Colditz G, et al.: Radial scars in benign breast-biopsy specimens and the risk of breast cancer. *N Engl J Med* 340 (6): 430-6, 1999.
12. Gail MH, Brinton LA, Byar DP, et al.: Projecting individualized probabilities of developing breast cancer for white females who are being examined annually. *J Natl Cancer Inst* 81 (24): 1879-86, 1989.
13. Bondy ML, Lustbader ED, Halabi S, et al.: Validation of a breast cancer risk assessment model in women with a positive family history. *J Natl Cancer Inst* 86 (8): 620-5, 1994.

14. Spiegelman D, Colditz GA, Hunter D, et al.: Validation of the Gail et al. model for predicting individual breast cancer risk. *J Natl Cancer Inst* 86 (8): 600-7, 1994.
15. Gail MH, Costantino JP, Bryant J, et al.: Weighing the risks and benefits of tamoxifen treatment for preventing breast cancer. *J Natl Cancer Inst* 91 (21): 1829-46, 1999.
16. Goss PE, Sierra S: Current perspectives on radiation-induced breast cancer. *J Clin Oncol* 16 (1): 338-47, 1998.
17. Ma L, Fishell E, Wright B, et al.: Case-control study of factors associated with failure to detect breast cancer by mammography. *J Natl Cancer Inst* 84 (10): 781-5, 1992.
18. Goodwin PJ, Boyd NF: Mammographic parenchymal pattern and breast cancer risk: a critical appraisal of the evidence. *Am J Epidemiol* 127 (6): 1097-108, 1988.
19. Fajardo LL, Hillman BJ, Frey C: Correlation between breast parenchymal patterns and mammographers' certainty of diagnosis. *Invest Radiol* 23 (7): 505-8, 1988.

The information in this system has been produced and assembled by the CancerHelp Institute © Copyright, 1991-2002. CancerHelp® is a registered trademark of the CancerHelp Institute. The CancerHelp Institute, 1000 Skokie Blvd., Suite 100, Wilmette, IL 60091, Phone: (847) 256-3093, Fax: (847) 256-4985.

This footer text can also be customized.