



CHAPTER 4. Breast Cancer

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BREAST CANCER

IMPORTANCE OF BREAST CANCER FOR CANCER PREVENTION AND CONTROL

Nationally, female breast cancer is the most common cancer among women, comprising an estimated 26% of new cancer cases and causing 15% of cancer deaths in U.S. females for 2007.¹ (Information about breast cancer in males can be found by contacting <http://www.nci.nih.gov>.) The greatest impact on reducing the number of years lost to cancer will come from progress against common cancers such as breast cancer.² From 1992 to 2002, breast cancer incidence rates increased for Asian/Pacific Islander women, decreased among American Indian/Alaska Native women, and remained the same for other women. During the same time period, breast cancer death rates declined among white, black, and Hispanic women.³ In 2003, breast cancer caused 800,000 person-years of life lost, ranking second after lung cancer (2,403,000).⁴ The rate of new cases of late-stage breast cancer continues to remain relatively stable, indicating that the impact of breast cancer screening on breast cancer stage at diagnosis must be examined further.⁴

The causes of breast cancer are not all known; however, some risk factors are well recognized. The major risk factors for breast cancer include:

- Age
- Genetic factors (personal or family history or genetic mutations)
- Hormonal factors
 - early menarche (early onset of menstruation)
 - late menopause
 - late parity (bearing children late)
 - nulliparity (not bearing children)
 - exogenous estrogen exposure
- High breast tissue density (a mammographic measure of the amount of glandular tissue relative to fatty tissue in the breast)
- Very high doses of radiation (such as that used in radiation therapy)^{1,5}

High educational and socioeconomic levels are linked with greater risk, probably due to their association with reproductive risk factors. Jewish women are also known to be at higher risk of breast cancer, while black women have lower rates of the disease than do white women, except in younger age groups.

Estrogen exposure leading to increased risk of breast cancer includes the use of high-dose oral contraceptives (particularly in women with a family history of breast cancer), hormone replacement therapy after menopause, and factors leading to obesity (which increases circulating levels of estrogen).

Certain types of proliferative benign breast disease (such as radial scar, atypical hyperplasia, and proliferative fibrocystic change), and other factors, such as pesticide and other chemical exposures that mimic or modify the action of estrogens and gene-environment interactions, are being investigated.^{1,6-8}



BREAST CANCER IN NEW JERSEY

In this section we discuss the status of breast cancer in New Jersey, including incidence, mortality, prevalence, survival, and prevention and early detection.

Incidence. The American Cancer Society estimates that, among women in the U.S., 178,480 cases of breast cancer will be newly diagnosed in 2007. In New Jersey alone, approximately 6,080 female breast cancer cases will be diagnosed in 2007.¹

After continuously increasing for more than two decades, U.S. female breast cancer incidence rates leveled off from 2001–2003.¹ The female breast cancer incidence rates in New Jersey increased from 1979 to 1990, declined for a few years, and peaked again in 1997. The rate has generally been decreasing since 1997.² New Jersey females had higher incidence rates than U.S. females in 2003 (125.6 versus 119.3 per 100,000**). Incidence rates in white females were also higher in New Jersey than in the U.S. in 2003 (130.0 versus 121.1 per 100,000**). However, incidence rates in black females in New Jersey were lower than in the U.S. (105.7 versus 109.4 per 100,000**). The incidence rate for Hispanic women in New Jersey was lower than for both black women and white women (95.6 per 100,000** in 2003).¹⁰

According to 2004 data from the New Jersey State Cancer Registry, a lower proportion of Hispanic and black women were diagnosed in the early stages of breast cancer (in situ and localized) than was the case for non-Hispanic and white women (Figure 2).^{10,11} In New Jersey, the percent of breast cancers diagnosed in the early stage has steadily increased in both black and white women in the past ten years. However, the percent of white women being diagnosed in the early stages is higher than that for black women in New Jersey (70.0% versus 61.4%) in 2004* (Figure 2).¹⁰

One type of breast cancer that is less well-known is called inflammatory breast cancer (IBC). IBC is a rare but very aggressive type of breast cancer in which the breast often looks swollen and red, or “inflamed”. IBC accounts for 1 to 5 percent of all breast cancer cases in the U.S. It occurs more frequently and at a younger age in blacks than in whites. Symptoms of IBC may include redness, swelling, and warmth in the breast, often without a distinct lump in the breast.¹² According to data from the New Jersey State Cancer Registry, 39 women in New Jersey were diagnosed with IBC in 2004.¹⁰

It is important to note that breast cancer may occur in men. About 2,030 new cases of male breast cancer are expected in the U.S. in 2007.¹ According to data from the New Jersey State Cancer Registry, 69 cases of breast cancer occurred among New Jersey males in 2004.¹⁰

Mortality. The American Cancer Society estimates that in 2007, approximately 40,000 breast cancer deaths will occur among U.S. women, and 450 breast cancer deaths will occur among U.S. men. Death rates from breast cancer have steadily decreased in women since 1990, with larger decreases in women younger than 50. These decreases are due to a combination of earlier detection and prompt treatment. In New Jersey alone, approximately 1,350 women will die from breast cancer in 2007.¹ According to the

* Incidence rates for the year 2004 data from the New Jersey State Cancer Registry are preliminary.

** Rates are per 100,000 and age-adjusted to the 2000 U.S. population standard.



New Jersey State Cancer Registry, 15 New Jersey men died from breast cancer in 2003. Consistent with 2003 U.S. mortality rates, black women in New Jersey have a higher mortality rate compared to white women, despite lower incidence rates for black women (Figures 1 and 3). In 2003, white females had a higher rate of breast cancer mortality in New Jersey than in the U.S. (28.5 per 100,000** versus 24.6 per 100,000**, respectively). New Jersey breast cancer mortality rates in black females, however, are similar to U.S. rates (Figure 3). In 2003, breast cancer mortality in Hispanic females in New Jersey was less than one-half the mortality rate of non-Hispanics.^{13,14}

Prevalence. Breast cancer accounts for the highest proportion of total cancer prevalence among New Jersey women, i.e., the proportion of New Jersey women alive who were ever diagnosed with breast cancer. Estimates indicate that on January 1, 2003, there were 72,595 or 1.6% of New Jersey women alive who had ever been diagnosed with breast cancer. As with other cancers, the prevalence of female breast cancer increases with age and is highest in the 65+ age group (6.3%). The prevalence of female breast cancer is approximately two times higher among whites than blacks (1.9% versus 0.9%).¹⁵

Survival. The five-year relative survival rate for female breast cancer diagnosed in New Jersey from 1994–1997 is approximately 85%. This rate is similar to that for the U.S. Although there is a high overall survival rate, disparities exist between black and white women. In New Jersey, as in the U.S., black women have a lower survival rate than white women (73.4% versus 85.8%, respectively).¹⁶

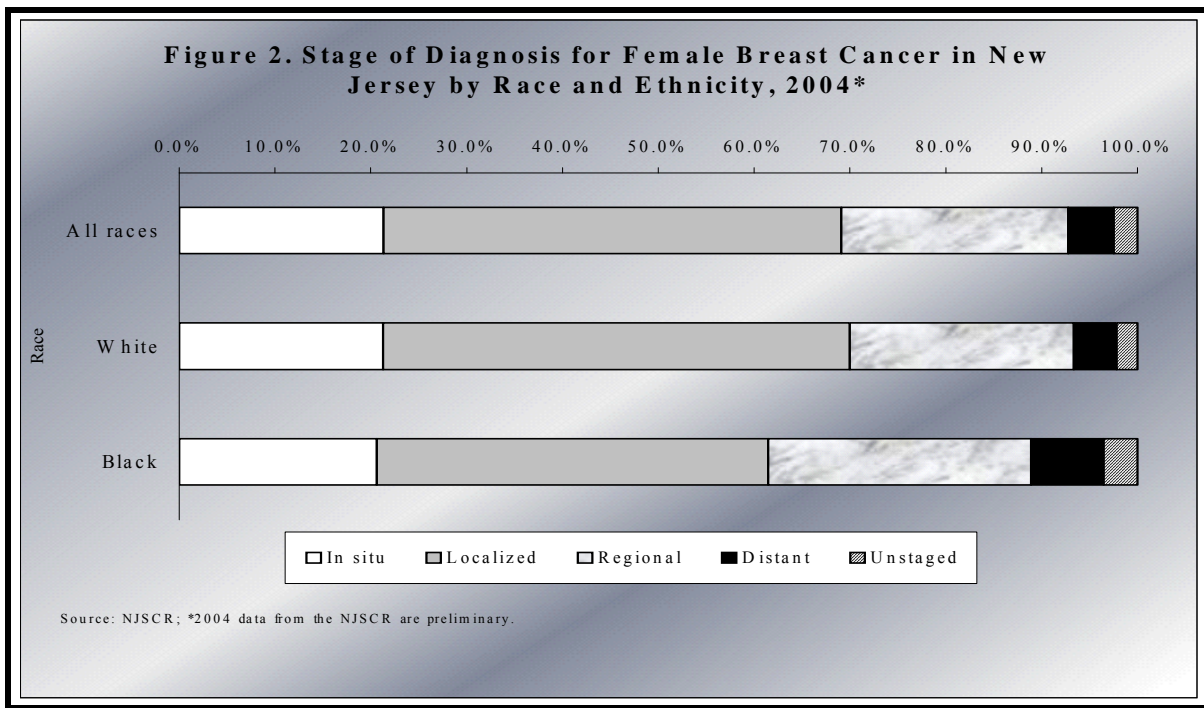
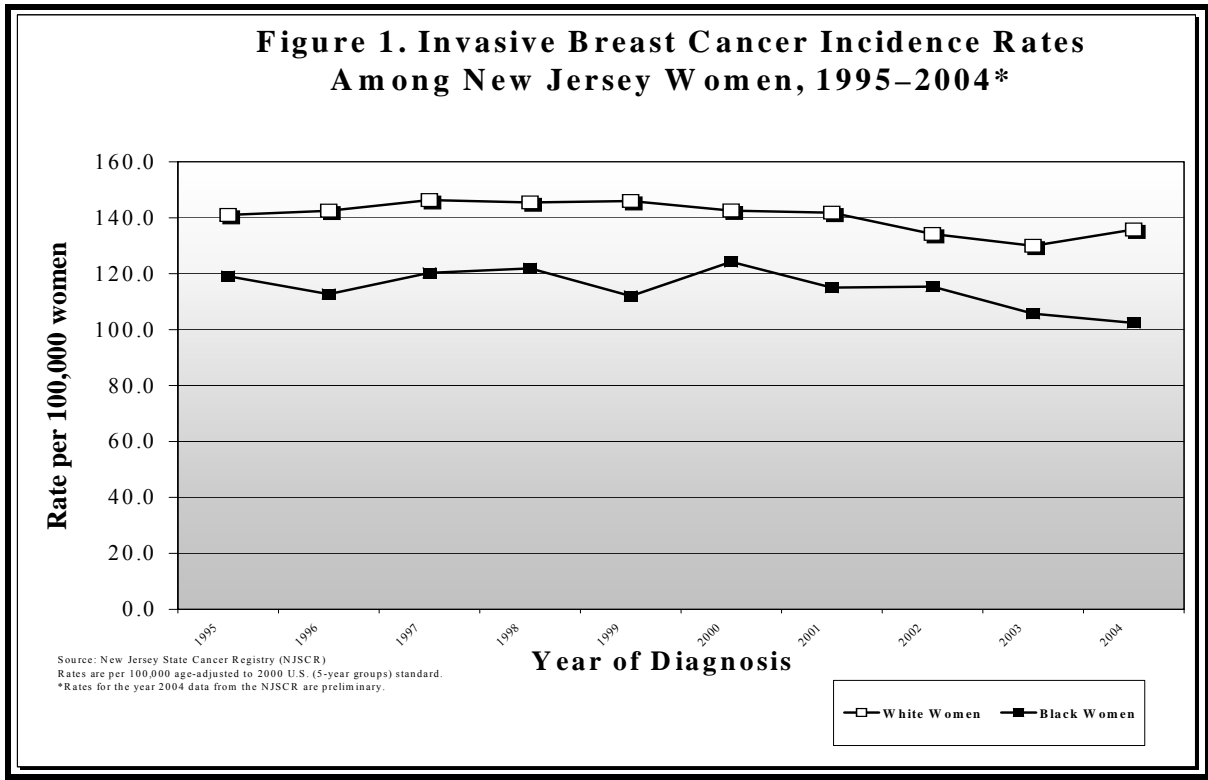
Female breast cancer survival rates are much higher for cancers diagnosed at the local stage than at the regional or distant stage. In New Jersey, from 1984–1997, the percentage of breast cancers diagnosed at the local stage increased from 47% to 58% for white women and from 46% to 50% for black women. Although the five-year survival rates improved from 1984 to 1997 for black women and white women with breast cancer diagnosed at the local or regional stage, it did not improve for women of either race diagnosed at the distant stage. In New Jersey, black women’s survival remained lower than white women’s for each stage at diagnosis.¹⁶

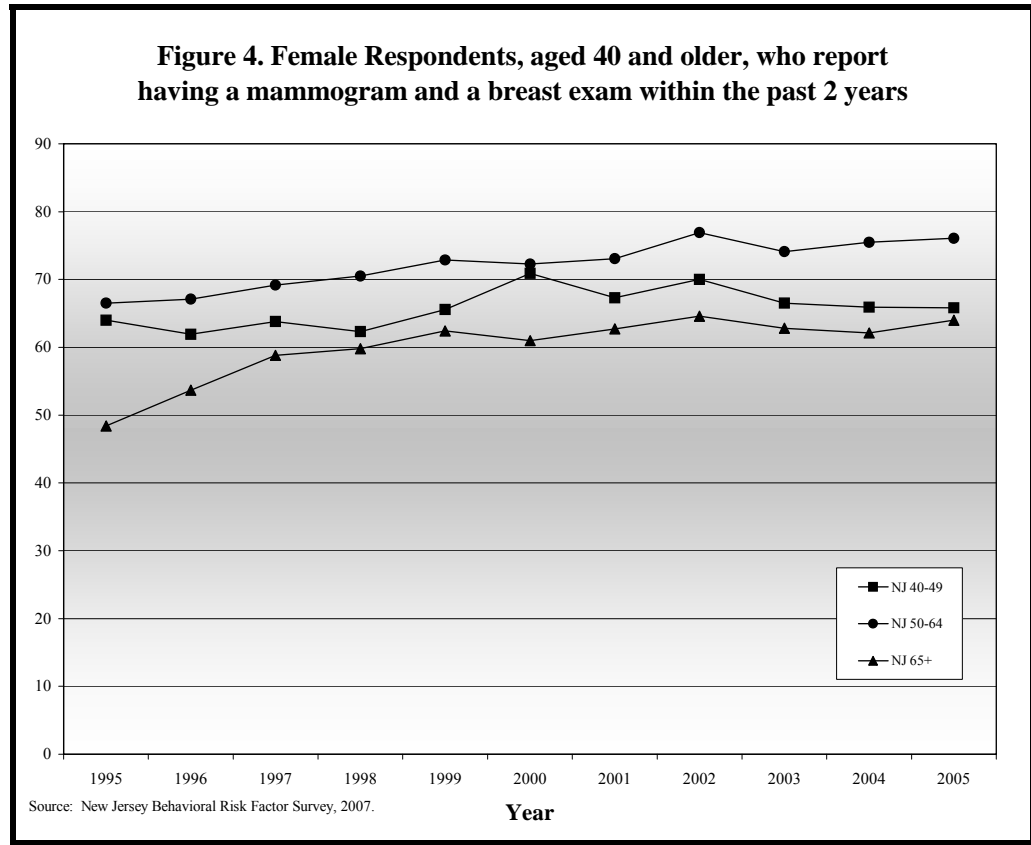
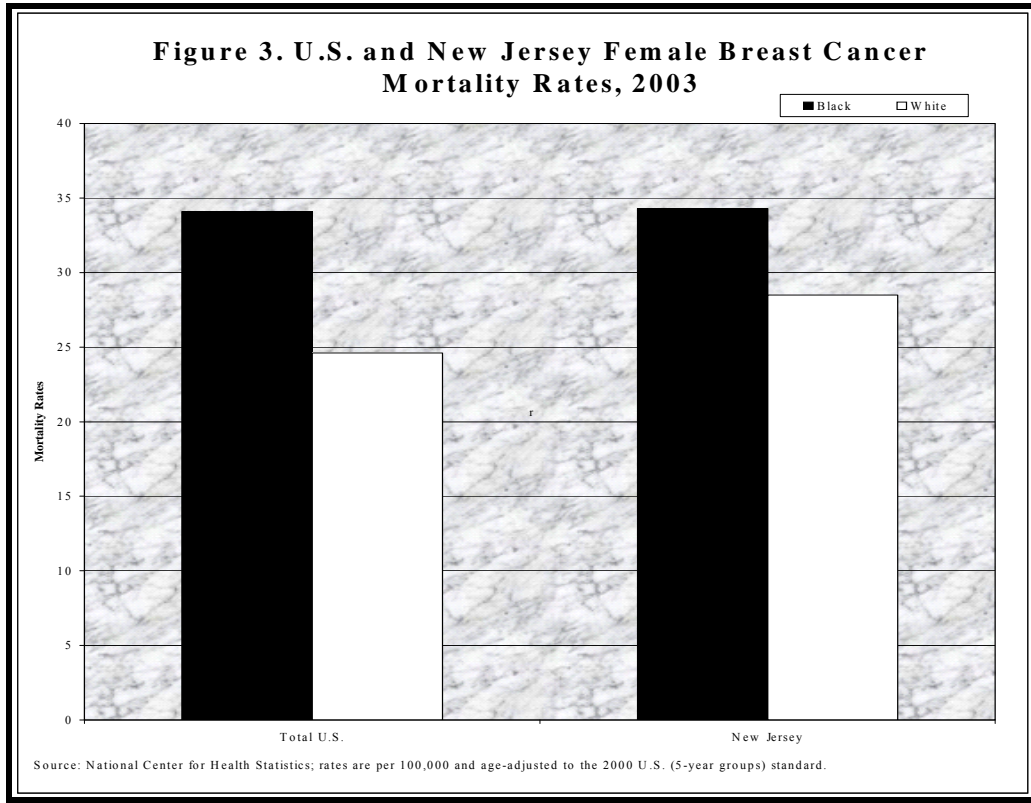
Prevention and early detection. Data from the New Jersey Behavioral Risk Factor Survey indicate that the percent of New Jersey women receiving mammography increased by almost 10% between 1995 and 2005. The number of women reporting that they had a mammogram and a breast exam increased in all age groups (Figure 4).¹⁷ New Jersey mammography rates for 2004 were similar to the U.S. rates.¹⁸

Conclusion. New Jersey data from 2003 reveal that white women have a higher incidence rate of breast cancer than do black women.¹⁰ However, black women continue to have a higher mortality rate from breast cancer.¹³ These differences may result from genetic factors or the disparity observable by race in healthcare prevention and treatment services, which is reflective of access-to-care, prevention, education, and early-detection issues in New Jersey. The latter probable causes should be the focus of our efforts over the next several years.

* Incidence rates for the year 2004 data from the New Jersey State Cancer Registry are preliminary.

** Rates are per 100,000 and age-adjusted to the 2000 U.S. population standard.







HEALTHY NEW JERSEY 2010 GOALS

Healthy New Jersey Goal 1

Increase the percentage of females aged 40 and over who received a clinical breast examination and a mammogram within the past two years, by 2010.

Table 1. Women aged 40+ who received a clinical breast exam and mammogram within the past two years, New Jersey, 2000–2003, and [Healthy New Jersey 2010](#) projected target rate.¹⁹

Population	2000	2001	2002	2003	Target	Preferred 2010 Endpoint
Total	68.0	67.8	70.7	67.9	75.0	85.0
White	67.9	69.6	70.8	69.3	75.0	85.0
Black	68.5	65.9	78.2	70.5	75.0	85.0
Hispanic	72.9	66.2	**	63.9	75.0	85.0
Asian/Pacific Islander*	**	**	**	43.2	***	***
Females 50–64	72.3	73.1	76.9	74.1	85.0	90.0
Females 65+	61.0	62.7	64.6	62.8	75.0	85.0
HMO enrolled females 52–69	68.3	71.4	73.1	69.9	85.0	90.0

* Estimate has a relatively large standard error.

** Estimate is unreliable.

*** A target was not set because the baseline data for this subpopulation were statistically unreliable.

Note: Data for white, black, and Asian/Pacific Islander do not include Hispanics.

Healthy New Jersey Goal 2

Increase the percentage of female breast cancers diagnosed in early (in situ/local) stage of disease, by 2010.

Table 2. Female breast cancers diagnosed in early stage, New Jersey, 1999–2002, and [Healthy New Jersey 2010](#) projected target rates.¹⁹

Population	1999	2000	2001	2002	Target	Preferred 2010 Endpoint
Total	66.4	66.7	67.1	67.7	75.0	85.0
White	67.5	67.6	68.0	68.8	75.0	85.0
Black	57.5	58.7	60.0	59.8	75.0	85.0
Hispanic	65.0	65.2	64.5	66.4	75.0	85.0
Asian/Pacific Islander	*	*	*	*	**	**
Females 65+	67.3	66.3	67.4	67.6	75.0	85.0

* The number of Asian/Pacific Islander cases is known to be understated.

** A target was not set because the baseline data for this subpopulation were statistically unreliable.

Note: Data for white, black, and Asian/Pacific Islander include Hispanics and non-Hispanics.



Healthy New Jersey Goal 3 Reduce the death rate from female breast cancer among women 50 years of age and over per 100,000 female population by 2010.

Table 3. Death rate from female breast cancer, ages 50 and over, New Jersey, 1999–2002, and [Healthy New Jersey 2010](#) projected target rates.¹⁹

Population	1999	2000	2001	2002	Target	Preferred 2010 Endpoint
Aged 50–64	53.9	55.5	55.2	51.4	45.0	20.0
Aged 65+	136.5	151.0	134.4	136.9	115.0	100.0



GOALS, OBJECTIVES, AND STRATEGIES

In 1995, a Breast Cancer Summit was held to gather New Jersey physicians, researchers, health professionals, and organizations to address the serious healthcare crisis in breast cancer. In a report of the Breast Cancer Summit,²⁰ *Breast Cancer Mortality in New Jersey: A Time for Action*, five areas for action were identified for New Jersey: early detection, therapeutics, research, healthcare policy, and data. Over a decade later in 2006, the Breast Cancer Workgroup concurs that these remain important priorities for the state. Therefore, the Breast Cancer Workgroup has used the action plan of the Breast Cancer Summit as a basis for addressing breast cancer mortality in this *Plan*.

In support of the Healthy New Jersey 2010 goals for breast cancer, the recommendations of the Breast Cancer Workgroup are summarized below for the following focal areas:

- Prevention
- Screening
- Research and surveillance

PREVENTION

There is currently no proven strategy for preventing breast cancer among women of average risk. However, among women identified as high risk for developing breast cancer, certain therapies may aid in breast cancer prevention.

Genetic testing for breast cancer risk is a relatively new field. The “breast cancer gene,” BRCA1, was identified in 1994 and BRCA2 in 1995.^{21,22} Testing positive for either of these genetic mutations indicates enhanced breast and ovarian cancer risk—either higher risk of an initial cancer (for unaffected women) or a recurrence or second primary cancer (for women already affected by cancer). While only 2–3% of all breast cancers are attributable to these mutations, women with BRCA1 or BRCA2 mutations have approximately a 33% to 50% risk of developing breast cancer by age 50.^{23–25} By age 70, a mutation carrier’s risk of developing breast cancer is 45% to 65%.^{25–28} Identifying women at increased risk for developing breast cancer can help to target preventive strategies, such as increased surveillance, chemoprevention, prophylactic mastectomy, and prophylactic oophorectomy (where the ovaries are removed to prevent the production of hormones that may increase the risk of breast cancer).

Studies suggest that prophylactic mastectomy, or the surgical removal of both breasts prior to cancer diagnosis, is the most effective method of preventing breast cancer in women who carry the BRCA1 and BRCA2 germline mutations.²⁹ However, surgical intervention often has physical and psychosocial implications that make it an unacceptable option for many women. Another option for these women is to consider prophylactic oophorectomy, which reduces the risk of both ovarian cancer and breast cancer.

Tamoxifen, a selective estrogen-receptor modulator, has been used in the chemoprevention of breast cancer in high-risk women since the U.S. Food and Drug Administration (FDA) approved it for that use in 1998. Five-year adjuvant treatment with tamoxifen has also been shown to significantly reduce recurrence of secondary malignancies in early-stage breast cancer patients.³⁰ However, tamoxifen may also increase the risk of contracting other serious diseases, including endometrial cancer, stroke, and blood clots in veins and in the lungs.^{5,31–33}



Recent research has shown that the drug raloxifene, used in the prevention and treatment of osteoporosis, is as effective as tamoxifen in preventing breast cancer. Studies also suggest that raloxifene may have a lower occurrence of serious side-effects. [5,31,32](#)

Other prevention strategies recognized by the National Cancer Institute include suppression of hormonal factors, reducing radiation exposure, and dietary factors. [34,35](#)

Women concerned that they may be at increased risk of developing breast cancer should talk with their doctor about appropriate screening modalities and preventive therapy.

GOAL BR-1 To increase the practice of breast cancer prevention strategies among women at high risk of developing breast cancer.

Objective BR-1.1

To increase public and professional awareness of the *factors that place women at high risk for developing breast cancer* through wide dissemination of culturally and linguistically appropriate educational materials and curriculum development.

Strategies

- BR-1.1.1** Identify existing, and develop as needed, breast cancer educational materials and programs to use in reaching all women and promoting awareness of breast cancer risk factors. Disseminate multi-lingual, culturally appropriate materials to diverse communities as needed through appropriate community members who care for them (e.g., healthcare providers, laypersons, survivors, and community leaders).
- BR-1.1.2** Create a curriculum with continuing education credits to provide information to healthcare practitioners on risk reduction and genetic risk factor assessment. This curriculum should be interactive and developed in different formats and media, e.g., internet, audiotape, CDs, etc. by partnering with professional organizations.
- BR-1.1.3** Widely distribute and promote this breast cancer curriculum through, e.g., the Medical Society of New Jersey, and other professional and specialty groups.

Objective BR-1.2

To increase public and professional awareness of *breast cancer prevention strategies* for those at high risk through wide dissemination of culturally and linguistically appropriate educational materials and curriculum development.



Strategies

- BR-1.2.1** Identify existing, and develop as needed, breast cancer educational materials and programs to use in reaching high-risk women and promoting awareness of the benefits of preventive therapies. Disseminate multi-lingual, culturally and linguistically appropriate materials to diverse communities as needed through appropriate community members who care for them (e.g., healthcare providers, laypersons, survivors, and community leaders).
- BR-1.2.2** Create a curriculum with continuing education credits to provide information to healthcare practitioners on breast cancer prevention strategies for women at high risk. This curriculum should be interactive and developed in different formats and media, e.g., internet, audiotape, CDs, etc. by partnering with professional organizations.
- BR-1.2.3** Widely distribute and promote this breast cancer curriculum through the Medical Society of New Jersey and other professional and specialty groups.

Objective BR-1.3

To educate women who come in for breast cancer screening about early detection and the need for appropriate follow-up, diagnostic testing, and annual rescreening.

Strategies

- BR-1.3.1** Identify existing, develop as needed, and distribute widely, culturally and linguistically appropriate materials that describe the importance of rescreening and follow-up visits, where necessary, and highlighting the importance of using a mammography facility that is FDA-accredited.
- BR-1.3.2** Identify existing, develop as needed, and distribute widely, culturally and linguistically appropriate information for dissemination to community groups and advocacy groups in order to publicize nationally recognized screening guidelines, where to go for screening, and the availability of programs for clients without health insurance, and to dispel fears and myths that exist around breast cancer.

SCREENING

Clinical Breast Examination (CBE) and mammography are the most common methods for screening and early detection of breast cancer. Most expert groups no longer recommend breast self-examination, but recommend mammography, with or without CBE, beginning at age 40, although guidelines for frequency of testing differ by organization.^{36–39} Digital mammography is becoming a standard screening tool, especially for young women with dense breast tissue where an advantage is seen over film screen mammography. The role of ultrasound and breast magnetic resonance imaging (MRI)



for screening purposes is still unclear. For more information about screening guidelines for breast cancer see Appendix C.

Regular use of mammograms can reduce the chances of dying from breast cancer. Randomized clinical trials have demonstrated a 20% to 35% reduction in breast cancer mortality in women aged 50 to 69 years who are screened annually or biennially with mammograms.^{7,36} For women in their 40s, the risk can be reduced by about 17%. It is estimated that for every 500 to 1,800 women 40 years of age who are routinely screened with mammography, one breast cancer death is prevented.³⁶ For women aged 70 and older, mammography may be helpful, although firm evidence is lacking.^{36,39}

Breast cancers in women under 40 comprise approximately 5% of all new breast cancer diagnoses, or approximately 400 cases per year in New Jersey. However, routine screening with imaging is not recommended for women in this age group due to the high likelihood of false positives.⁴⁰ The American Cancer Society recommends clinical breast exams every three years for women under the age of 40.¹

Since implementation of the Mammography Quality Standards Act in 1994, all U.S. mammography centers must be certified by the FDA.⁷ A complete list of all certified mammography centers in New Jersey can be found at <http://www.fda.gov/cdrh/mammography/certified.html>. A current list of FDA-approved digital mammography centers in New Jersey can be found at <http://www.hersource.com>.

New breast cancer screening mechanisms, including digital mammography, computer-aided detection programs, MRI, and ultrasound are being evaluated for efficacy. While some of these new tests have been shown to be effective in women at high risk, it is unknown whether they will have any effect on breast cancer mortality among women of average risk.³⁶

To increase screening for breast cancer, increase early diagnosis, and decrease death rates, the Breast Cancer Workgroup continues to identify education as a priority for New Jersey. The education process, developed under the first *Plan*, has four components: (1) developing a consensus message, (2) educating the public, (3) educating patients, and (4) educating healthcare professionals. An effective message will be one that encompasses all aspects of breast health and is adopted by professionals, communities, grassroots organizations, survivors, and advocacy groups through collaboration and partnerships. Although the Breast Cancer Workgroup discussed the importance of educating all New Jerseyans about breast health and quality breast cancer care, high-risk populations must be targeted first in order to address disparities apparent in the incidence and mortality data. See the Research and Surveillance component of this chapter for additional information about identification of high-risk populations for breast cancer.

Building Consensus

The process of education must begin with achieving consensus on approaches to breast cancer prevention, early detection, and treatment. Currently, several different messages are being disseminated about breast cancer screening. Most organizations recommend annual mammograms for women aged 40 and older based on strong evidence that mortality is reduced.^{39,41,42} Yet recommendations for breast self-examination and clinical breast examination vary drastically. The U.S. Preventive Services Task Force (USPSTF) and the National Institutes of Health (NIH) conclude that evidence is insufficient to recommend for or against teaching or performing routine breast self-examination.^{39,42} The USPSTF also found insufficient evidence to recommend for or against CBE alone to screen for breast cancer.³⁹ The American Cancer Society, however, recommends a clinical breast exam be considered part of a periodic health exam and that breast self-exam is an option for women beginning in their 20s.⁴³ Without a consensus message,



breast cancer education is inconsistent and sporadic, and awareness about the importance of prevention and early detection is not universal.

Awareness and Education for the Public

Data from the New Jersey State Cancer Registry (presented earlier in this chapter) demonstrates that some segments of the New Jersey population are affected disproportionately by breast cancer. Although white women in New Jersey have higher incidence of breast cancer, black women are dying from it at a higher rate. Focused efforts by private sector organizations and federal and state governments to educate women about the importance of breast cancer prevention and early detection and to provide opportunities for mammography screening have resulted in dramatic increases in mammography screening rates over the past two decades. According to data from the Behavioral Risk Factor Surveillance System, women in New Jersey are utilizing breast cancer screening at the same rate as the U.S. (75%).¹⁸

The New Jersey Cancer Education and Early Detection Program (NJCEED) provides free mammograms to uninsured and underinsured women living at or below 250% of the federal poverty level. Healthcare providers and New Jersey women should be made aware of the services provided by NJCEED, including education, outreach, diagnosis, treatment, and follow-up.

Many studies have been conducted to identify both barriers to screening and interventions needed to overcome barriers, such as cost,⁴⁴ lack of knowledge regarding screening,⁴⁵ physician recommendation,⁴⁶ language,⁴⁷ cultural sensitivity issues,⁴⁷ inaccessible screening sites, and transportation.⁴⁷ In a recent New Jersey study, participants revealed that they are not motivated to obtain screening services because “prevention is not a priority.”⁴⁷

Efforts to educate women about the need for breast cancer screening have varied in their ability to overcome barriers and increase screening rates. Some successful attempts to persuade women of the necessity of screening mammograms have used nurse practitioners, videotapes, in-person counseling delivered by nurses or peers, mailings, and telephone counseling.^{48–53} Some have used social networks^{54,55} and community or healthcare systems approaches^{56,57} rather than focusing exclusively on individual behavior change.

Teaching breast self-care as breast changes occur in the adolescent girl can influence positive behaviors. Health promotion behaviors are often taught in high school, but little research has been conducted on teaching breast health in a high school setting, particularly breast cancer early detection and screening.⁵⁸ Another study found that educational lessons could improve knowledge and attitudes of adolescent girls with respect to breast self-examination.⁵⁹

Interventions should focus not only on improving one-time screening but also on improving annual screening. Recent research found that “off-schedule” women (women screened at least once and non-adherent with recommended screening intervals) had greater knowledge and were more positive about mammography than women who had never been screened, but their measures on these indicators were lower than those for “on-schedule” women.⁶⁰ Brief interventions from healthcare providers emphasizing the importance of repeat screening should be delivered to “off-schedule” women.

Given both the importance and the complexity of the issues, women should have access to the best possible relevant information regarding both benefits and risks of screening, presented in an



understandable and usable form. In addition, educational information to accompany this risk-benefit information should be prepared to lead women step by step through a process of informed decision-making.³⁸ The Breast Cancer Workgroup also proposes that breast cancer screening and early detection be taught early to foster knowledge about lifelong breast health.

Awareness and Education for the Cancer Patient

Not only is it essential that awareness be increased in the general public, awareness must also be increased in the cancer patient population. For a number of reasons, follow-up for evaluation and treatment is often not completed. A recent study indicates that up to 20% of women do not receive timely recommended follow-up after an abnormal mammogram.⁶¹ Lack of understanding by the patient about the next steps often contributes to incomplete follow-up, as does inconsistent sharing of information.²⁷ A recent intervention among low-income, ethnic minority women demonstrated that the use of a patient navigator and counseling are highly effective strategies to improve follow-up of abnormal mammograms.⁶²

Primary care physicians hold a strategic position for the delivery of preventive care services because of their access to the patient population and their long-term relationship with patients. It has been shown that by implementing a multi-faceted intervention, patients are more likely to assume an active role in decision-making.⁶³ Pre-consultation education also appears to be an effective clinical strategy for helping patients gain an accurate understanding of treatment options before meeting with their physicians.⁶⁴ This information must be presented in an understandable and culturally appropriate format.

Awareness and Education for Healthcare Practitioners

Approximately 25% of New Jersey and U.S. women aged 40 and over reported no mammogram within the past two years.¹⁸ These numbers must be improved to increase the early detection of breast cancer and effectively decrease mortality.

As noted earlier, primary care physicians are in a strategic position to influence the seeking of preventive care services. A review focusing on breast cancer screening concluded that several interventions, notably reminders and audit and feedback, can increase physician use of mammography.⁶³ Tailored interventions, using a package that addresses specific professional barriers that need to change in a particular setting, are recommended to improve delivery of preventive services in primary care. Additionally, research has shown that physicians can be assisted in their delivery of preventive services through group education, reminder devices, and changes to the organization of care.⁶³

The Breast Cancer Workgroup recommends that healthcare professionals encourage women to use available screening methods for breast cancer. Given the observed variation among populations and different barriers for each population, interventions must be tailored. Below we present the Breast Cancer Workgroup's recommendations for a multi-dimensional approach to addressing breast cancer education in New Jersey.



GOAL BR-2

To improve public understanding of breast health, breast cancer, and screening to promote the value of early detection.

Objective BR-2.1

To build consensus on what the public message should be regarding breast cancer education, impact of certain health and lifestyle factors, screening and treatment, and the benefits and risks of early detection.

Strategies

- BR-2.1.1** Convene a diverse group of breast cancer experts, advocates, and consumers at state and community levels.
- BR-2.1.2** Review and summarize the most current scientific literature about breast cancer screening, early detection, and treatment.
- BR-2.1.3** Develop an overall breast cancer message for the general public, as well as targeted culturally appropriate messages for high-risk, underserved, and special populations based on research findings. (See also Goal BR-7 Research and Surveillance.)
- BR-2.1.4** Establish priorities to most effectively reach the targeted populations with breast cancer information.

Objective BR-2.2

To develop and implement a statewide breast cancer public awareness/media campaign to increase utilization of breast cancer screening services (in accordance with accepted public health practice and recommendations of the Centers for Disease Control and Prevention).

Strategies

- BR-2.2.1** Coordinate current media campaigns with a consistent message specifically promoting the availability of no-cost breast cancer screenings for those eligible through the New Jersey Cancer Education and Early Detection Program. Develop media campaigns specifically promoting the Medicaid Breast and Cervical Cancer Treatment Program for eligible women that are screened and/or diagnosed through NJCEED.
- BR-2.2.2** Collaborate with organizations and entities including healthcare professionals to communicate messages and effectuate the breast cancer campaign.



- BR-2.2.3** Provide public service announcements and media information on breast cancer in English, Spanish, and other languages as needed.
- BR-2.2.4** Identify and centralize a multi-level, multi-lingual, multi-cultural speakers bureau to implement community breast cancer education and screening activities. Ensure cultural sensitivity and consistency of the message.
- BR-2.2.5** Coordinate promotional incentives to encourage women to undergo mammography and become educated about breast cancer by offering free or discounted items from local retailers.
- BR-2.2.6** Publicize existing telephone numbers and websites that are clearinghouses for New Jersey cancer resources (i.e., 211 non-emergency helpline). Ensure that national telephone numbers and websites are provided with current data.

Objective BR-2.3

To develop and disseminate breast cancer educational materials and resources to increase knowledge, improve public understanding of the value of screening and early detection, and promote high-quality breast health, paying special attention to vulnerable, high-risk populations.

Strategies

- BR-2.3.1** Partner with relevant organizations in providing comprehensive breast cancer educational materials to appropriate local and statewide community organizations for distribution to their constituencies.
- BR-2.3.2** Recommend that organizations seek out professionals from various ethnic communities to provide breast cancer education and outreach in order that individuals can relate to their trainers.
- BR-2.3.3** Distribute information about NJCEED sites to provide greater access to quality, no-cost breast cancer diagnostic and treatment services for uninsured women in the community.
- BR-2.3.4** Expand culturally sensitive education and outreach programs for women in low-income, underserved communities who do not meet the NJCEED criteria.
- BR-2.3.5** Provide cultural competency training to the individuals interfacing with the community (especially minority communities) for breast cancer awareness and education.
- BR-2.3.6** Provide “faith-based” breast health and breast cancer education through a train-the-trainer program for church leaders in the black and Latino communities to provide ongoing



breast health and breast cancer education, screening, and support resources for all women in their communities, especially high-risk women.

Objective BR-2.4

To increase education of high school students on breast cancer prevention and early detection by identifying and promoting a curriculum on the life-saving value of good breast health habits.

Strategies

- BR-2.4.1** Influence and encourage breast health education in New Jersey. Widely distribute high-school-focused breast educational materials for either assembly or classroom venues. Ensure that resources are readily available and teacher-friendly.
- BR-2.4.2** Work with key personnel at school districts to advocate for full implementation of this breast health education in all New Jersey high schools.
- BR-2.4.3** Identify thoughtful, age-appropriate resources and educational materials for teen-age students to teach breast health at an early age, including multi-media presentations, supporting posters, and brochures.

GOAL BR-3

To improve breast cancer patient awareness and education regarding outcomes about the importance of breast cancer rescreening and follow-up visits to maximize optimal outcomes.

Objective BR-3.1

To increase appropriate treatment and follow-up for women who receive abnormal mammograms and/or abnormal clinical breast exams.

Strategies

- BR-3.1.1** Identify existing, and develop as needed, culturally appropriate materials to educate clients who receive abnormal screening results about the importance of appropriate and timely follow-up and treatment options available if they have been diagnosed with breast cancer, especially clinical trials.
- BR-3.1.2** Identify existing, and develop as needed, culturally appropriate education materials for those clients who have completed breast cancer treatment about the importance of follow-



up care, especially about the risk of lymphedema and the importance of early lymphedema management. Distribute information widely.

BR-3.1.3 Improve existing, and develop as needed, resource guides for breast cancer including treatment centers that participate in clinical research, available support groups, and where financial assistance can be obtained. Make the resource guide readily available by using websites, a central hotline, and wide distribution to healthcare professionals, public libraries, and grassroots and community agencies that have contact with women.

BR-3.1.4 Encourage healthcare facilities to promote timely evaluation of abnormal screening tests, for example, by instituting patient navigation programs and designating facility staff and resources for this purpose.

GOAL BR-4

To improve the knowledge of healthcare practitioners about the importance of having an active provider role, assessing patients' risks of developing breast cancer, formulating a prevention plan based on that risk, and increasing the recommendations and utilization of screening mammograms.

Objective BR-4.1

To increase professional education on assessment, e.g., symptoms, risk factors, screening, risk reduction, and follow-up care for breast cancer.

Strategies

BR-4.1.1 Partner with identified organizations in creating a curriculum with continuing education credits to provide information to healthcare practitioners on the following: (1) screening guidelines, (2) risk reduction, (3) symptoms of breast cancer and follow-up care, (4) genetic risk factor assessment, and (5) cultural competency. Ensure that the curriculum addresses the need to use evidence-based, currently recognized community standards of care for those patients not enrolled in clinical trials. This curriculum should be interactive and developed in different formats and media, e.g., internet, audiotape, CDs, etc. by partnering with professional organizations.

BR-4.1.2 Widely distribute and promote this breast cancer curriculum through the Medical Society of New Jersey, physician membership, and nursing organizations, and other professional and specialty groups.



Objective BR-4.2

To encourage healthcare providers to increase referrals and improve patient awareness about breast cancer early detection and screening measures.

Strategy

BR-4.2.1 Educate healthcare providers regarding which patients are appropriate to receive mammograms, focusing on those providers serving ethnically diverse and minority communities.

RESEARCH AND SURVEILLANCE

Earlier in this chapter the risk factors for breast cancer and disparities surrounding breast cancer were identified. While the overall picture of breast cancer among New Jersey women is encouraging, there is need for improvement among specific groups of women. Statistics from the New Jersey State Cancer Registry indicate that the age-adjusted incidence and mortality rates for the years 1999–2003 varied among the 21 counties in New Jersey.⁶⁵ As is the case for disparities among states in the U.S., the disparities in mortality rates by county likely depend on stage of disease at diagnosis, socioeconomic status, access to care, and adequacy of medical care.⁶⁶

It is well recognized that the incidence of breast cancer is generally higher for white than black women, with population-based data showing approximately a 20% higher rate for white women.⁶⁷ However, there is a reverse trend among women less than 35 years old.⁶⁸ The breast cancer incidence rate among black women under age 35 is greater than that of white women, and black women are consistently diagnosed in later stages of the disease.^{69,70} While racial and ethnic disparities in breast cancer stage at diagnosis among older women are thought to be the result of differences in utilization of routine screening mammography among racial/ethnic minorities, the racial/ethnic differences in breast cancer incidence among women under age 35 are not well understood.^{68,69} Further research into these disparities should be conducted to determine their underlying cause and potential solutions.

In 2006, the Susan G. Komen Breast Cancer Foundation, North Jersey Affiliate, completed an updated community needs assessment for the nine northern counties in New Jersey. The Central and South Jersey Affiliate also updated their community profile for the central and southern New Jersey counties in 2006. In 2003, the New Jersey Department of Health and Senior Services, Office of Cancer Control and Prevention, in conjunction with the University of Medicine and Dentistry of New Jersey School of Public Health, conducted a capacity and needs assessment of all 21 counties in New Jersey. Population maps, breast cancer incidence and mortality graphs, and provider inventory maps were created to identify unmet needs in the areas of prevention, early detection, and treatment for breast cancer. A study of this nature must be kept current for all of the counties in New Jersey to effectively identify unmet needs for breast cancer.

The Cancer Epidemiology Services, New Jersey Department of Health and Senior Services used their geographic information system (GIS), spatial statistical software, and cases of women diagnosed 1995–



1997 with breast cancer (n=20,703) to identify geographic areas in New Jersey with high proportions of distant-stage breast cancer. Two areas in northeastern New Jersey were identified, with relatively high proportions of black or Hispanic women and of linguistically isolated households in the population. Virtually all the women with breast cancer in these two areas were within two miles of a mammography facility.⁷¹ The Cancer Epidemiology Services recently conducted a similar analysis to determine if these clusters remained several years later, using data on women diagnosed with breast cancer in 2001–2003. Statewide, the proportion of women with distant-stage diagnosis was lower than in 1995–1997 (4% versus 5%), and one of the earlier clusters of high proportions of late-stage diagnosis disappeared. However, the other larger cluster remained. Cancer Epidemiology Services is preparing a publication on the results.

Clinical trials are the major avenue for discovering, developing, and evaluating new therapies. However, only about 3% of all adult cancer patients participate in clinical trials. It is important to increase physician and patient awareness of, and participation in, clinical trials if we are to test new treatments more rapidly, find more effective treatments, and broaden the options available to patients.⁴

GOAL BR-5

To identify areas and populations at higher than expected risk of breast cancer incidence and mortality in New Jersey in order to learn where education and screening awareness efforts are most needed.

Objective BR-5.1

To identify areas in New Jersey where breast cancer mortality risk is greatest.

Strategies

- BR-5.1.1** Using appropriate statistical models and tools, identify and describe geographic areas and population groups exhibiting high breast cancer mortality rates, using demographic, service utilization, and epidemiologic data.
- BR-5.1.2** Assess barriers to breast cancer screening (cultural barriers, help-seeking behaviors, socioeconomic factors, transportation, etc.), provider-related barriers (accessibility, waiting time, capacity, communication, etc.), institution-related barriers, and system-level barriers (analysis of payer data, claims data, policies and regulations, and standards of care) in these identified areas and/or population groups.
- BR-5.1.3** Assess other aspects of increased mortality.



GOAL BR-6

To increase accrual and broaden access to breast cancer clinical early detection and treatment trials for patients and physicians in New Jersey.

Objective BR-6.1

To support the National Cancer Institute’s Clinical Trial Implementation Committee Goals for Clinical Trials for breast cancer.

Strategies

- BR-6.1.1** Partner with educational programs that promote participation and enhance public visibility and understanding of important breast cancer clinical trials.
- BR-6.1.2** Publicize the existence of a clinical trials website, particularly NJ Cancer Trials Connect (<http://www.njctc.org>), via the county cancer Coalitions and other avenues.

GOAL BR-7

To ensure that New Jersey residents and physicians remain up to date on the most currently available breast cancer preventive, diagnostic, and treatment technologies and resources.

Objective BR-7.1

To continue to monitor and disseminate current advances in breast cancer prevention, screening, diagnosis, and treatment.

Strategy

- BR-7.1.1** Work with stakeholders to disseminate, as they become available, evidence-based advances to healthcare providers through continuing medical education offerings and other means.

Objective BR-7.2

To continue to monitor trends in breast cancer incidence, mortality, and survival.



Strategy

- BR-7.2.1** Request appropriate data, as needed, from the New Jersey State Cancer Registry and other applicable sources.



References

1. American Cancer Society. *Cancer Facts and Figures 2007*. Atlanta, GA: American Cancer Society, Inc., 2007.
2. Jemal A, Siegel R, Ward E, Murray T, Xu J, Smigal C, and Thun M. Cancer statistics, 2006. *Ca: a Cancer Journal for Clinicians* 2006;56(2):106–130.
3. Edwards BK, Brown ML, Wingo PA, Howe HL, Ward E, Ries LAG, Schrag D, Jamison PM, Jemal A, Wu XC, Friedman C, Harlan L, Warren J, Anderson RN, and Pickle LW. Annual report to the nation on the status of cancer (1975 through 2002), featuring population-based trends in cancer treatment. *Journal of the National Cancer Institute* 2005;97(19):1407–1427.
4. National Cancer Institute. *Cancer Trends Progress Report—2005 Update*. Bethesda, MD: National Institutes of Health, National Cancer Institute, December 2005. Available at <http://progressreport.cancer.gov>.
5. Bao T, Prowell T, and Stearns V. Chemoprevention of breast cancer: Tamoxifen, raloxifene, and beyond. *American Journal of Therapeutics* 2006;13:337–348.
6. Roche LM, Klotz J, Abe T, and Kohler BA. *Breast Cancer in New Jersey, 1979–1995*. Trenton, NJ: New Jersey Department of Health and Senior Services, Cancer Surveillance Program, 1998.
7. Ferrini R, Mannino E, Ramsdell E, and Hill L. Screening mammography for breast cancer: American College of Preventive Medicine practice policy statement. *American Journal of Preventive Medicine* 1996;12(5):340–341.
8. Harvard Report on Cancer Prevention. Causes of human cancer: Reproductive factors. *Cancer Causes and Control* 1996;7(Suppl 1):S29–S31.
9. Roche LM, Burger SS, Kohler BA, Abe T, and Van Loon S. *Trends in Cancer Incidence and Mortality in New Jersey 1979–2002*. Trenton, NJ: New Jersey Department of Health and Senior Services, Cancer Epidemiology Services, 2005.
10. [New Jersey State Cancer Registry](#). *January 2007 Analytic File*. Trenton, NJ: New Jersey Department of Health and Senior Services, 2007.
11. The North American Association of Central Cancer Registries. CINA+ Online. Available at <http://www.naaccr.org/cinap/index.htm>. Accessed January 2007.
12. National Cancer Institute. *Inflammatory Breast Cancer: Questions and Answers*. Bethesda, MD: National Institutes of Health, National Cancer Institute, 2006. Available at <http://www.cancer.gov/cancertopics/factsheet/Sites-Types/IBC>. Accessed January 9, 2007.
13. [New Jersey State Cancer Registry](#). *December 2006 Analytic File*. Trenton, NJ: New Jersey Department of Health and Senior Services, 2006.
14. National Cancer Institute. Surveillance, Epidemiology, and End Results (SEER) Program (<http://www.seer.cancer.gov>) SEER*Stat Database: Mortality – All COD, Public-Use With State,



Total U.S. (1969–2003) Bethesda, MD: National Institutes of Health, National Cancer Institute, Division of Cancer Control and Population Sciences, Surveillance Research Program, Cancer Statistics Branch, released April 2006. Underlying mortality data provided by the National Center for Health Statistics (<http://www.cdc.gov/nchs>).

15. Niu X, Roche LM, Pawlish K, Kohler BA, and Van Loon S. [*Cancer Prevalence in New Jersey on January 1, 2003*](#). Trenton, NJ: New Jersey Department of Health and Senior Services, Cancer Epidemiology Services, November 2006.
16. Niu X, Agovino PK, Roche LM, Kohler BA, and Van Loon S. [*Cancer Survival in New Jersey, 1979–1997*](#). Trenton, NJ: New Jersey Department of Health and Senior Services, Cancer Epidemiology Services, September 2006.
17. Center for Health Statistics. [*New Jersey Behavioral Risk Factor Survey*](#) [unpublished data]. Trenton, NJ: New Jersey Department of Health and Senior Services, 2007.
18. Centers for Disease Control and Prevention. [*Behavioral Risk Factor Surveillance System Survey Data*](#). Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2007.
19. New Jersey Department of Health and Senior Services. [*Healthy New Jersey 2010: Update 2005*](#). Trenton, NJ: New Jersey Department of Health and Senior Services, 2005.
20. Breast Cancer Summit Advisory Group. *Breast Cancer Mortality in New Jersey: A Time for Action: Report of the Breast Cancer Summit*. Trenton, NJ: American Cancer Society, Inc., New Jersey Commission on Cancer Research, Cancer Institute of New Jersey, Department of Health, and Medical Society of New Jersey, 1995.
21. Miki Y, Swensen J, Shattuck-Eidens D, Futreal PA, Harshman K, Tavtigian S, et al. A strong candidate for the breast and ovarian cancer susceptibility gene BRCA1. *Science* 1994;266(5182):66–71.
22. Wooster R, Bignell G, Lancaster J, Swift S, Seal S, Mangion J, et al. Identification of the breast cancer susceptibility gene BRCA2. *Nature* 1995;378(6559):789–792.
23. Hoskins KF, Zwaagstra A, and Ranz M. Validation of a tool for identifying women at high risk for hereditary breast cancer in population-based screening. *Cancer* 2006;107(8):1769–1776.
24. Easton DF, Ford D, Bishop DT, and Breast Cancer Linkage Consortium. Breast and ovarian cancer incidence in BRCA1-mutation carriers. *American Journal of Human Genetics* 1995;56(1):265–271.
25. Struewing JP, Hartge P, Wacholder S, Baker SM, Berlin M, McAdams M, et al. The risk of cancer associated with specific mutations of BRCA1 and BRCA2 among Ashkenazi Jews. *New England Journal of Medicine* 1997;336(20):1401–1408.
26. Ford D, Easton DF, and Peto J. Estimates of the gene frequency of BRCA1 and its contribution to breast and ovarian cancer incidence. *American Journal of Human Genetics* 1995;57(6):1457–1462.



27. Advisory Committee on Cancer Coordination and Control. *North Carolina Cancer Control Plan 2001–2006*. Raleigh, NC: North Carolina Department of Environment, Health, and Natural Resources, 2001.
28. Antoniou A, Pharoah PD, Narod S, Risch HA, Eyfjord JE, et al. Average risks of breast and ovarian cancer associated with BRCA1 or BRCA2 mutations detected in case series unselected for family history: A combined analysis of 22 studies. *American Journal of Human Genetics* 2003;72(5):1117–1130.
29. Calderon-Margalit R, and Paltiel O. Prevention of breast cancer in women who carry BRCA1 or BRCA2 mutations: A critical review of the literature. *International Journal of Cancer* 2004;112(3):357–364.
30. National Cancer Institute. *Tamoxifen: Questions and Answers*. Bethesda, MD: National Cancer Institute, 2002.
31. Vogel VG, Costantino JP, Wickerham DL, Cronin WM, Cecchini RS, Atkins JN, Bevers TB, Fehrenbacher L, Pajon ER, Wade JL, Robidoux A, Margolese RG, James J, Lippman SM, Runowicz CD, Ganz PA, Reis SE, McCaskill-Stevens W, Ford LG, Jordan VC, and Wolmark N. Effects of tamoxifen vs raloxifene on the risk of developing invasive breast cancer and other disease outcomes: The NSABP study of tamoxifen and raloxifene (STAR) P-2 trial. *JAMA* 2006;295(23):2727–2741.
32. Land SR, Wickerham DL, Costantino JP, Ritter MW, Vogel VG, Lee M, Pajon ER, Wade JL, Dakhil S, Lockhart JB, Wolmark N, and Ganz PA. Patient-reported symptoms and quality of life during treatment with tamoxifen or raloxifene for breast cancer prevention: The NSABP study of tamoxifen and raloxifene (STAR) P-2 trial. *JAMA* 2006;295(23):2742–2751.
33. National Cancer Institutes. *Breast Cancer (PDQ): Prevention*. Bethesda, MD: National Institutes of Health, National Cancer Institute, 2002.
34. Morrison AS. Is self-examination effective in screening for breast cancer? *Journal of the National Cancer Institute* 1991;83(4):226–227.
35. Brewster A and Helzlsouer K. Breast cancer epidemiology, prevention, and early detection. *Current Opinion in Oncology* 2001;13(6):420–425.
36. Elmore JG, Armstrong K, Lehman CD, and Fletcher SW. Screening for breast cancer. *JAMA* 2005;293(10):1245–1256.
37. Leitch AM, Dodd GD, Costanza M, Linver M, Pressman P, McGinnis L, et al. American Cancer Society guidelines for the early detection of breast cancer: Update 1997. *Ca: a Cancer Journal for Clinicians* 1997;47(3):150–153.
38. National Institutes of Health. NIH Consensus Statement: Breast cancer screening for women ages 40–49. *NIH Consensus Statement* 1997;15(1):1–35.
39. Agency for Healthcare Research and Quality. Screening for breast cancer: Recommendations and rationale. Rockville, MD: Agency for Healthcare Research and Quality, 2002.



40. Zabicki K, Colbert JA, Dominguez FJ, Gadd MA, Hughes KS, Jones JL, Specht MC, Michaelson JS, and Smith BL. Breast cancer diagnosis in women ≤ 40 versus 50 to 60 years: Increasing size and stage disparity compared with older women over time. *Annals of Surgical Oncology* 2006;13(8):1072–1077.
41. American Cancer Society. [*Cancer Prevention and Early Detection Facts and Figures 2006*](#). Atlanta, GA: American Cancer Society, Inc., 2006.
42. National Cancer Institute. Breast cancer (PDQ): Screening. Bethesda, MD: National Institutes of Health, National Cancer Institute, 2006. Available at <http://www.cancer.gov>. Accessed November 28, 2006.
43. American Cancer Society. *American Cancer Society Guidelines for Early Detection of Cancer*. Available at http://www.cancer.org/docroot/PED/content/PED_2_3X_ACS_Cancer_Detection_Guidelines_36.asp?sitearea=PED. Accessed June 27, 2007.
44. O'Malley MS, Earp JA, Hawley ST, Schell MJ, Mathews HF, and Mitchell J. The association of race/ethnicity, socioeconomic status, and physician recommendation for mammography: Who gets the message about breast cancer screening? *American Journal of Public Health* 2001;91(1):49–54.
45. National Cancer Institute Cancer Screening Consortium for Underserved Women. Breast and cervical cancer screening among underserved women: Baseline survey results from six states. *Archives of Family Medicine* 1995;4(7):617–624.
46. Paskett ED, McMahon K, Tatum C, Velez R, Shelton B, Case LD, et al. Clinic-based interventions to promote breast and cervical cancer screening. *Preventive Medicine* 1998;27(1):120–128.
47. Vali FM. *Access to Primary Care in New Jersey: Geographic Variation of Hospitalizations for Ambulatory Care Sensitive Conditions in 1995 and 1997*. Princeton, NJ: Health Research and Educational Trust of New Jersey, 2001.
48. Mack E, McGrath T, Pendleton D, and Zieber NA. Reaching poor populations with cancer prevention and early detection programs. *Cancer Practice* 1993;1(1):35–39.
49. Rothman AJ, Salovey P, Turvey C, and Fishkin SA. Attributions of responsibility and persuasion: Increasing mammography utilization among women over 40 with an internally oriented message. *Health Psychology* 1993;12(1):39–47.
50. Skinner CS, Strecher VJ, and Hospers H. Physicians' recommendations for mammography: Do tailored messages make a difference? *American Journal of Public Health* 1994;84(1):43–49.
51. King ES, Rimer BK, Seay J, Balshem A, and Engstrom PF. Promoting mammography use through progressive interventions: Is it effective? *American Journal of Public Health* 1994;84(1):104–106.



52. Skinner CS, Arfken CL, and Waterman B. Outcomes of the Learn, Share & Live breast cancer education program for older urban women. *American Journal of Public Health* 2000;90(8):1229–1234.
53. Lipkus IM, Rimer BK, Halabi S, and Strigo TS. Can tailored interventions increase mammography use among HMO women? *American Journal of Preventive Medicine* 2000;18(1):1–10.
54. Eng E. The Save our Sisters Project: A social network strategy for reaching rural black women. *Cancer* 1993;72(3 Suppl):1071–1077.
55. Earp JA, Viadro CI, Vincus AA, Altpeter M, Flax V, Mayne L, et al. Lay health advisors: A strategy for getting the word out about breast cancer. *Health Education and Behavior* 1997;24(4):432–451.
56. Ansell D, Lacey L, Whitman S, Chen E, and Phillips C. A nurse-delivered intervention to reduce barriers to breast and cervical cancer screening in Chicago inner city clinics. *Public Health Reports* 1994;109(1):104–111.
57. Lane DS, Polednak AP, and Burg MA. Breast cancer screening practices among users of county-funded health centers versus women in the entire community. *American Journal of Public Health* 1992;82(2):199–203.
58. Ludwick R and Gaczkowski T. Breast self-exams by teenagers: Outcome of a teaching program. *Cancer Nursing* 2001;24(4):315–319.
59. Clark JK, Sauter M, and Kotecki JE. Adolescent girls' knowledge of and attitudes toward breast self-examination: Evaluating an outreach education program. *Journal of Cancer Education* 2000;15(4):228–231.
60. Halabi S, Skinner CS, Samsa GP, Strigo TS, Crawford YS, and Rimer BK. Factors associated with repeat mammography screening. *Journal of Family Practice* 2000;49(12):1104–1112.
61. Eberl MM, Watroba N, Reinhardt M, Pomerantz J, Serghany J, Broffman G, Fox CH, Mahoney MC, and Edge SB. Linked claims and medical records for cancer case management: Evaluation of mammography abnormalities. *Cancer* June 18, 2007;110(3):518–524.
62. Ell K, Vourlekis B, Lee PJ, and Xie B. Patient navigation and case management following an abnormal mammogram: A randomized clinical trial. *Preventive Medicine* 2007;44(1):26–33.
63. Hulscher ME, Wensing M, van Der Weijden T, and Grol R. Interventions to implement prevention in primary care. *Cochrane Database Syst Rev* 2001;(1):CD000362.
64. Street RLJ, Voigt B, Geyer CJ, Manning T, and Swanson GP. Increasing patient involvement in choosing treatment for early breast cancer. *Cancer* 1995;76(11):2275–2285.
65. Cancer Epidemiology Services, New Jersey Department of Health and Senior Services. Cancer-Rates.Info/NJ. Available at <http://www.nj.gov/health/ces/cancer-rates.shtml>. Accessed January 2007.



66. Canto MT, Anderson WF, and Brawley O. Geographic variation in breast cancer mortality for white and black women: 1986–1995. *Ca: a Cancer Journal for Clinicians* 2001;51(6):367–370.
67. American Cancer Society. [Cancer Facts and Figures for African Americans 2005–2006](#). Atlanta, GA: American Cancer Society, Inc., 2005.
68. Shavers VL, Harlan LC, and Stevens JL. Racial/ethnic variation in clinical presentation, treatment, and survival among breast cancer patients under age 35. *Cancer* 2003;97(1):134–147.
69. American Cancer Society. [Breast Cancer Facts and Figures 2005-2006](#). Atlanta, GA: American Cancer Society, Inc., 2005.
70. Ries LAG, Melbert D, Krapcho M, Mariotto A, Miller BA, Feuer EJ, Clegg L, Horner MJ, Howlader N, Eisner MP, Reichman M, Edwards BK (eds). SEER Cancer Statistics Review, 1975-2004, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2004/, based on November 2006 SEER data submission, posted to the SEER web site, 2007.
71. Roche LM, Skinner RC, and Weinstein RB. Use of a geographic information system to identify and characterize areas with high proportions of distant stage breast cancer. *J Public Health Management Practice* 2002;8:26–32.