



Breast Cancer
in Georgia
2005-2009

Acknowledgments

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What is Breast Cancer?

Breast cancer is a malignant (cancerous) tumor that starts from cells of the breast. The disease occurs most commonly in women, but men can get breast cancer as well. Since men account for only about one percent of total breast cancer cases, the information presented here refers only to breast cancer in women.

The breast itself is made up of lobules, ducts, fatty and connective tissue, blood vessels, and lymph vessels. Inside the breasts are glands that produce and release milk after a woman has a baby. The glands that make the milk are called lobules and the tubes that connect them to the nipple are called ducts.

Understanding the medical language as it relates to breast cancer can be challenging. Here are some terms that describe the most common types of breast cancer:

- **Ductal carcinoma in situ (DCIS):** This is the most common type of noninvasive breast cancer. Noninvasive means that the cancer has not spread through the walls of the ducts into the fatty tissue of the breast. Nearly all women with cancer at this stage can be cured. However, if the cancer is not treated at this time, it may develop into invasive breast cancer.
- **Infiltrating ductal carcinoma (IDC):** This cancer starts in a milk passage or duct, breaks through the wall of the duct, and invades the fatty tissue of the breast. From there it can spread to the lymph nodes, or via the bloodstream to other parts of the body. IDC is the most common type of breast cancer. It accounts for about 75-80 percent of invasive breast cancer.
- **Infiltrating lobular carcinoma (ILC):** This cancer starts in the milk glands or lobules. It can spread to other parts of the body, similar to IDC. About 10-15 percent of invasive breast cancers are of this type.

Less common types of breast cancer can include other invasive ductal-type cancers, inflammatory breast cancer (which is diagnosed more frequently in younger and black women), and Paget's disease, which accounts for less than five percent of all breast cancers detected nationwide, and less than 1 percent of all breast cancers detected in Georgia.

Breast cancer is the most common type of cancer diagnosed in Georgia women (as well as in the United States as a whole), and is the second-leading cause of cancer deaths among Georgia women, after lung cancer. A woman in the United States has approximately a one in eight chance of being diagnosed with breast cancer in her lifetime.

How is Breast Cancer Detected?

The earlier breast cancer is found, the better the chances that treatment will be effective. The American Cancer Society recommends the following screening guidelines for women without symptoms:

Mammogram: A mammogram uses X-ray technology to obtain an image of the inside of the breast. Women age 40 and older should have a mammogram every year, and should continue to do so for as long as they are in good health. While mammograms can miss some cancers, they are a valuable tool for finding breast cancer. Recent medical developments have introduced computer-aided mammography, digital mammography, and 3D mammography; however, traditional mammography remains the gold standard for screening, and is still the only test that has been shown to decrease the likelihood of dying from breast cancer.

Clinical breast exam (CBE): Women in their 20s and 30s should have a clinical breast examination (CBE) as part of a regular health exam by a health professional every three years. After age 40, women should have a breast exam by a health professional every year. A CBE can provide a complement to mammography- a two pronged approach to gather the most complete information.

What are the Top Five Cancers in Georgia?

Top Five Cancer Sites (2005-2009) and Cancer-Related Deaths, Georgia Females (2004-2008)

Sites	Deaths
Breast	Lung & Bronchus
Lung & Bronchus	Breast
Colon & Rectum	Colon & Rectum
Uterine Corpus	Pancreas
Melanoma	Ovary

Breast cancer is the most common cancer diagnosed and the second leading cause of cancer death among women in Georgia. One in 8 American females will develop breast cancer in her lifetime.

Screening Rates for Georgia Women

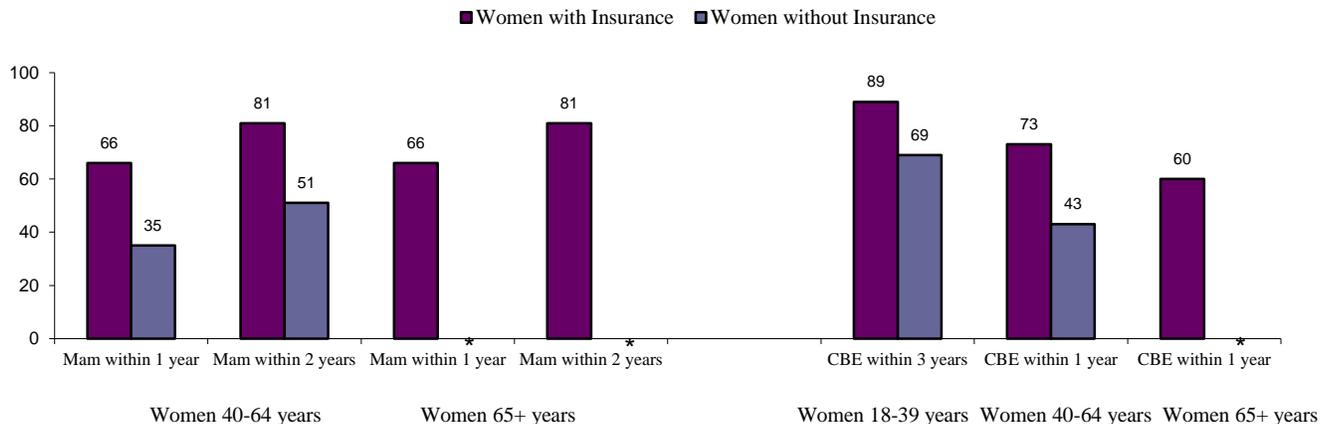
The following data were collected by the Behavioral Risk Factor Surveillance System (BRFSS) during 2005-2009 and represent non-institutionalized civilian women aged 18 years and older living in Georgia.

Mammogram: The five-year weighted prevalence for women 40 years and older who ever had a mammogram is 91 percent. Sixty-two percent of Georgia women aged 40 and older reported having had a mammogram within the past year, while 77 percent reported having had a mammogram sometime within the past two years.

Clinical Breast Exam (CBE): The five-year weighted prevalence for women who ever had a CBE is 92 percent. Among women younger than 40, 85 percent reported that their last CBE was within the past three years. Of women aged 40 and older, 67 percent reported that their last CBE was within the past year.

Screening in Relation to Health Insurance in Georgia

Between 2005 and 2009, approximately 17 percent of women in Georgia reported that they did not have health insurance.



* Fewer than 50 respondents per category

Mammogram: Between 2005 and 2009, among women aged 40 years and older who reported that they had no health insurance, 79 percent reported that they had ever had a mammogram, compared to 93 percent of women with insurance. Among all women aged 40-64, women who had insurance were both more likely to have had a mammogram within the past year (66 percent vs. 35 percent), and within the past two years (81 percent vs. 51 percent). Among women aged 65 years and older, insured women were equally as likely as women aged 40-64 years to have had a mammogram in either the past year or past two years, but there were not enough uninsured respondents to draw a comparison.

Clinical Breast Exam (CBE): Women with health insurance were more likely to report having ever had a CBE, compared to uninsured women (94 percent vs. 85 percent). Insured women of all age groups were more likely to report having had CBE screening within the timeframe recommended by the American Cancer Society guidelines.

Breast Cancer Screening in Relation to Education and Race/Ethnicity, by Health Insurance Status, in Georgia (2005-2009)

	Insured		Uninsured	
	Mammogram within 2 yrs	CBE within 1 yr	Mammogram within 2 yrs	CBE within 1 yr
Education				
Less than high school	75%	62%	46%	41%
High school graduate	79%	68%	52%	42%
Some college	80%	73%	49%	39%
College graduate	83%	79%	59%	53%
Race/Ethnicity				
Non-Hispanic White	80%	73%	42%	38%
Non-Hispanic Black	83%	76%	62%	48%
Hispanic	80%	75%	*	*

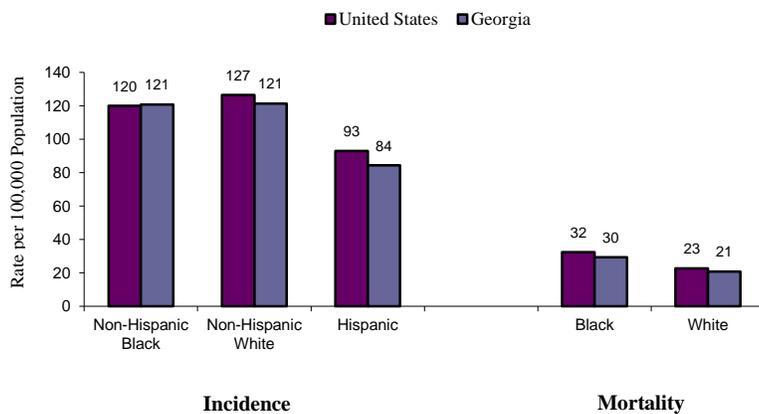
*Fewer than 50 respondents per category

Among women of varying educational attainment, women who had graduated college were most likely to report that their most recent mammogram was within the past two years, and their most recent CBE was within the past year. The more education a woman had, there was a greater likelihood that she had had a recent breast screening. This finding was true for both insured and uninsured women, although uninsured women in every educational group had lower screening rates than their insured counterparts with the same education level.

Non-Hispanic black women with health insurance were slightly more likely than insured Non-Hispanic white and Hispanic women to report that their most recent mammogram was within the past two years, and that their most recent CBE was within the past year. Among uninsured women, Non-Hispanic black women were much more likely than Non-Hispanic white women to report having had a recent mammogram or CBE.

Who Develops Breast Cancer?

Age-Adjusted Breast Cancer Incidence (2005-2009) and Mortality (2004-2008) Rates by Race, US and GA



Rates are age-adjusted to the 2000 US standard population.

Yearly from 2005-2009, an average of 5,800 cases of female breast cancer were reported to the Georgia Comprehensive Cancer Registry. Non-Hispanic white women were more likely to be diagnosed with the disease than were non-Hispanic black or Hispanic women.

Yearly, almost 1,100 Georgia women die from breast cancer. The mortality rate for black women was higher than that for white women, for both Georgia and the US.

Overall, Georgia's breast cancer incidence and mortality rates were similar to or below, the US average for black, white, and Hispanic women.

What are the Causes and Risk Factors for Breast Cancer?

We do not yet know exactly what causes breast cancer, but we do know that certain risk factors are linked to the disease. A risk factor is anything that indicates a person has a higher than normal chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, such as smoking, can be controlled. Others, like a person's age or family history, can't be controlled. But having a risk factor, or even several, doesn't mean that a person will get the disease.

While all women are at risk for breast cancer, the following factors can increase a woman's chances of having the disease.

Risk Factors That Can Be Controlled

- **Not having children:** Women who have had no children, or who had their first child after age 30, have about a 40 percent higher risk of breast cancer.
- **Hormone replacement therapy (HRT):** It has become clear that long-term use (several years or more) of combined HRT (estrogens together with progesterone) for relief of menopause symptoms can increase the risk of breast cancer as well as the risk of heart disease, blood clots, and strokes. These breast cancers are also found at a more advanced stage. Among women who used HRT, the therapy seems to reduce the effectiveness of mammograms. Five years after stopping HRT, the breast cancer risk appears to drop back to normal.
- **Birth control pills:** Several studies have been conducted to determine the relationship between oral contraceptives and breast cancer, but the results have been conflicting as to whether they increase the risk or not. It's a good idea to discuss the risks and benefits of taking birth control pills with your doctor.
- **Not breastfeeding:** Studies have shown that breastfeeding lowers breast cancer risk, especially if breastfeeding lasts 1½ to 2 years. This may be because breastfeeding lowers a woman's total number of menstrual periods.
- **Alcohol:** Use of alcohol is clearly linked to an increased risk of getting breast cancer. Women who have one drink a day have a very small increased risk. Those who have two to five drinks daily have about a 50 percent higher risk of developing breast cancer than women who do not drink alcohol.
- **Obesity:** Being overweight is linked to a higher risk of breast cancer, especially if the weight gain took place during adulthood or after menopause. Also, the risk seems to be higher if the extra fat is in the waist area. However, a recent study showed that women who lost weight (on the order of 20 pounds) after menopause reduced their overall risk for breast cancer by almost half.
- **Exercise:** Recent studies show that strenuous exercise during youth might provide life-long protection against breast cancer and that moderate to strenuous physical activity as an adult can lower breast cancer risk by about 60 percent. Even smaller amounts of regular exercise may reduce risk—30 minutes of activity on three or four days of the week appears to have a beneficial effect. More research is being done to confirm these findings.

Risk Factors That Cannot Be Controlled

- **Sex:** Simply being a woman is the main risk factor for breast cancer. Although some men can (and do) get breast cancer, their overall risk is minimal compared to the risk for women.
- **Age:** The chance of getting breast cancer goes up as a woman gets older. About eight out of ten breast cancers are found in women over age 50.
- **Genetic risk factors:** One case out of ten breast cancer cases is linked to changes (mutations) in certain genes. The most common gene changes are those of the BRCA1 and BRCA2 genes. But other gene changes may raise breast cancer risk as well.
- **Family history:** Breast cancer risk is higher among women whose close blood relatives have this disease. The relatives can be from either the mother's or father's side of the family. Having a mother, sister, or daughter diagnosed with breast cancer before the age of 50 almost doubles a woman's risk.
- **Personal history of breast cancer:** A woman with cancer in one breast has a three to four times greater chance of developing a new cancer in the other breast or another part of the same breast. This is different from a recurrence of the first cancer.
- **Race:** White women are more likely to develop breast cancer than are black women, but black women are more likely to die of this cancer. Asian, Hispanic, and American-Indian women have a lower risk of breast cancer.
- **History of abnormal breast biopsy:** Having a previous biopsy result of atypical hyperplasia increases a woman's breast cancer risk by four to five times.
- **Radiation:** Women who have had chest area radiation treatment have a greatly increased risk of breast cancer. Some studies found the risk to be 12 times higher than the normal risk.
- **Menstrual periods:** Women who began having periods early (before 12 years of age) or who went through menopause after the age of 50 have an increased risk of breast cancer.

- **Treatment with DES:** In the 1940s through the 1960s some pregnant women were given DES (diethylstilbestrol) because it was thought to lower their chances of miscarriage. Recent studies have shown that these women have about a 35 percent increased risk of developing breast cancer, and their daughters who were exposed to DES in the womb also have an increased risk.

Prevalence of Self-Reported Risk Factors for Georgia Women

Based on the Georgia Behavioral Risk Factor Surveillance System during 2005-2009:

Risk Factor	All Women	Women 40-64 Years	Women without Health Insurance	Women with Health Insurance
<u>Exercise</u> No activity in last 30 days	28%	28%	33%	25%
<u>Alcohol Use</u> Any drinks in last 30 days	40%	41%	36%	43%
Average 2-5 drinks per occasion	45%	41%	52%	45%
Overweight/Obese overall	57%	61%	60%	57%
- Overweight (BMI 25-29.9)	30%	31%	27%	30%
- Obese (BMI >30)	27%	30%	34%	26%

Exercise: Participants were asked if they had engaged in any physical activity in the past month. Twenty eight percent of women reported that they had not engaged in any physical activity. Women with health insurance were more likely to report a history of activity than uninsured women.

Alcohol Use: Participants were asked if they had had at least one alcoholic drink in the previous 30 days. Forty percent of all women reported that they had consumed at least one drink, and insured women were more likely to have drunk than uninsured women. For those who said yes, they were asked how many drinks they averaged on the days they drank. Among all women who reported having drunk alcohol in the past month, 45 percent averaged 2-5 drinks per occasion. For women 40-64, 41 percent averaged 2-5 drinks per occasion. For women with no health insurance, 52 percent averaged 2-5 drinks per occasion.

Overweight/Obesity: Participants were asked to report their height and weight, and their resulting Body Mass Index (BMI) was calculated based on those responses. BMI greater than or equal to 25 is considered overweight, and greater than or equal to 30 is considered obese. Fifty-seven percent of participating women had a calculated BMI that placed them as overweight or obese, and 61 percent of women 40-64 were considered overweight or obese. Sixty percent of women who reported having no health insurance were considered overweight or obese.

Prevention of Breast Cancer

Although it is not possible to prevent the development of breast cancer simply by avoiding your exposure to the controllable risk factors mentioned above, there have been recent advances in the use of breast cancer preventive drugs. These drugs have estrogen-blocking properties, which help to prevent the occurrence of breast cancer (and also have the benefit of preventing/treating osteoporosis). The two drugs are *tamoxifen*, which has been in use for several years already for both treatment and prevention; and *raloxifene*, a relatively new drug approved by the FDA in 2007. So far raloxifene has been proven beneficial in post-menopausal women who are already at high risk for breast cancer. Both drugs seem to be useful in controlling the occurrence of invasive cancer, however, tamoxifen is also beneficial for use with non-invasive cancers.

What are the Symptoms of Breast Cancer?

The number of breast cancers that are found before symptoms occur has increased largely due to the widespread use of mammography screening. However, some breast cancers are not found because even under ideal conditions, mammography does not detect every cancer, which is why it is important to have clinical breast examinations as well for a more complete screening.

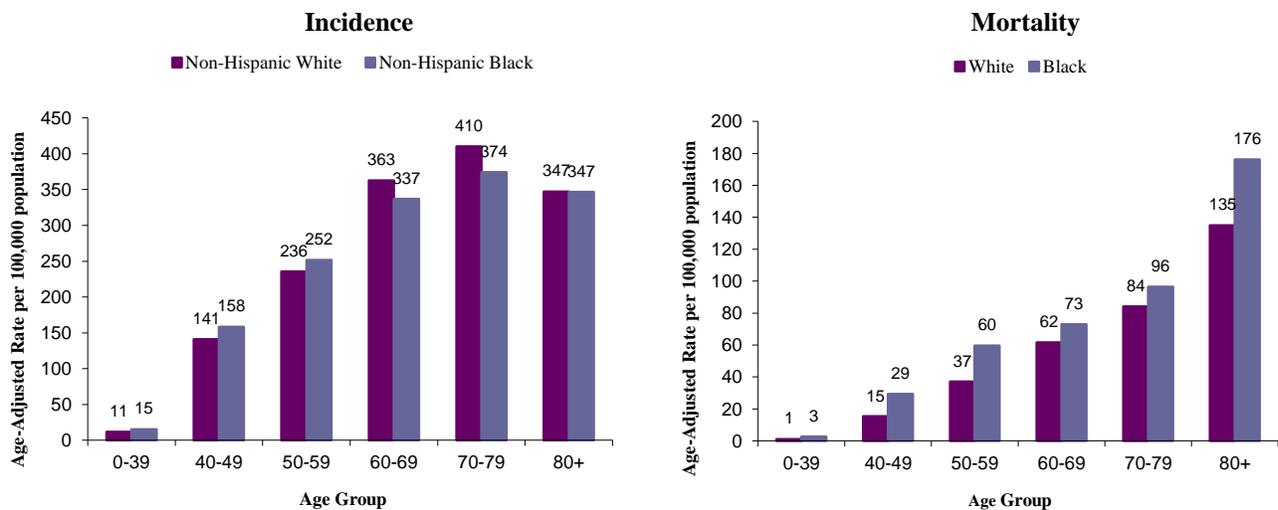
The most common sign of breast cancer is a new lump or mass. A lump that is painless, hard, and has irregular edges is more likely to be cancer. Some rare cancers are tender, soft, and rounded, which is why it's important to have anything unusual checked by a health professional that is trained to perform clinical breast examinations.

Other signs of breast cancer include the following:

- A swelling of part of the breast
- Skin irritation or dimpling
- Nipple pain or the nipple turning inward
- Redness or scaliness of the nipple or breast skin
- A nipple discharge other than breast milk
- A lump in the underarm area

At What Age is Breast Cancer Most Often Diagnosed?

Georgia Age-Adjusted Breast Cancer Incidence (2005-2009) and Mortality (2004-2008), by Age Group and Race



Rates are age-adjusted to the 2000 U.S. standard population.

Although breast cancer incidence and mortality rates are highest in older women, breast cancer may also occur in younger women. In Georgia, women over the age of 60 have the highest incidence rates of breast cancer; however, black women have higher incidence rates than white women at younger ages. Mortality rates steadily increase with age; the highest mortality rates are seen in women 80 years of age and older. In all age groups, black women have higher mortality rates than white women. Before the age of 40, breast cancer deaths are very rare, but they do occur occasionally. Every year, about 47 Georgia women under 40 years of age die from breast cancer.

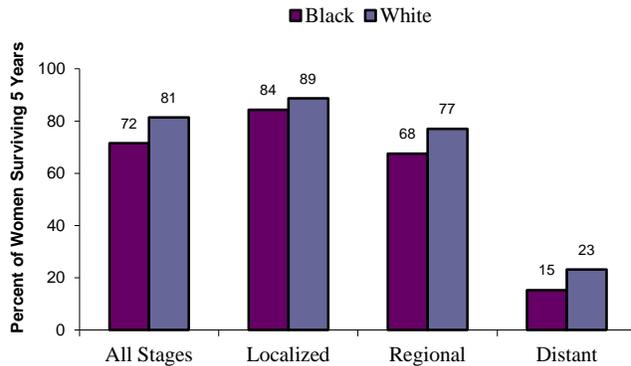
What is the Treatment for Breast Cancer?

Each type of treatment has benefits and side effects. Age, overall health, and the stage of the cancer are all factors to consider. Staging is a standardized way to summarize information about how far a cancer has spread from its point of origin. In situ breast cancers are contained within the ducts or lobules inside the breast. Localized breast cancers have invaded the breast tissue and fat, but have not spread beyond the breast. Regional stage breast cancers have spread beyond the breast to the chest wall, skin, and/or to the lymph nodes of the breast and underarm area on the same side of the chest. Distant stage breast cancers have spread to distant sites such as bone (except adjacent rib), liver, or lung, or the other breast. Distant stage also includes dissemination to lymph nodes on the opposite side of the chest or to distant lymph nodes.

- **Surgery:** Most women with breast cancer will have some type of surgery to treat the primary breast tumor. The purpose of surgery is to remove as much of the cancer as possible. The type of surgery performed will depend mainly on the stage of the tumor. There are several surgical treatment options to be considered that will take into account the tumor characteristics, the recommendations of the surgeon and/or oncologist, and the preference of the patient. These options include:
 - Lumpectomy (the breast lump and some normal tissue around it are removed)
 - Simple mastectomy (the entire breast is removed)
 - Modified radical mastectomy (the entire breast and some of the lymph nodes under the arm are removed).
 - Radical mastectomy (the entire breast, lymph nodes, and some of the chest wall muscle and skin are removed—this type of surgery is now generally reserved for the most advanced cases)Two additional surgical options are useful when combined with reconstructive surgery to restore the breast's appearance: skin-sparing mastectomy and subcutaneous (nipple-sparing) mastectomy.
- **Chemotherapy:** Chemotherapy involves the use of drugs to kill cancer cells. If chemotherapy is given after surgery (adjuvant therapy) it can reduce the chance of the cancer returning. Neoadjuvant chemotherapy is given before surgery, often to shrink the tumor making it easier to remove. Chemotherapy can also be used as the main treatment for cancer that has spread outside the breast and underarm area or spreads widely after initial treatment.
- **Radiation Therapy:** Radiation therapy is treatment with high-energy rays to kill or shrink cancer cells. The radiation may come from outside the body (external radiation) or from radioactive materials placed directly in the tumor (internal or implant radiation). Radiation therapy may be used to destroy cancer cells remaining in the breast, chest wall, or underarm area after surgery or, less often, to reduce the size of a tumor before surgery. For women with certain types of early-stage breast cancers (especially without the involvement of lymph nodes), a recent study has shown that a shorter course of radiation may be just as beneficial as the traditional, longer course.
- **Hormone Therapy:** The female hormone estrogen can increase the growth of breast cancer cells in some women. A drug such as tamoxifen, which blocks the effect of estrogen, can be given to counter this growth.
- **Immunotherapy:** The HER2/neu protein is a growth-promoting protein found in normal breast cells and most breast cancers. Some breast cancers have too much of this protein which can cause the cancer to grow and spread faster. Herceptin can stop the HER2/neu protein from causing breast cancer cell growth. It may also help the immune system to better attack the cancer.

Who Survives Breast Cancer?

Percent of GA Women Surviving Five Years after Diagnosis with Breast Cancer, by Stage of Disease and Race, 2002-2008



		Localized	Regional	Distant
% of tumors found at this stage*	U.S. Black†	51%	38%	8%
	U.S. White†	61%	32%	5%
	GA Black†	52%	38%	8%
	GA White†	63%	30%	4%

* Unstaged tumors are not shown.

† U.S. data is for 2002-2008; Georgia data is for 2002-2008

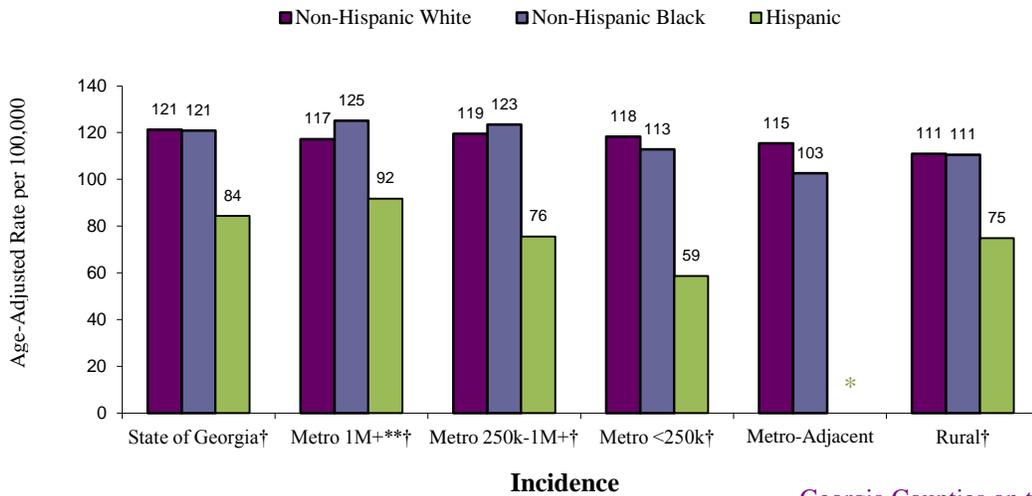
Survival rates depend mainly on two elements: how early the cancer is detected, and the pathology of the tumor (how aggressive it is). Early detection is important because survival for early stage breast cancer is much greater than that for later stage disease. Five-year survival for tumors found in the localized stage is 84 percent among Georgia black women and 89 percent among Georgia white women. In Georgia, about 52 percent of cases among black women and about 63 percent of cases among white women are diagnosed in the localized stage. If the cancer is diagnosed at the distant stage, five-year survival drops to about 15 percent for GA black women and 23 percent for GA white women. Detection and treatment of breast cancer have greatly improved in recent years, with the five-year relative U.S. survival rate for all stages combined significantly increasing from 75 percent in 1974-1976 to 89 percent in 2002-2008.

Racial Disparities in Breast Cancer Mortality

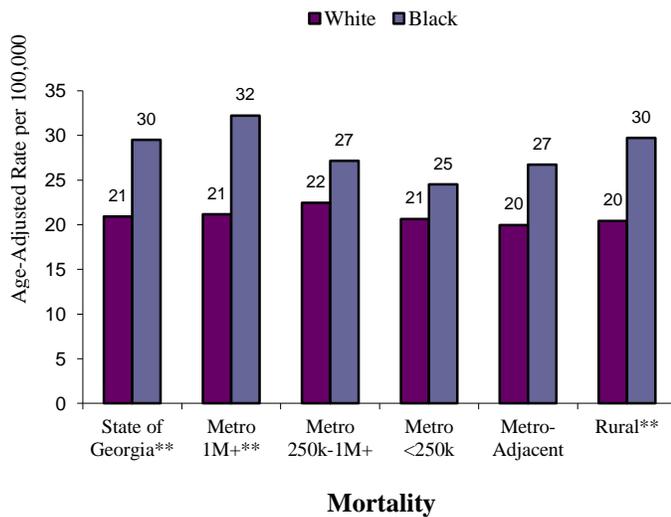
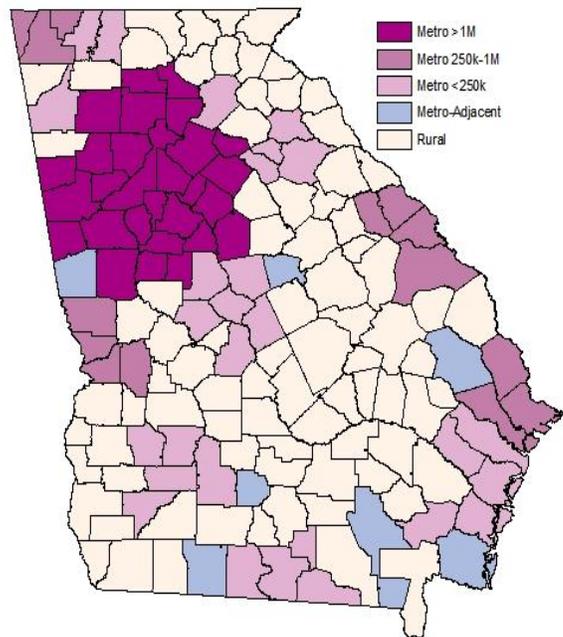
Black women in Georgia have lower breast cancer incidence rates than white women, and yet have higher mortality, especially among younger women. A number of research studies have attempted to figure out why this is occurring. Various causes have been considered such as lifestyle factors, socioeconomic status, access to care, and biological causes such as tumor subtypes. One way to classify breast tumors is by their expression, or lack thereof, of hormone receptors (estrogen, progesterone, and human epidermal growth factor receptor 2). Recently, attention has been paid to triple negative tumors – those that lack expression of all three hormones. Research has shown that these particular tumors seem to be more prevalent in younger women (particularly black women) and are not only more aggressive, but show poorer response to breast cancer treatments which may account for part of the disparity. Since socioeconomic status, access to and use of care, and other behavioral characteristics still play a part in the breast cancer prognosis, further research will need to be conducted to clarify the relationship among all risk factors, as well as any possible biologic differences in other racial/ethnic groups.

How Does Breast Cancer Vary by Region?

Georgia Breast Cancer Age-Adjusted Incidence (2005-2009) and Age-Adjusted Mortality (2004-2008) Rates by Race/Ethnicity and Geography



Georgia Counties on the Rural-Urban Continuum



Rates are age-adjusted to the 2000 U.S. standard population.
 *Fewer than 20 cases; Rates not calculated

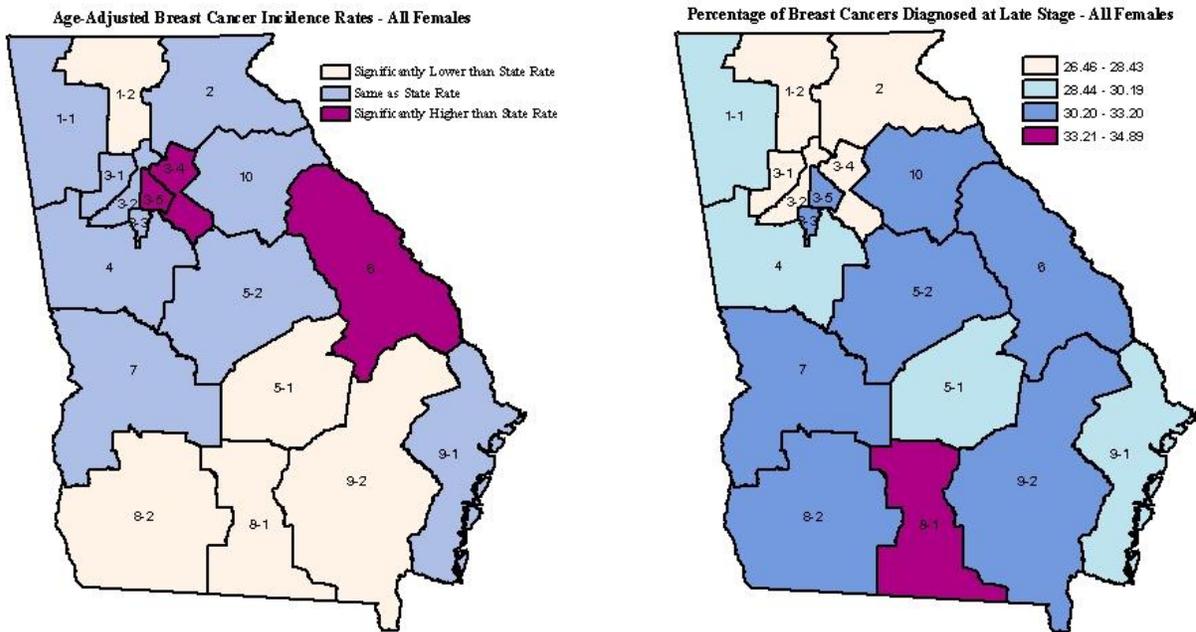
Please refer to the Technical Notes for a description of the Rural-Urban Continuum.

** Rates are statistically significantly different for blacks vs. whites
 † Rates are statistically significantly different for Hispanics vs. blacks or whites

Statewide, Non-Hispanic white women in Georgia have almost the exact same incidence rate of breast cancer as non-Hispanic black women, and Hispanic women have a significantly lower breast cancer incidence rate. When examining rates by geography, however, non-Hispanic black women in the larger metro areas have higher incidence rates, while non-Hispanic white women in outer-lying metro and metro-adjacent areas have higher incidence rates, and incidence rates for non-Hispanic white and non-Hispanic black women are about the same in rural areas. The greatest disparity in incidence rates between non-Hispanic black and non-Hispanic white women seems to occur in suburban (metro-adjacent) counties. Hispanic women, on the other hand, have significantly lower rates of breast cancer than non-Hispanic black or non-Hispanic white in all rural and urban areas.

Non-Hispanic white women in rural counties experienced significantly lower rates of breast cancer incidence than non-Hispanic white women statewide. Non-Hispanic black women in the metro-adjacent and rural counties experienced significantly lower rates of breast cancer incidence than non-Hispanic black women statewide. None of the other incidence rates for the various metropolitan classifications were significantly different from the statewide incidence rates for either race or ethnicity.

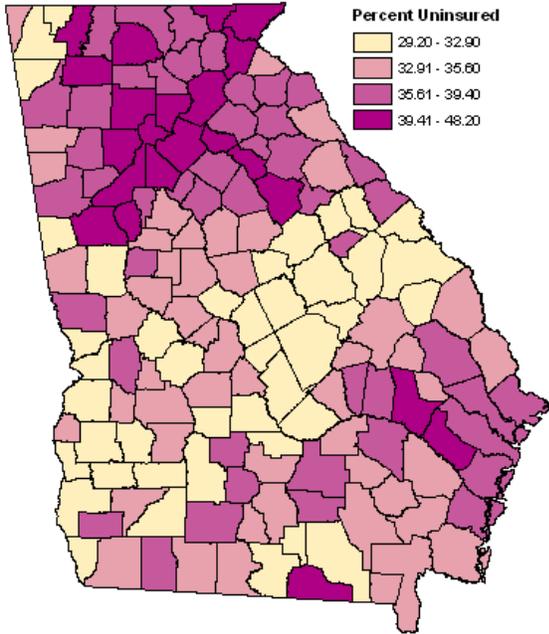
In the state of Georgia, black women have higher mortality rates from breast cancer than white women, regardless of geography. The widest disparities in mortality rates exist in the largest metro areas and rural counties. In those areas, the disparity between black and white mortality rates is statistically significant. Black women in the smaller metro counties had a significantly lower mortality rate than black women statewide. None of the other mortality rates for any of the metropolitan classifications were significantly different from the statewide mortality rates for either race.



Public Health Districts in southern and northwest Georgia have significantly lower breast cancer incidence rates than the state as a whole, and two Public Health Districts in the metro Atlanta area (Public Health District 3-4 – Lawrenceville and Public Health District 3-5 – DeKalb) as well as one in the east (Public Health District 6 – Augusta) have significantly higher rates. When looking at stage at diagnosis, with few exceptions, women in eastern and southern Public Health Districts have higher frequencies of late stage breast cancer diagnoses than women in north Georgia and much of metro Atlanta. Screening may play a large role in this phenomenon; women in rural areas may not have adequate access to screening and would therefore not be diagnosed as often. In addition, lack of awareness about the importance of screening due to poverty or low education may prevent women from having regular screenings that might lead to earlier diagnoses.

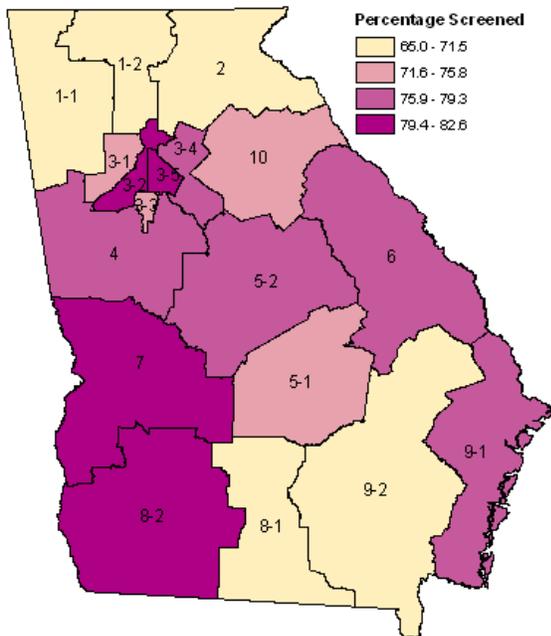
Where is the Greatest Need for Breast Cancer Screening and Interventions?

Percent Uninsured Among Georgia Women Aged 40-64 Years Below 200% Poverty by County, 2009



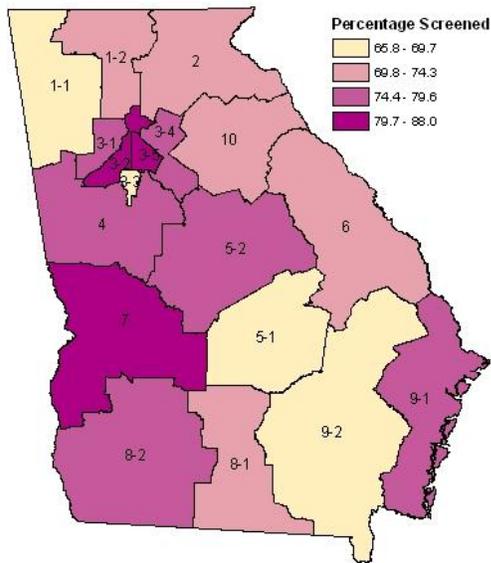
The US Census Bureau puts together annual estimates regarding the number of women in the target age group and income level to determine the size of the population that is eligible for Georgia Breast and Cervical Cancer Program services (see Page 17 for a complete description of program eligibility and services). The groups are also stratified based on insurance status. This map shows, by county, the percentage of Georgia women in the 40-64 years age group who are below 200% of the federal poverty level and who are also uninsured, as of 2009. These areas have the highest proportions of women who are eligible to receive BCCP cervical cancer screening services. Areas in the metro Atlanta area, as well as North Georgia and a band of counties extending from the southeast coastal area down to southwest Georgia have the highest percentages of uninsured women who fall into the specified demographic group.

Percent of Georgia Women Who Had a Mammogram within the Past Two Years by Health District, 2005-2009

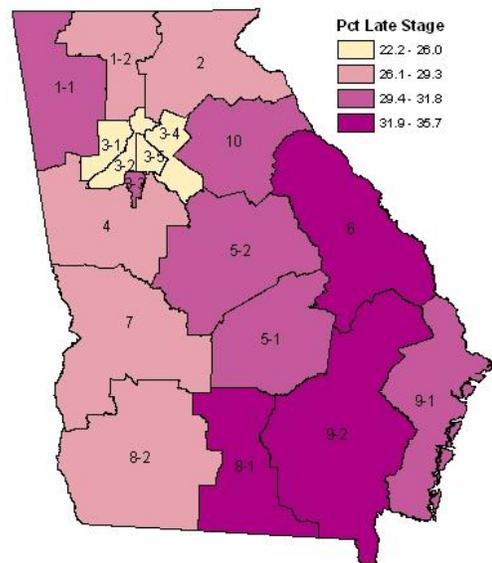


Current breast cancer screening guidelines recommend that all women aged 40 years and older receive a mammogram every year. The Behavioral Risk Factor Surveillance System, a telephone survey, asks whether a woman has ever had a mammogram, and if so, how recently. This map shows the percentage of Georgia women aged 40 years and older who reported that their most recent breast screening was within the past two years. The lightest areas have the lowest percentages of women who have had a recent mammogram, indicating a need for outreach and services. The Public Health Districts that had the greatest percentages of underscreened women were generally in southern and southeast Georgia (Public Health Districts 8-1 – Valdosta and 9-2 – Waycross), and north Georgia (Public Health Districts 1-1 – Rome, 1-2 – Dalton, and 2 – Gainesville).

Percentage of White Women in Georgia Aged 40-64 Years Who Had a Mammogram within Two Years, 2005-2009

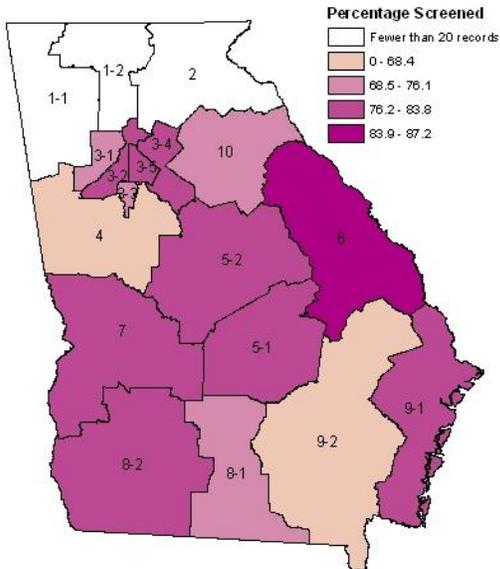


Percentage Late Stage Breast Cancer in White Women Aged 40-64 Years in Georgia, 2005-2009

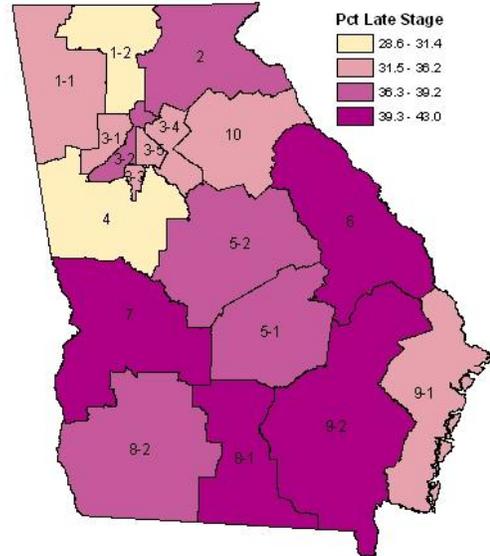


Regular breast cancer screening through the use of mammograms can help identify early stage cancers that may respond more favorably to treatment. The above maps display the relationship between screening and late stage breast cancer diagnoses among white women in Georgia, aged 40-64 years, by Health District. The Health Districts with the lowest rates of screening (northwest GA and southeast GA) also have to higher frequencies of women diagnosed with late stage breast cancer. Conversely, the Health Districts with the highest rates of screening (metro Atlanta and western GA) have the lowest proportions of women diagnosed with late stage cancers.

Percentage of Black Women Aged 40-64 Reporting a Mammogram within Two Years



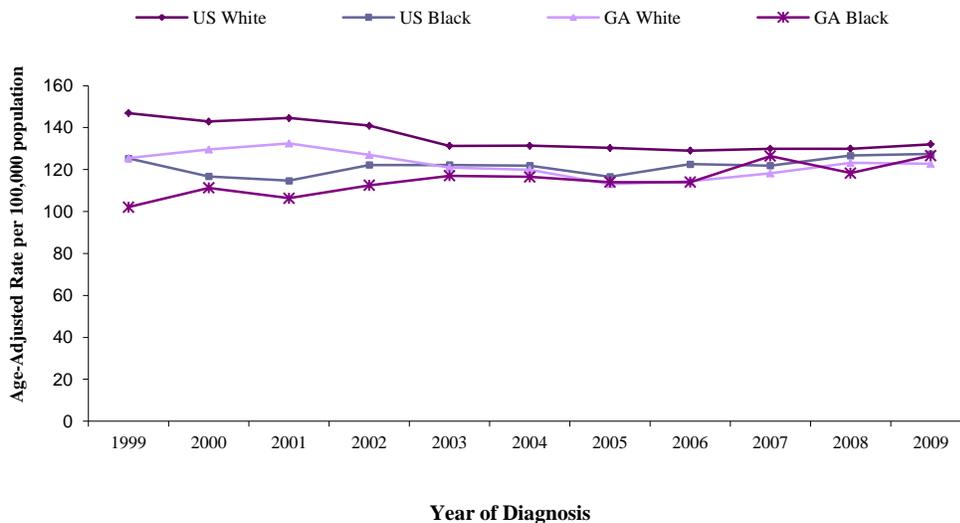
Percentage Late Stage Breast Cancer in Black Women Aged 40-64



The above maps show the relationship between mammography screening and late stage breast cancer in black women in Georgia, aged 40-64 years, by Health District. The results are not the same as for white women; here, the Health Districts that have the highest rates of mammography screening (eastern and central GA and metro Atlanta) do not necessarily have the lowest proportions of women diagnosed with late stage breast cancer. There may be many factors here, but one possible explanation may come from the examination of hormone receptor status of breast cancer tumors. Black women are known to have higher rates of “triple negative” tumors (meaning they lack the presence of estrogen, progesterone, and HER2), and these types of tumors tend to be more aggressive and harder to treat. In addition, they may occur more frequently in younger women (under 40 years), when regular breast cancer screening is not generally recommended. A brief analysis of hormone receptor status among GA breast cancer cases from the most current Georgia Comprehensive Cancer Registry data (2010-2011) was conducted whereby women were stratified based on race (black vs. white) and then age group (under 40 years, 40-64 years, and 65+ years) to compare frequencies of invasive breast cancer and presence of triple negative tumors. Results showed that while white women accounted for about two-thirds of all invasive breast cancer cases in Georgia, they only accounted for about half of the triple negative tumors. In addition, white and black women under 40 years had the same percentage of invasive breast cancers, but black women under 40 years had almost twice the percentage of triple negative tumors as white women. Among all Georgia women under 40 years, they accounted for about 6% of all invasive breast cancers, but almost 9% of triple negative tumors. Triple negative tumors are clearly more common in black women, young women, and young black women. This would suggest that following current screening guidelines may not help these women who have more aggressive tumors that developed earlier. (See Technical Notes/Data Sources for reference)

How Does Georgia Compare with the United States?

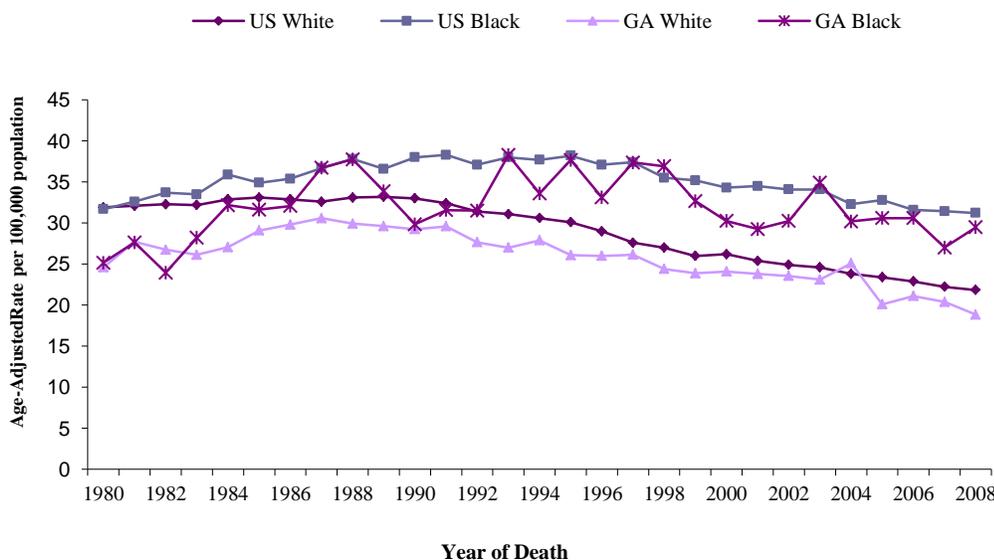
Breast Cancer Age-Adjusted Incidence Rates, Georgia vs. the US, by Race, 1999-2009



Between 1999 and 2001, breast cancer incidence rates for white women in Georgia increased by 2.4% per year. From 2001 through 2005, incidence rates for these women decreased by an average of 3.6% per year, and between 2005 and 2009, rates increased again, by 1% annually. In comparison, breast cancer incidence rates for white women in the U.S. decreased by 2.1% per year between 1999 and 2005, and then started increasing at a pace of 0.6% per year through 2009.

Between 1999 and 2009, breast cancer incidence rates for black women in Georgia increased by about 1.6% annually. In comparison, incidence rates for black women in the U.S. decreased by 2.2% per year between 1999 and 2001, and then increased by 1% per year through 2009.

Breast Cancer Age-Adjusted Mortality Rates, Georgia vs. the U.S., by Race, 1980-2008



Rates are age-adjusted to the 2000 U.S. standard population.

Between 1980 and 1987, breast cancer mortality rates for white women in Georgia increased by about 2.9% per year. From 1987 through 2008, mortality rates for these women decreased by 1.8% per year. In comparison, breast cancer rates for white women in the U.S. increased by 0.3% per year between 1980 and 1990, and then decreased by 2.3% annually through 2008.

Breast cancer mortality rates increased for black women in Georgia at about 4.9% per year between 1980 and 1988. After 1988, mortality rates for these women decreased by 1% per year through 2008. In comparison, black women in the U.S. had breast cancer mortality rates that increased by 2% per year from 1980 through 1988, then leveled off between 1988 and 1995 (only increasing by 0.2% per year), and then decreased by 1.6% annually through 2008.

Screening and Treatment Options in Georgia

For women who have health insurance and do not live below the poverty line, their private doctor/nurse practitioner will be the most likely provider for breast cancer screening. However, what happens to women who are at or below 200% of the federal poverty level and uninsured, and are in need of screening or diagnostic testing for breast cancer?

National Breast and Cervical Cancer Early Detection Program

The National Breast and Cervical Cancer Early Detection Program (NBCCEDP) was created by the Centers for Disease Control and Prevention (CDC) after Congress passed the Breast and Cervical Cancer Mortality Prevention Act of 1990. The purpose of the Early Detection Program is to provide access to breast and cervical screening to low-income, uninsured, or underinsured women. The NBCCEDP provides funding for screening programs in all 50 states, the District of Columbia, 5 U.S. territories, and 12 American Indian/Alaska Native tribal organizations. For breast cancer specifically, the NBCCEDP refers eligible women to a local provider for mammograms, clinical breast examinations, follow-up diagnostic testing if needed, and referral for treatment in the event of a positive diagnosis.

In Georgia the program called the Breast and Cervical Cancer Program (BCCP), formerly known as BreasTest and More, is housed within the Georgia Department of Public Health. It was launched in 1994, and is funded by federal and state funds.

Different funding sources have particular goals, objectives, and priorities for the screening population. For example, CDC has a specific breast cancer screening goal that at least 75 percent of federally funded screening mammograms must be given to women ages 50-64 since this population is at greater risk for breast cancer.

Eligibility

To be considered eligible for the BCCP in Georgia, a woman must:

- Have a household income of less than 200 percent (double) of the Federal Poverty Level
- Have no health insurance or be underinsured and not eligible for Medicare or Medicaid assistance
- Must not have had a mammogram in the past year (otherwise, must display symptoms of possible breast cancer)

Screening mammograms are limited to women ages 40-64 years, however, younger women may access the program to receive a diagnostic mammogram if they meet the above criteria and have symptoms that are highly suspicious of breast cancer. Women whose screening procedures show abnormalities may be sent for diagnostic follow-up.

Following a Positive Breast Cancer Diagnosis

Women who are diagnosed with breast cancer through the Georgia BCCP (or elsewhere, and meet BCCP eligibility criteria), have options available to assist with treatment.

Women's Health Medicaid Program

The Women's Health Medicaid Program was established in 2001 following the passage of the National Breast and Cervical Cancer Prevention and Treatment Act of 2000. Women apply for the program at their local health department. The application for presumptive eligibility is forwarded to Medicaid for the final determination. Low-income women who have been diagnosed with breast cancer and need to access treatment can apply to the program.

In order to be considered eligible, women must:

- Meet the financial requirement for the Breast and Cervical Cancer Program
- Be under 65 years of age
- Be a U.S. citizen and Georgia resident
- Must not have health coverage (and not be eligible for Medicare or Medicaid)

Accomplishments and Limitations

The Breast and Cervical Cancer Program of Georgia has helped thousands of women gain access to vital breast cancer screening tools such as mammograms and clinical breast exams over the years. Specifically, during the 2009 calendar year, almost 20,000 mammograms and over 21,000 CBEs were performed, and about 200 breast cancers were detected through the program. Of those cancers, half were considered invasive.

Financial realities are an important limitation of the program, and BCCP cannot serve all women in need. Funding amounts fluctuate over time, and providers can only perform as many screenings as the money allows. The U.S. Census Bureau estimates that in 2009, Georgia had approximately 175,000 uninsured women age 40-64 living below 200 percent of the federal poverty level (coinciding with the eligibility criteria for the BCCP). Thus, only about 13 percent of the eligible women in Georgia were able to take advantage of the screening and diagnostic services offered.

Where Can I Find Out More about Breast Cancer?

American Cancer Society
Telephone: 1-800-ACS-2345
Internet Address: <http://www.cancer.org>

National Cancer Institute, Cancer Information Service
Telephone: 1-800-4-CANCER or 800-422-6237
Internet Address: <http://www.cancer.gov/>

Cancer Control Planet
Internet Address: <http://cancercontrolplanet.cancer.gov/>

National Coalition for Cancer Survivorship
Telephone: 1-877-NCCS-YES or 877-622-7937
Internet Address: <http://www.canceradvocacy.org/>

Encore Plus Program of the YWCA
Office of Women's Health Initiatives
Telephone: 1-800-953-7587 or 202-467-0801
Internet Address: <http://www.ywca.org>

Susan G. Komen Breast Cancer Foundation
Telephone: 1-800-IM AWARE or 800-462-9273
Internet Address: <http://www.komen.org/>

National Breast Cancer Coalition
Telephone: 1-800-622-2838 or 202-296-7477
Internet Address: <http://www.natlbcc.org> or
<http://www.stopbreastcancer.org>

Y-Me National Breast Cancer Hotline
Telephone: 1-800-221-2141, 1-800-986-9505 (Spanish)
Internet Address: <http://www.y-me.org>

Breast and Cervical Cancer Program of Georgia
Internet Address: <http://health.state.ga.us/programs/bccp/>

Technical Notes

Definitions:

Age-adjusted rate: A rate calculated in a manner that allows for the comparison of rates derived from populations with different age structures.

Cancer incidence rate: The number of new cancer cases occurring in a population during a specified period of time. Often expressed per 100,000 population.

Cancer mortality rate: The number of cancer deaths occurring in a population during a specified period of time. Often expressed per 100,000 population.

2003 Rural-Urban Continuum Codes: Rural-Urban Continuum Codes form a classification scheme that distinguishes metropolitan (metro) counties by the population size of their metro area, and nonmetropolitan (nonmetro) counties by degree of urbanization and adjacency to a metro area or areas:

- 1 = Counties in metro areas of 1 million population or more
- 2 = Counties in metro areas of 250,000 to 1 million population
- 3 = Counties in metro areas of fewer than 250,000 population
- 4 = Urban population of 20,000 or more, adjacent to a metro area
- 5 = Urban population of 20,000 or more, not adjacent to a metro area
- 6 = Urban population of 2,500 to 19,999, adjacent to a metro area
- 7 = Urban population of 2,500 to 19,999, not adjacent to a metro area
- 8 = Completely rural or less than 2,500 urban population, adjacent to a metro area
- 9 = Completely rural or less than 2,500 urban population, not adjacent to a metro area

The above codes were regrouped into the following five categories:

- 1 = Metro >1M
- 2 = Metro 250K-1M
- 3 = Metro <250K
- 4 = Metro-Adjacent
- 5 = there are no counties in Georgia that fit category number 5
- 6, 7, 8 and 9 = Rural

Data Sources:

The number of deaths and mortality rates for the state of Georgia were obtained from the Georgia Department of Public Health, Vital Records Program. The number of deaths and mortality rates for the United States were obtained from the North American Association of Central Cancer Registries (NAACCR) and from the Surveillance, Epidemiology, and End Results (SEER) program, National Cancer Institute. Mortality data were coded using ICD-9 (1980-1998) and ICD-10 codes (1999-2008). The ICD-9 codes for breast cancer are 174.0-174.9, while the ICD-10 codes are C50.0:C50.9.

The number of new cases and incidence rates for the state of Georgia were obtained from the Georgia Department of Public Health, Georgia Comprehensive Cancer Registry. The number of new cases and incidence rates for the United States were obtained from NAACCR. Incidence data were coded using ICD-O-3 codes (2005-2009). The ICD-O-3 codes used for breast cancer are C50.0:C50.9.

Cancer stage and survival data for the United States were obtained from the National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) program.

Population estimates for 1980-2009 and the 2000 U.S. standard population were obtained from the U.S. Bureau of the Census.

Data regarding prevalence of risk factors such as exercise habits, alcohol use, overweight/obesity, insurance status, and breast cancer screening behaviors for Georgia were obtained from the Georgia Department of Public Health, Behavioral Risk Factor Surveillance System, and were analyzed as weighted averages for the years 2005 through 2009.

For more information regarding hormone receptor status of breast cancer tumors and racial disparities:

Lund MJ, et al. "Race and Triple Negative Threats to Breast Cancer Survival: A Population-based Study in Atlanta, GA." *Breast Cancer Research and Treatment* 2009 Jan; 113(2): 357-370.

Methods:

Incidence rates were calculated per 100,000 population and age-adjusted by the direct method to the 2000 U.S. standard population. The incidence rates are five-year average annual rates for the period 2005 through 2009. Mortality rates were calculated per 100,000 population and age-adjusted by the direct method to the 2000 U.S. standard population. Except where calculated to show trends, the mortality rates are five-year average annual rates for 2004 through 2008.

Appendix 1

Number of Incident Breast Cancer Cases by Public Health District, by Race/Ethnicity, Georgia, 2005-2009

Public Health District	Total	Non-Hispanic White	Non-Hispanic Black	Hispanic
1-1 Rome	1854	1666	154	31
1-2 Dalton	1135	1058	26	43
2-0 Gainesville	1979	1838	71	66
3-1 Cobb/Douglas	2438	1830	463	115
3-2 Fulton	2811	1476	1193	80
3-3 Clayton	678	216	412	34
3-4 East Metro	2647	1846	518	177
3-5 DeKalb	2286	968	1204	69
4-0 LaGrange	2439	1857	515	43
5-1 Dublin	436	320	108	*
5-2 Macon	1683	1093	565	*
6-0 Augusta	1597	960	598	*
7-0 Columbus	1219	693	493	*
8-1 Valdosta	710	500	196	*
8-2 Albany	1146	719	412	*
9-1 Coastal	1660	1165	450	29
9-2 Waycross	942	732	187	*
10-0 Athens	1424	1171	219	27

Age-Adjusted Breast Cancer Incidence Rates per 100,000 Population by Public Health District, by Race/Ethnicity, Georgia, 2005-2009

Public Health District	Total	Non-Hispanic White	Non-Hispanic Black	Hispanic
1-1 Rome	114.59	115.3	120.41	112.76
1-2 Dalton	105.56	108.51	73.34	84.86
2-0 Gainesville	123.23	126.78	92.02	105.57
3-1 Cobb/Douglas	124.63	126.35	130.59	124.77
3-2 Fulton	120.85	130.63	114.64	94.75
3-3 Clayton	112.91	86.28	156.09	110.01
3-4 East Metro	127.57	132.02	132.31	120.45
3-5 DeKalb	127.38	129.32	144.03	100.91
4-0 LaGrange	122.16	123.35	119.2	104.58
5-1 Dublin	105.58	107.8	95.76	*
5-2 Macon	118.5	121.45	116.5	*
6-0 Augusta	127.58	126.28	132.18	*
7-0 Columbus	121.25	121.42	121.93	*
8-1 Valdosta	110.73	110.61	114.27	*
8-2 Albany	108.53	108.6	108.39	*
9-1 Coastal	118.94	125.47	108.64	98.01
9-2 Waycross	102.99	102.21	104.05	*
10-0 Athens	124.75	129.38	111.69	96.59

* Fewer than 20 cases; no rate calculated

Appendix 2

Number of Breast Cancer Deaths by Public Health District, by Race, Georgia, 2004-2008

Public Health District	Total	White	Black
1-1 Rome	375	330	44
1-2 Dalton	218	207	*
2-0 Gainesville	317	297	*
3-1 Cobb/Douglas	420	318	95
3-2 Fulton	571	236	304
3-3 Clayton	142	61	80
3-4 East Metro	385	299	78
3-5 DeKalb	468	180	286
4-0 LaGrange	427	309	115
5-1 Dublin	95	62	33
5-2 Macon	314	199	114
6-0 Augusta	298	172	123
7-0 Columbus	262	139	120
8-1 Valdosta	127	82	45
8-2 Albany	234	134	100
9-1 Coastal	314	210	99
9-2 Waycross	216	157	58
10-0 Athens	236	184	52

Age-Adjusted Breast Cancer Mortality Rates per 100,000 Population by Public Health District, by Race, Georgia, 2004-2008

Public Health District	Total	White	Black
1-1 Rome	23.4	22.35	37
1-2 Dalton	22.02	21.84	*
2-0 Gainesville	20.54	20.44	*
3-1 Cobb/Douglas	23.54	21.8	35.63
3-2 Fulton	26.01	23.17	30.75
3-3 Clayton	26.21	20.75	40.45
3-4 East Metro	20.81	21.09	23.36
3-5 DeKalb	27.09	19.66	37.16
4-0 LaGrange	22.31	20.47	29.99
5-1 Dublin	22.51	19.77	29.67
5-2 Macon	21.92	20.91	23.87
6-0 Augusta	23.96	21.59	28.1
7-0 Columbus	25.6	22.25	30.01
8-1 Valdosta	19.56	16.92	27.04
8-2 Albany	21.37	18.52	26.31
9-1 Coastal	22.74	21.92	24.5
9-2 Waycross	23.22	20.9	32.14
10-0 Athens	21.01	19.88	27.99

* Fewer than 20 deaths; no rate calculated