Breast Cancer in California: A Closer Look

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Breast Cancer in California: A Closer Look is based on the California Cancer Registry's special report, *Breast Cancer in California, 2003*. To obtain a copy, contact the California Cancer Registry at (916) 779-0300 or www.ccrcal.org.

About the California Breast Cancer Research Program

Created in 1993 by the California state legislature, the California Breast Cancer Research Program (CBCRP) is the largest state-funded breast cancer research program in the nation and is administered by the University of California, Office of the President. Its mission is to eliminate breast cancer by leading innovation in research, communication, and collaboration in the California scientific and lay communities. The program is funded through the voluntary tax check-off program on personal income tax form 540, a portion of the state tobacco tax, and individual contributions.

The CBCRP supports innovative breast cancer research—cow viruses, Tibetan herbs, snake venom—that might otherwise go unfunded. As of December 2003, the CBCRP has awarded 569 grants to 62 scientific institutions and community organizations, totaling close to $150 million, for California-based research into new ways to prevent, treat, and cure breast cancer.

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Some Facts

Fifty-five percent
of California women who get breast cancer are under age 65. (Page 9)

White women are more likely
to get breast cancer, but African American women are more likely to die from it. (Page 10)

More California women
are getting breast cancer, but the death rate is down. (Page 11–12)

The breast cancer death rate
for Asian women in California is going up, while the rates for other California ethnic groups are dropping. (Page 12)

A 50-year-old California woman's
chance of getting breast cancer over the next 20 years is 1 in 17. Over the next 5 years, it's 1 in 84. (Page 15–16)

The California county
with the highest breast cancer rate is Marin, and the counties with the lowest rates are Imperial and the combined rates for Lassen, Modoc, and Plumas. (Page 18)

Women with more education
and higher incomes are more likely to get breast cancer. (page 20)

Breast cancer is
slightly more common in the left breast than in the right. (Page 22)

More California women
are being treated with breast-conserving surgery now, instead of having their entire breast removed, to treat breast cancer. (Page 34)

Younger women diagnosed
with breast cancer are less likely to survive than are older women. (Page 36)

One thing women can do
that may cut down their chances of getting breast cancer is to get regular exercise. (Page 39)

Contents

A Message from the California Breast Cancer Research Program Director

We are pleased to provide this summary of the status of breast cancer in California. This report provides the most current picture available of breast cancer's effect on the lives of the women of our state. The picture that emerges is mixed.

The good news is that the breast cancer death rate dropped from 32.4 per thousand California women in 1988 to 24.5 in 1999. There is debate about the reasons for this improvement. Some argue that it is because we are detecting breast cancer earlier. While it is true that more and more California women are getting regular breast cancer screening and we are detecting more and more early stage breast cancers, we are not seeing a significant drop in late stage cancers (the cancers that have spread to other parts of the body). Thus, it is more likely that the drop in the breast cancer death rate is due to improvements in treatment, either through improved therapies or more widespread use of the therapies we have.

The bad news is that the rate at which California women get breast cancer has climbed 25% in the past 20 years. There is no indication from the data available from the California Cancer Registry what is causing this increase, or how to prevent it. There are few ways an individual women can cut down her chances of getting breast cancer, and none proven to completely prevent it.

We would expect the widespread use of screening mammography to reduce the rate at which women are diagnosed at a late stage (after their tumors have spread, when treatment is less effective). However, there has been almost no change in late stage diagnoses. Meanwhile, the widespread use of screening mammography has resulted in a 500% increase in the diagnosis of in situ breast cancer, a localized tumor that does not spread to other parts of the body. Because these tumors are usually seen only with mammography, they were quite rarely diagnosed in the past, and we do not really know how best to treat them.

We must find out why breast cancer is still on the rise and find ways to prevent it. We need better detection methods that can reduce the rate of late stage diagnoses and distinguish fast-growing dangerous tumors from innocent ones. We must develop treatments that will guarantee that women who develop breast cancer will survive. Not just five years, or ten years, but for decades.

These are the goals for the California Breast Cancer Research Program. We will continue to push for innovative, creative research in these areas until we have changed the face of breast cancer in California.

Mel Kavanaugh-Lynch

Marion H. E. Kavanaugh-Lynch, M.D., M.P.H.

Introduction

Each year, breast cancer strikes more than 25,000 California women and kills over 4,000. *Breast Cancer in California: A Closer Look* summarizes information from *Breast Cancer in California, 2003*, a special report on breast cancer, published in 2004 by the California Cancer Registry[1]. The Registry's report is written in scientific terms. The California Breast Cancer Research Program has produced this booklet because we wanted to make the Registry's research findings available to a wider public.

The California Cancer Registry

The California Cancer Registry, a state government program, collects information about every case of breast cancer, and several other types of cancer, reported in California. It does not collect tissue samples of tumors. Physicians, hospitals, and other health care providers send information about every cancer case they diagnose to one of nine regional cancer registries, which in turn pass the information on to the statewide Registry in Sacramento. The Registry makes the information available to researchers and the public, but it also has strict safeguards to protect the privacy of cancer patients. As a result, the California Cancer Registry is one of the world's leading cancer registries, and its data meet the highest standards for quality and completeness.

The Importance of Collecting Information About Breast Cancer in California

Collecting information—about who gets breast cancer, their tumors, and the results of their treatments—is important for several reasons. Information can help scientists understand how the disease develops and how to better treat it. Information can help scientists figure out if a strategy, such as the widespread use of mammograms to detect cancer, is saving lives. Information can help pinpoint which women aren't getting medical services that could help them survive the disease, and can also help women make decisions about their own health.

Because California has a diverse population—both urban and rural, with many ethnic groups—information from our state can identify differences in breast cancer rates and survival between different groups of people, which may provide clues to causes and progression of breast cancer.

The California Cancer Registry has been collecting data on breast cancer statewide since 1988. The facts in *Breast Cancer in California: A Closer Look* are drawn from the years 1988–1999. During those twelve years, over 250,000 California women learned they had breast cancer, and 50,556 died from the disease.

Why the Information Here Stops in 1999

The process of collecting cancer statistics and producing a report involves many complex and time consuming steps. Physicians and hospitals have up to six months after diagnosis to report cancer cases. Then, before the Cancer Registry staff compile and analyze the data, they conduct a number of special data reviews to make sure that reporting for a given year is complete. After that, the scientists who produced the information in this booklet needed time to do their research.

Looking at Breast Cancer in Our State from a Variety of Angles

The information we present here is based on research into the California Cancer Registry's data by more than 15 scientists. The scientists used a variety of ways of dividing the information into categories and a variety of statistical methods. This allowed them to better understand breast cancer in California from different angles. We interpreted some of their research further. Breast cancer is a complex disease. Having different experts look at it from different angles gives a fuller picture of this medical puzzle.

Each year, breast cancer strikes more than 25,000 California women and kills over 4,000.

[1]To obtain a copy of *Breast Cancer in California, 2003*, contact the California Cancer Registry at (916) 779-0300 or www.ccrcal.org.

1

Breast Cancer Cases and Deaths in California

Cases

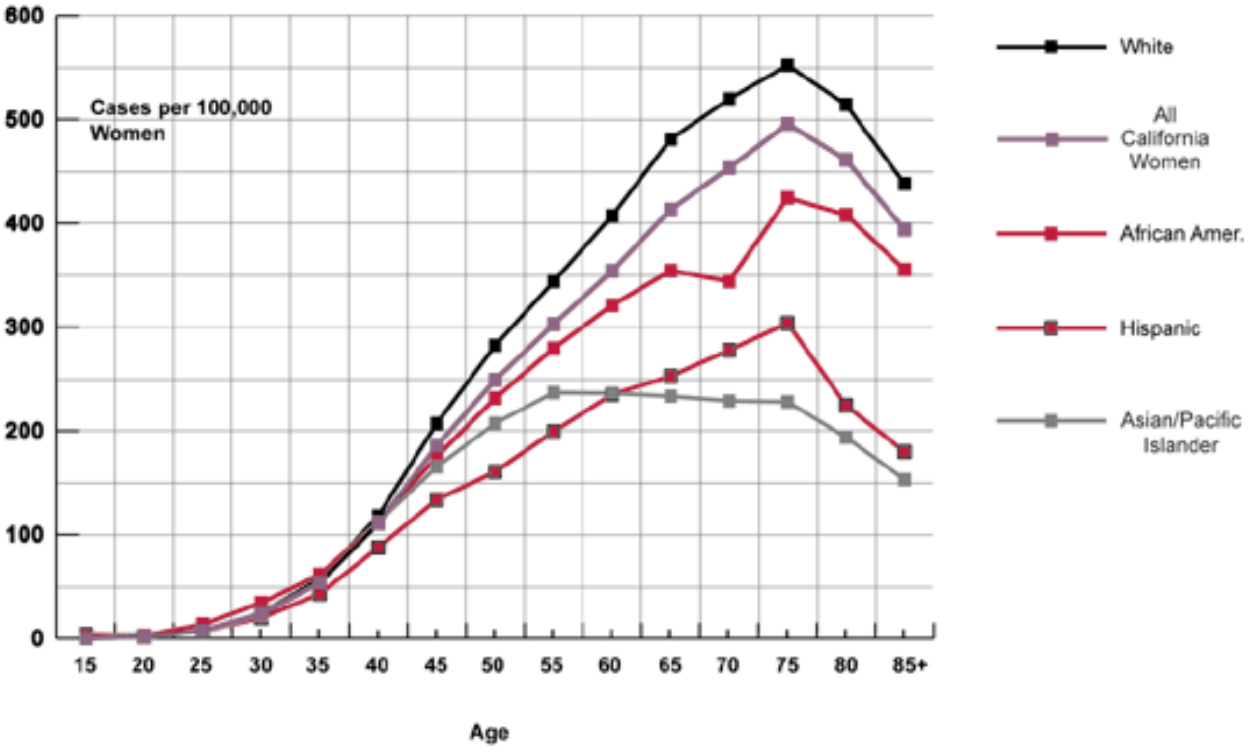
Breast cancer strikes more than 25,000 California women per year. Looking at the actual number of cases provides some information, but a more meaningful number is the rate per 100,000 women, because it allows better comparisons between groups and over time. White women have the highest rate, followed by African American women. Hispanic and Asian/Pacific Islander women have lower rates. Although the risk of getting breast cancer is higher for older women, 55 percent of all California women who get breast cancer are under age 65 when they are first diagnosed, and 10 percent are under age 50.

The graph below shows how California women's breast cancer rates rise steeply as the women get older, then start dropping slightly at approximately age 75. The graph also shows how breast cancer rates vary by ethnic group.

Figure 1

Breast Cancer in California

This graph shows the number of California women who were diagnosed with invasive breast cancer, the type that can spread to other parts of the body and cause death. The figures are an average of the years 1995-99.



Deaths

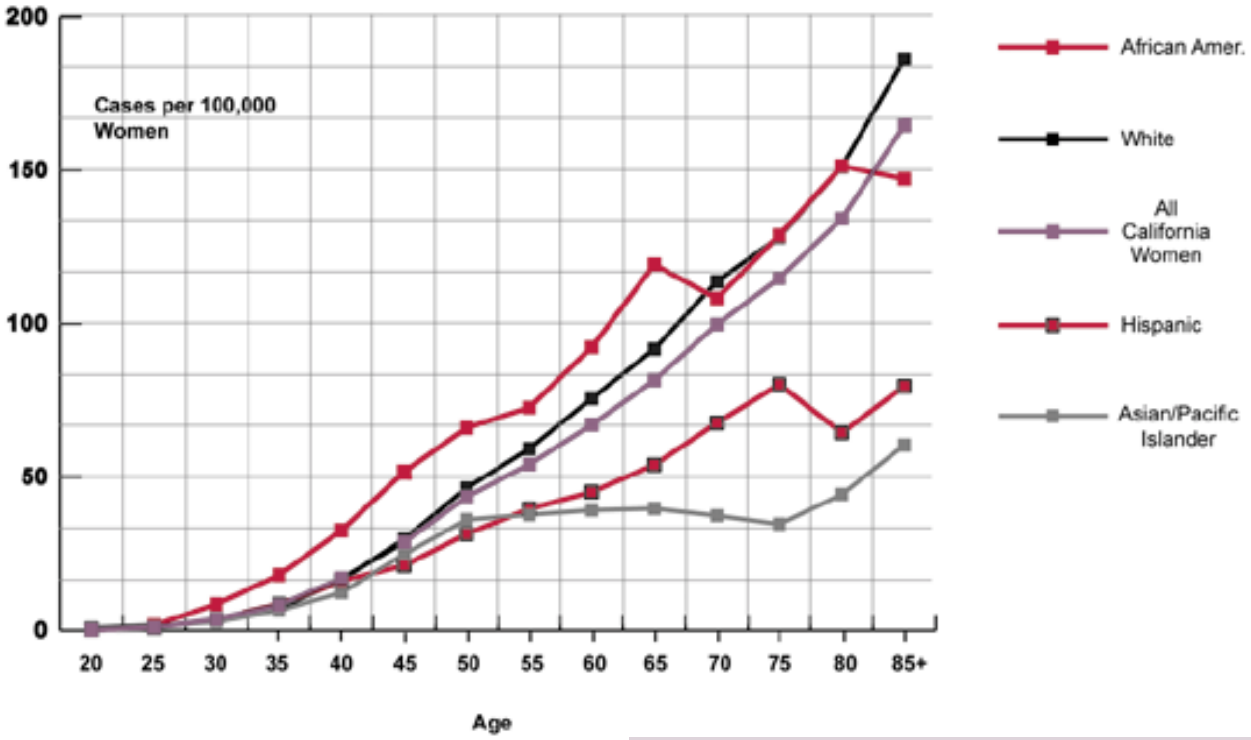
Breast cancer kills over 4,000 women per year in California. Although white women are more likely to get breast cancer, African American women have the highest death rate. This is especially true for African American women under age 50, who have a death rate double that of other women in the same age bracket. The groups who are least likely to get breast cancer, Hispanic and Asian/Pacific Islander women, also have the lowest death rates.

For every ethnic group, the death rate starts going up after age 50, and in general keeps rising.

Figure 2

Breast Cancer Deaths in California

These figures are an average for the years 1995-99



Age-Adjusted Breast Cancer Rates

The figures in this section are adjusted for age. Adjusting for age allows the rates to reflect what they would be if all ethnic groups in California had the same age distribution. Older women are more likely to get breast cancer. Adjusting for age means that the differences between the ethnic groups are not due to one group containing more older women than another.

How This Research Was Done

Researchers used information collected by the California Cancer Registry for the years 1995–1999. For more information on the Registry, and on why the information stops in 1999, see the introduction to this booklet. Information in this section comes from Chapter 3 of *Breast Cancer in California, 2003*, "Demographic Aspects of Breast Cancer Incidence and Mortality in California, 1988–1999," by Sharon L. Campleman, Ph.D., M.P.H., and Robyn L. Curtis, M.S.

2

Long-Term Trends: Cases Up, Death Rate Down

More California Women Are Finding Out That They Have Breast Cancer

Each year, more California women are diagnosed with ***invasive breast cancer***, the type of breast cancer that can spread to other body parts and lead to death. The number of cases is going up, and so is the rate per 100,000 women. Looking at the rate per 100,000 women is often more meaningful, because it allows comparisons over time and between groups of women. In 1973, about 115 out of 100,000 California women were diagnosed with invasive breast cancer. By 1999, the number had gone up to approximately 143.

More California women are also being diagnosed with ***in situ breast cancer,*** a localized tumor that does not spread to other parts of the body. In 1973, there were only about 6 cases of *in situ* breast cancer diagnosed per 100,000 California women. By 1999, there were approximately 32. Over time, some cases of *in situ* cancer will turn into invasive breast cancer, but others will remain harmless. There's currently no way to tell which *in situ* cancers will later cause harm, so physicians treat them all as potentially dangerous.

More Women Having Mammograms

Researchers believe one reason for the rise in the number of cases of breast cancer in California is that more women have mammograms yearly or every other year. The rates for both invasive and *in situ* breast cancer stayed almost the same from 1973 to 1982. Starting in 1982, many more women began to have mammograms regularly, and the rates for both types of breast cancer went up steeply. This trend lasted for about five years. The mammograms were allowing physicians to find tumors they otherwise would not have found until later or at all.

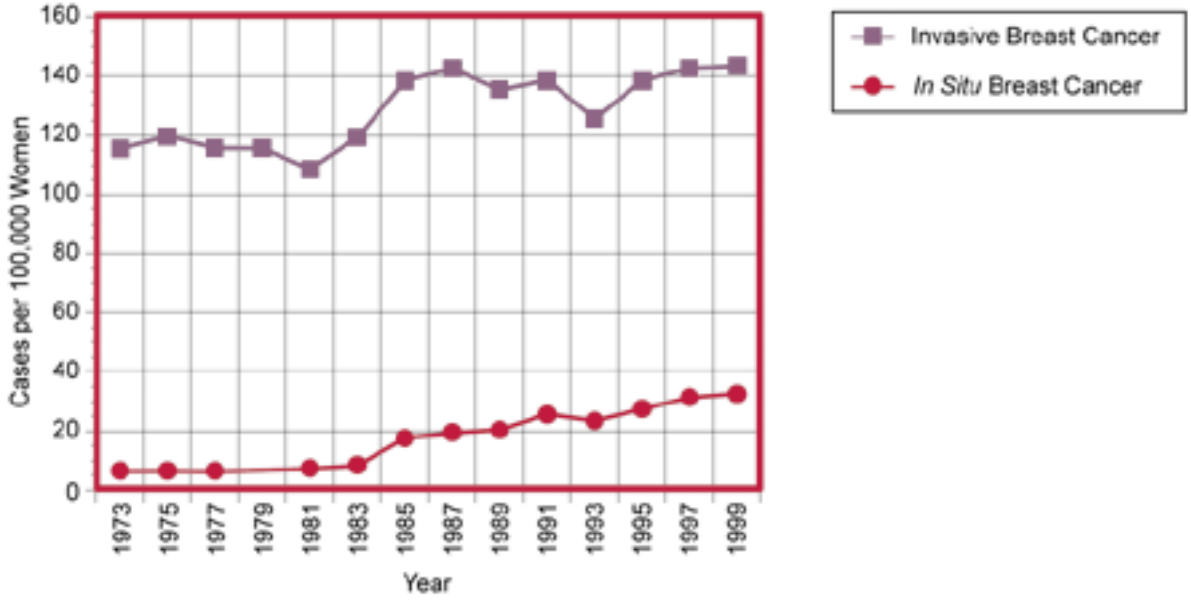
Since the mid-1980s, the rate for invasive breast cancer has gone up only a little, while the rate for *in situ* cases has continued to rise. This may be because more new groups of women have had their first mammogram.

However, there has also been a gradual, nationwide trend of breast cancer rates rising at about one percent per year for the past sixty years, suggesting that the actual incidence of breast cancer in California (after accounting for screening) is also increasing.

More California women are being diagnosed with breast cancer.

Figure 3

Invasive and *In Situ* Breast Cancer in California



Breast cancer rates are fairly stable among white and African American women in California, but they are rising for Hispanic and Asian/Pacific Islander women.

The Death Rate is Dropping

Since 1988 the death rate for breast cancer in California has been dropping. The actual number of deaths has gone down only slightly, from 4,121 in 1988 to 4,039 in 1999, with a high of 4,404 in 1994, but because California's population continues to grow, the rate of death has dropped more steeply. In 1988, there were about 32 deaths per 100,000 California women from breast cancer. In 1999, the number had dropped to 24.5.

Death Rate Drop Varies by Ethnic Group

The breast cancer death rate has dropped more among women from some California ethnic groups than among others. The overall drop in the California breast cancer death rate is mostly due to a lower death rate among white women.

In 1988, the group with the highest death rate was African American women, with 39.9 deaths per 100,000. By 1999, the number was down to 31.8 per 100,000, but this was still the highest of any ethnic group in the state.

In 1988, the ethnic group with the lowest breast cancer death rate was Asian/Pacific Islander women. Their rate was only 12.6 deaths per 100,000. In 1999, the figure was still the lowest of any ethnic group, at 13.7 deaths per 100,000, but this is also the only group whose death rate rose between 1988 and 1999.

The 1988 death rate for white women was 35.6 per 100,000. In 1999, the rate was 26.8 per 100,000, the biggest improvement of the four ethnic groups.

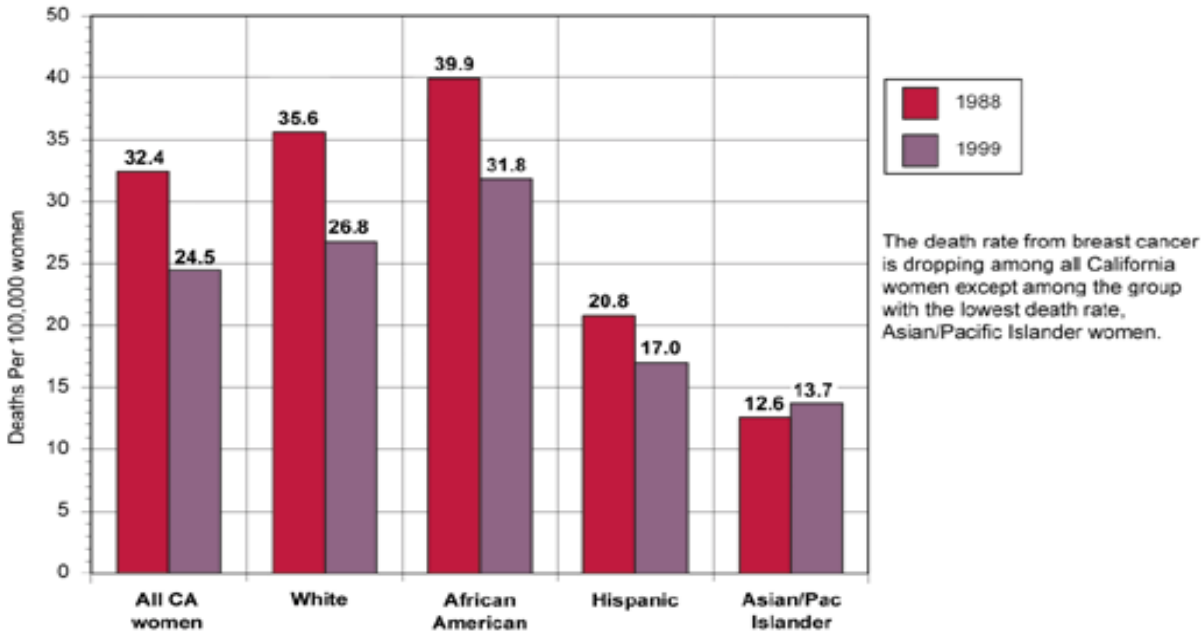
The 1988 death rate for Hispanic women was 20.8 per 100,000. In 1999, it had dropped to 17 per 100,000.

Why the Death Rate Is Down

We don't really know why the death rate is down. Some scientists believe the death rate has dropped because

Figure 4

Breast Cancer Deaths in California, 1988 and 1999



The death rate from breast cancer is dropping among all California women except among the group with the lowest death rate, Asian/Pacific Islander women.

more cases of breast cancer are being caught at earlier stages with mammograms. However, if this were the only reason, there would be a drop in the number of women diagnosed at later stages. But that number has not dropped. And at the same time, more and more women are going through the scare of an abnormal mammogram, requiring a biopsy that, more often than not, is benign.

There are other possible reasons that may provide part or all of the explanation for the drop in the death rate. First, breast cancer is being treated more aggressively. Second, treatment has improved, especially for women whose tumors are found at an early stage. Third, more women are receiving treatment. Meanwhile, more and more women who would have done fine without more treatment are unnecessarily getting more treatment, with all of its side effects.

Age-Adjusted Breast Cancer Rates

The figures in this section are adjusted for age. Adjusting for age allows the rates to reflect what they would be if all ethnic groups in California had the same age distribution. Older women are more likely to get breast cancer. Adjusting for age means that the differences between the ethnic groups are not due to one group containing more older women than another. Age adjustment also means that the differences between the years compared here are not due to there being more older women in California during some years than others.

How This Research Was Done

Researchers used information from the National Cancer Institute, the California Cancer Registry, and death certificates filed in California. For more information on the Registry, and on why the information stops in 1999, see the introduction to this booklet. A woman whose cancer recurs is only counted once in these statistics. However, a woman who has already had breast cancer, and who also later develops a new tumor that lab analysis shows is not the result of her previous tumor, counts as two cases. Information in this section comes from Chapter 5 of *Breast Cancer in California, 2003*, "Trends in Female Breast Cancer Incidence and Mortality in California," by Kumarss Nasseri, D.V.M., Ph.D., M.P.H.

3

California Women's Chances of Getting Breast Cancer

A California woman's chance of getting breast cancer is 1 in 8. But your chance—or the chance of a woman you care about—is probably different.

If present trends continue, one out of eight California women will get breast cancer at some point in their lives. Yet a 50-year-old California woman today faces one chance out of 84 that she will develop the disease over the next five years.

The risk of getting breast cancer over a lifetime and the risk at any particular point in a woman's life are very different.

Lifetime Risk

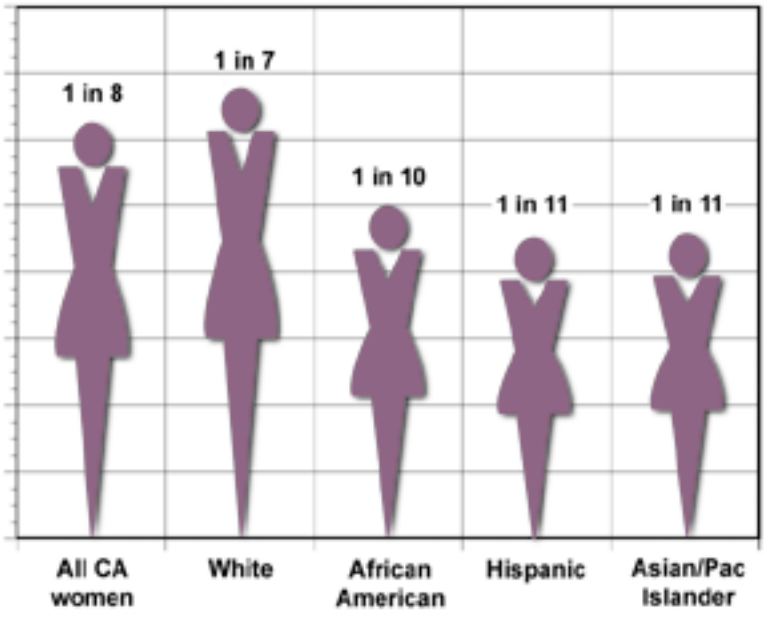
The table below shows the lifetime risk for invasive breast cancer—the type that can spread to other parts of the body and cause death—for California women from four ethnic groups.

However, there are several reasons why these figures may not be accurate. They are based on breast cancer cases diagnosed in California between 1995 and 1999, and will only come true if the state's breast cancer rate stays the same, which is unlikely to happen over a span of more than 80 years. What's more, the figures in this table give the risk for a newborn baby girl. An adult woman's risk is not the same.

As a woman ages, her risk goes up for getting breast cancer within the next five years. But her lifetime risk drops for every year she lives without getting the disease. For example, if a California woman has lived to age 60 and not yet had breast cancer, her chance of getting it is 1 in 11, not 1 in 8.

Figure 5

Chance that California Women Will Get Breast Cancer During Their Lifetimes



Looking at Risk over the Next 5–20 Years

Another way to look at a woman's chances of getting breast cancer is to look at the risk for women of her age over a given number of years. The shorter the time period being considered, the more likely it is that the prediction based on current trends will come true.

The tables below and on the next page show the risk of getting breast cancer over the next 5, 10, or 20 years for women of various ages. They are based on cases diagnosed in California between 1995 and 1999.

Table 1

Chance That California Women At Various Ages Will Be Diagnosed With Invasive Breast Cancer in the Next 5 Years

Current Age	All CA Women	White	African American	Hispanic	Asian/Pac Islander
30	1 in 883	1 in 845	1 in 604	1 in 1,035	1 in 929
40	1 in 189	1 in 175	1 in 184	1 in 235	1 in 182
50	1 in 84	1 in 73	1 in 89	1 in 128	1 in 99
60	1 in 59	1 in 50	1 in 66	1 in 87	1 in 86
70	1 in 46	1 in 40	1 in 63	1 in 76	1 in 89

Table 2

Chance That California Women At Various Ages Will Be Diagnosed With Invasive Breast Cancer in the Next 10 Years

Current Age	All CA Women	White	African American	Hispanic	Asian/Pac Islander
30	1 in 271	1 in 253	1 in 219	1 in 328	1 in 270
40	1 in 71	1 in 64	1 in 73	1 in 94	1 in 74
50	1 in 38	1 in 33	1 in 42	1 in 58	1 in 46
60	1 in 28	1 in 24	1 in 33	1 in 43	1 in 44
70	1 in 24	1 in 21	1 in 31	1 in 38	1 in 47

Table 3

Chance That California Women At Various Ages Will Be Diagnosed With Invasive Breast Cancer in the Next 20 Years

Current Age	All CA Women	White	African American	Hispanic	Asian/Pac Islander
30	1 in 57	1 in 51	1 in 56	1 in 74	1 in 59
40	1 in 25	1 in 22	1 in 28	1 in 36	1 in 29
50	1 in 17	1 in 14	1 in 20	1 in 25	1 in 23
60	1 in 14	1 in 12	1 in 18	1 in 22	1 in 24
70	*Since estimates stop at age 85, 20-year projections not possible.*				

The risk of getting breast cancer over a lifetime and the risk at any particular point in a woman's life are very different.

How This Research Was Done

Researchers used information on the number of cases of breast cancer collected by the California Cancer Registry for the years 1995–1999. Information on the population figures for women of various ethnic groups, and death rates from other causes, came from the Demographic Research Unit, California Department of Finance, a part of the state government. Researchers calculated the chances that a California woman, over a period of years, would either get breast cancer or die of another cause without having gotten breast cancer. All women who were predicted to do neither of these, based on trends in 1995–1999, became part of the population at risk for breast cancer during the next time period. Information in this section comes from Chapter 6 of *Breast Cancer in California, 2003*, "Risk of Developing Invasive Female Breast Cancer in California," by Cyllene R. Morris, D.V.M., Ph.D.

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4

Breast Cancer Rates for California Counties

Women in some California counties are more likely to get breast cancer than women in other counties. Marin County has the highest rate for both early and later stage tumors; Imperial County has the lowest rate for early stage tumors; and the combined rates for Lassen, Modoc, and Plumas counties are the lowest for later stage tumors.

The reasons are unclear, but differences in the population levels of various ethnic groups in the counties are part of the explanation.

Comparisons between counties can be misleading. Some counties contain a wide variety of ethnic groups, income levels, and variations between city, suburban, and rural living. Others do not. For example, if the city of Beverly Hills were a county, it might have a rate similar to Marin County's. Since Beverly Hills is part of larger and more varied Los Angeles County, the Beverly Hills rate is mixed with rates of other LA county areas and not reported separately.

The rates on the facing page are the average number of cases per 100,000 women for the years 1995–1999. Some counties with small populations have been grouped together because they share similar ethnic mixes, similar geography, or historic connections.

Age-Adjusted Breast Cancer Rates

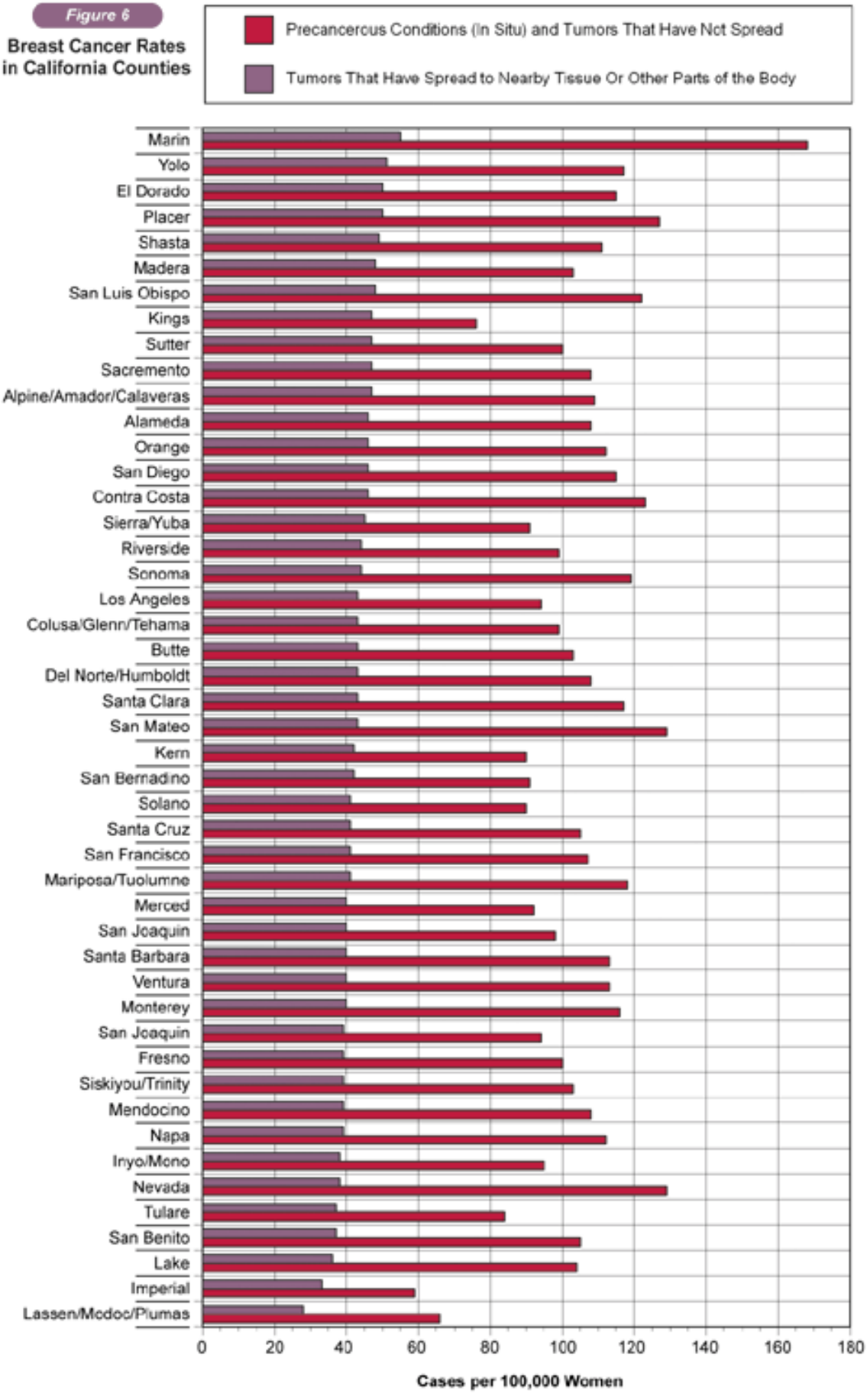
The figures in this section are adjusted for age. Adjusting for age allows the rates to reflect what they would be if all counties in California had the same age distribution. Older women are more likely to get breast cancer. Adjusting for age means that the differences between the counties are not due to one county containing more older women than another.

How This Research Was Done

The figures are rates based on the total number of cases of breast cancer reported to the California Cancer Registry for the years 1995–1999. For more about the Registry, or information about why the figures stop in 1999, see the introduction to this booklet. Information in this section comes from Chapter 8 of *Breast Cancer in California, 2003*, "Stage of Diagnosis of Female Breast Cancer in California, 1988–1999" by Paul K. Mills, Ph.D., M.P.H., and Ratnali Jain, M.B.B.S., M.S.

Figure 6

Breast Cancer Rates in California Counties



5

Income, Education, and Breast Cancer

California women who have higher incomes, more years of education, and white-collar jobs get breast cancer more often. Those with lower incomes, fewer years of education, and blue-collar jobs get breast cancer less often. While this holds true for all ethnic groups, income and education make more difference for some ethnic groups than others.

The figures in this section are based on the average income, education, and types of jobs held in the neighborhoods where women lived at the time they were diagnosed with breast cancer. The figures are not based on direct measures of the women's individual income and education.

Income and Education Make a Difference For Some California Ethnic Groups . . .

The one-fifth of **white women** with the ***highest*** **income and** ***most*** **education**

get breast cancer **27% more often**

than the one-fifth of **white women** with the ***lowest*** **income and** ***least*** **education.**

.....

The one-fifth of **African American women** with the ***highest*** **income and** ***most*** **education**

get breast cancer **22% more often**

than the one-fifth of **African American women** with the ***lowest*** **income and** ***least*** **education.**

. . . And an Even Bigger Difference for Others

The one-fifth of **Hispanic women** with the ***highest*** **income and** ***most*** **education**

get breast cancer **83% more often**

than the one-fifth of **Hispanic women** with the ***lowest*** **income and** ***least*** **education.**

.....

The one-fifth of **Asian/other women** with the ***highest*** **income and** ***most*** **education**

get breast cancer **65% more often**

than the one-fifth of **Asian/other women** with the ***lowest*** **income and** ***least*** **education.**

Women with Middle Levels of Income and Education

Women whose income and education levels fall somewhere in the middle generally get breast cancer less often than women with high incomes and more years of education, but more often than women with low incomes and little education.

Why Do Income and Education Matter?

Higher income and more education don't in themselves cause breast cancer. Researchers don't know why women who are wealthier and more educated get more breast cancer, but they have some educated guesses.

Women with more money and education may have better access to health care. This means that when they get breast cancer, their tumors are more likely to be detected and reported. A low-income woman may be more likely to die of another cause before her tumor is detected, and so she wouldn't be counted in the statistics. Another possible cause is that something in the environments or lifestyles of high-income, highly-educated women may lead to more breast cancer.

Women who have children, especially if they have children at a young age or have many children, are less likely to get breast cancer. Low-income women with less education may have more children, and at younger ages. However, even when the figures are adjusted to take childbearing into account, women with higher incomes and more education are still more likely to get breast cancer.

Do Levels of Income and Education Explain Why Some Ethnic Groups Get Breast Cancer Less Often?

Differences in education and income do not explain why women from some ethnic groups are more likely to get breast cancer, and others are less likely. However, some or all of the reasons why income and education make a difference may also be part of the explanation why women from some ethnic groups get breast cancer more or less often.

A Medical Puzzle

For now, the questions of why income and education are related to breast cancer—and why they make more difference for some ethnic groups than others—are a medical puzzle that can only be solved with more research.

Age-Adjusted Breast Cancer Rates

The figures in this section are adjusted for age. Adjusting for age allows the rates to reflect what they would be if the age distribution were the same for California women at every level of education and income. Older women are more likely to get breast cancer. Adjusting for age means that the differences between the education and income levels are not due to there being more older women at some levels of education and income than at others.

How This Research Was Done

Researchers divided the entire state of California into census blocks of about 1,000 people. Using information from the 1990 U.S. Census, they placed each census block into one of five categories. The five categories ranged from the census blocks in the top 20 percent for income, education, housing costs, and white-collar jobs to the census blocks in the lowest 20 percent. The researchers assigned one of these five categories to each of the 97,227 California women who got breast cancer between 1988 and 1992, based on the women's addresses when they were diagnosed. Using this information, researchers then calculated how often women from each income/education level got breast cancer. Information in this section comes from Chapter 4 of *Breast Cancer in California, 2003*, "Socioeconomic Status and Breast Cancer Incidence in California," by Kathleen Yost, Ph.D.

6

Location of Tumors on the Breasts

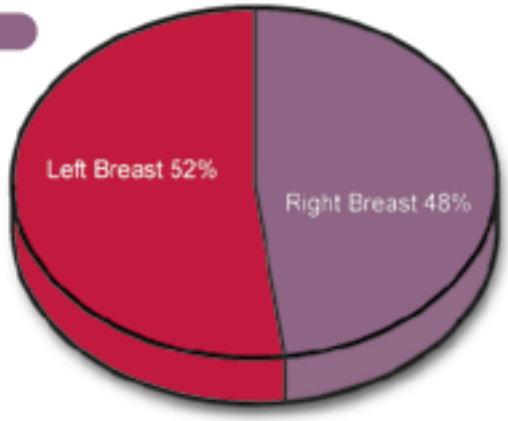
Left Breast More Common

Among California women, cancer is slightly more common in the left breast than in the right. Scientists have not been able to figure out why this is so, but it is true for women from all ethnic groups and all age groups. It is also true regardless of how far the disease has progressed when it is detected. Across the nation, tumors are also slightly more common in the left breast.

Side of the Body Where California Women Had Breast Tumors, 1988–1999

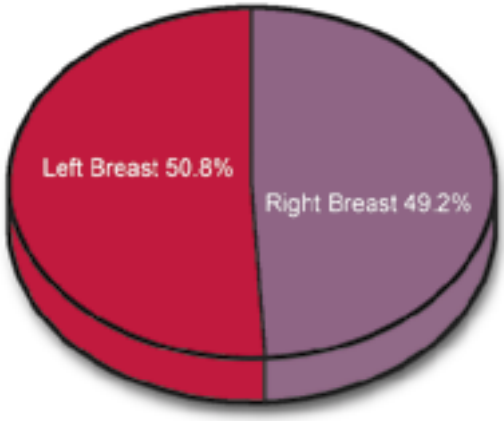
In Situ **(precancerous tumors that do not yet have the ability to spread)**

Figure 7



Invasive (tumors that can or have spread)

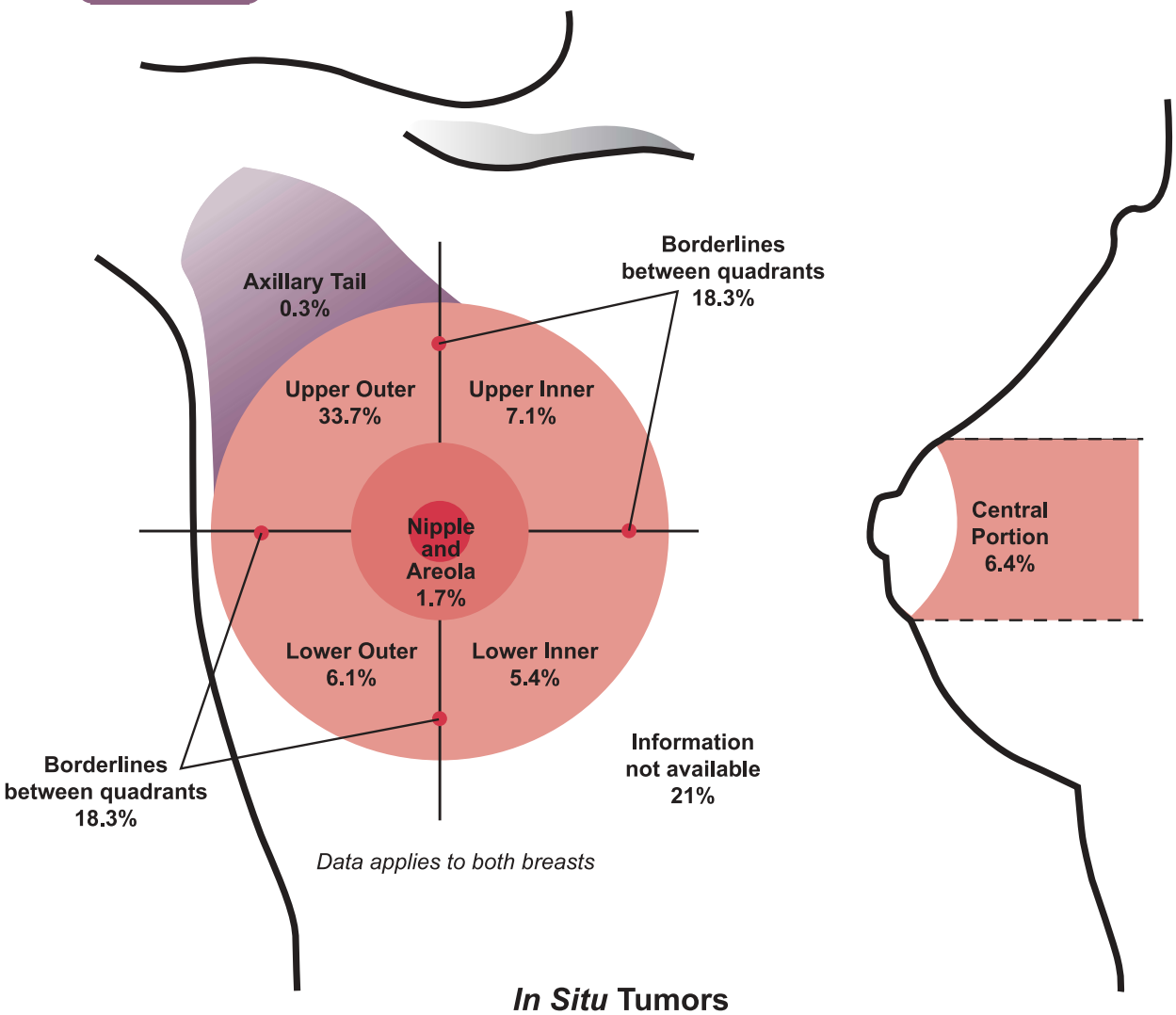
Figure 8



Upper, Outer Quadrant Most Likely

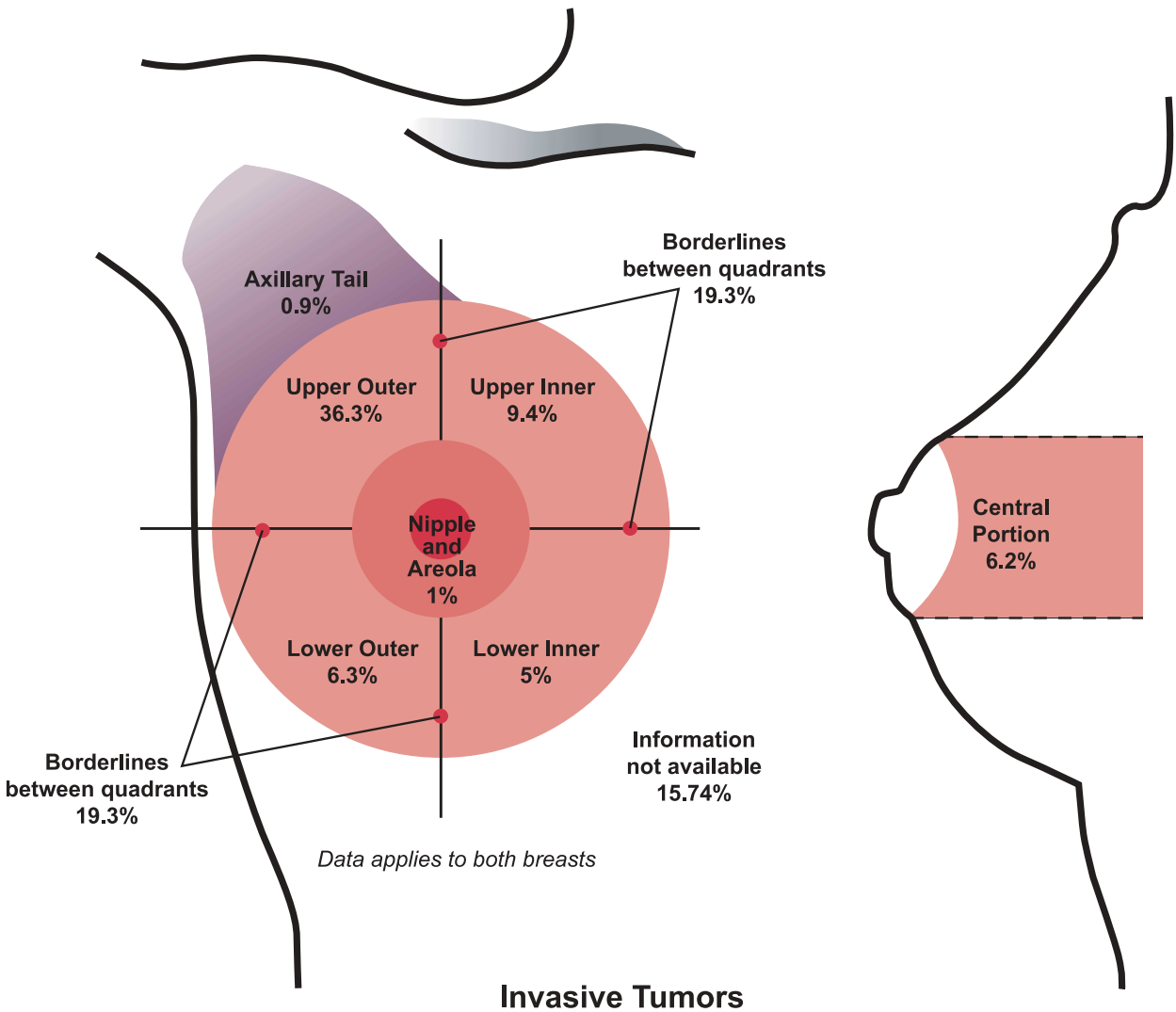
The most common place on the breast for a California woman to have a tumor is the upper, outer quadrant, where 36 percent of tumors are found. The percentage of tumors found in other locations on the breast are given in the figures below and on the next page. The percentages are very similar for women from all ethnic groups and all ages.

Figure 9



***In Situ* Tumors**

Figure 10



Invasive Tumors

How This Research Was Done

Researchers used information about breast tumors that physicians and other health professionals reported to the California Cancer Registry during the years 1988 to 1999. Information in this section comes from Chapter 9 of *Breast Cancer in California, 2003*, "Laterality, Detailed Site, and Histology of Female Breast Cancer, California, 1988–1999," by Sandy L. Kwong, M.P.H.

7

More California Women Are Having Mammograms

More California women are having mammograms, and they are having them more often. This trend started 15 years ago. In 1987, only 38 percent of California women had had a mammogram during the previous two years. By 2000, the number had risen to 79 percent.

The figures in the charts in this section include only women who had a mammogram to help screen for breast cancer. The charts do not include women who had one because they felt a lump, had the disease, or had some other breast problem.

Figure 11

Percentage of California Women Who Had A Mammogram During The Previous Two Years

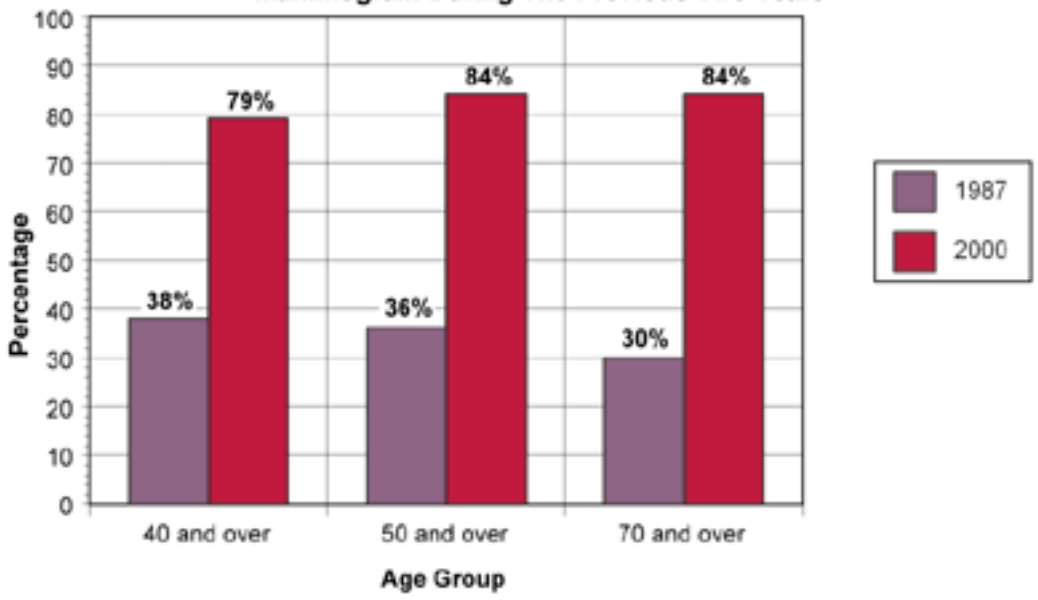
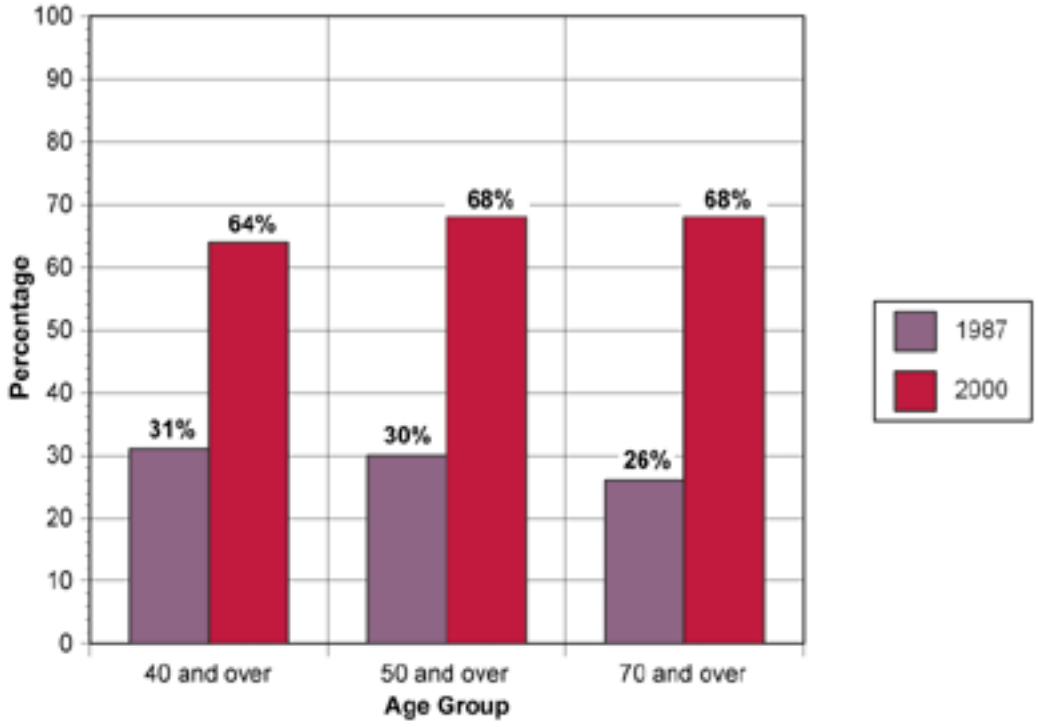


Figure 12

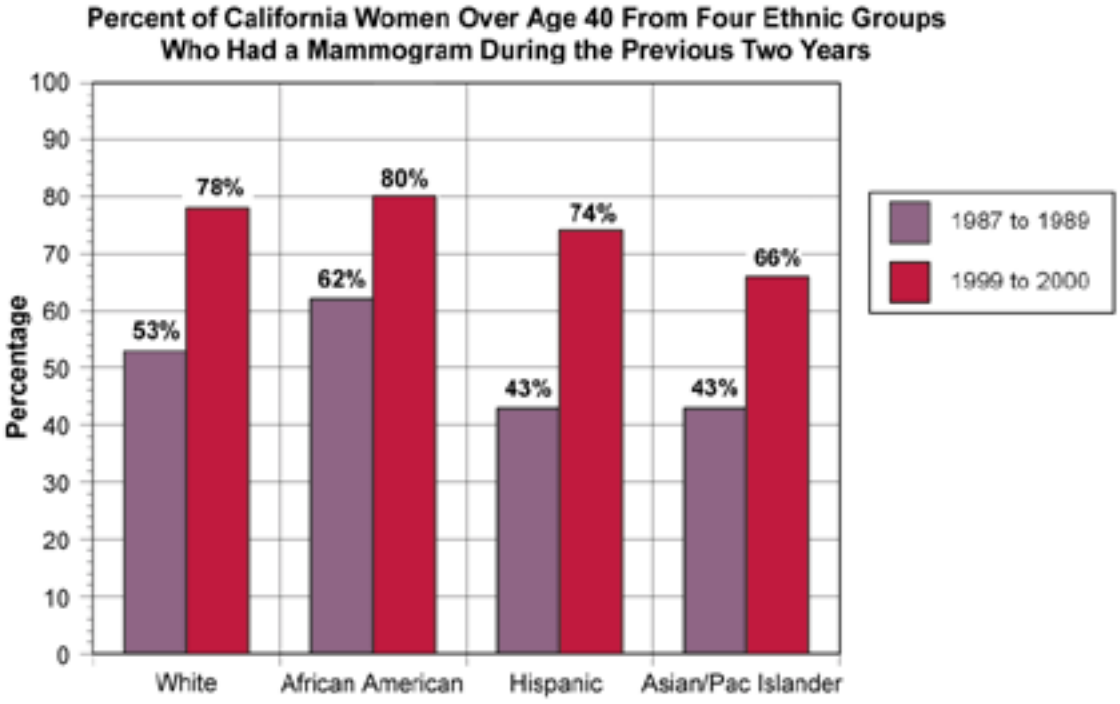
Percentage of California Women Who Had A Mammogram In The Previous Year



Mammograms and California's Ethnic Groups

Whether or not a woman has mammograms regularly varies by ethnic group. However, more women from all California ethnic groups have mammograms more frequently now than in 1987. In the year 2000, the group with the highest percentage of women who had a mammogram in the previous two years was African American women, followed closely by white women.

Figure 13



How This Research Was Done

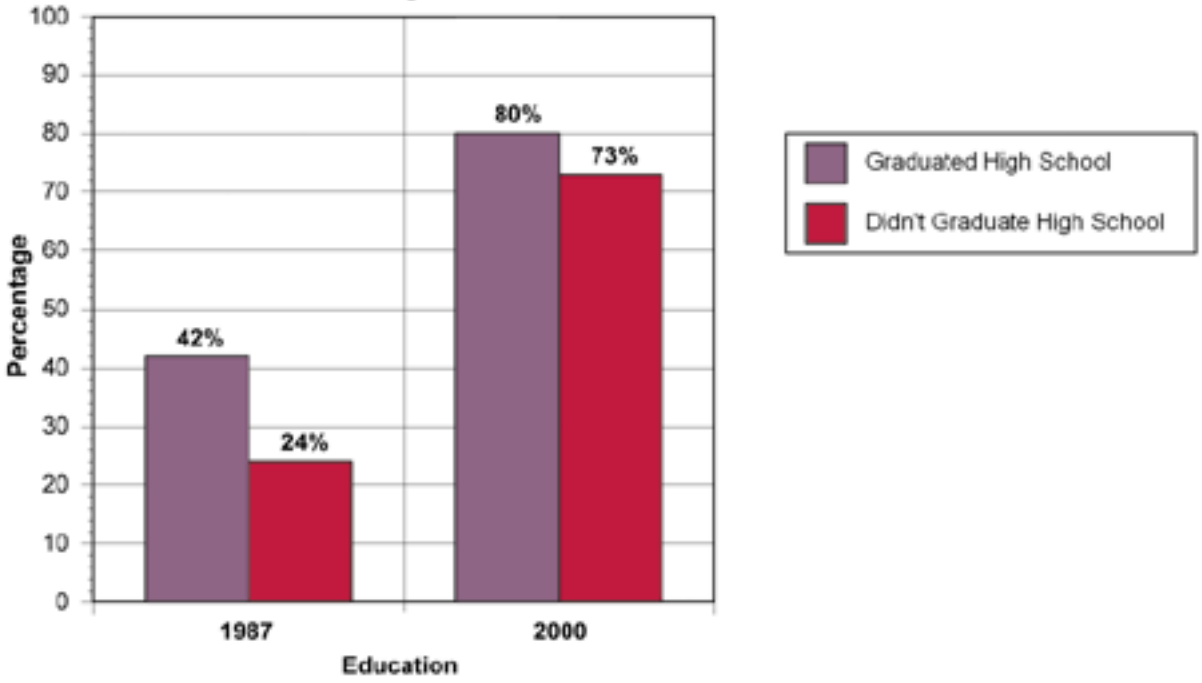
Researchers used information from telephone surveys conducted by the California Department of Health Services in collaboration with the U.S. Centers for Disease Control and Prevention. The surveys collect information from a random sample of California households. The sample does not completely match the age, race and gender composition of California, so the researchers adjusted the percentages to more accurately reflect the state's population. Information in this section comes from Chapter 7 of *Breast Cancer in California, 2003*, "Utilization of Screening Mammography in California, 1987–2000," by Holly Hoegh, Ph.D., and Bonnie D. Davis, Ph.D.

Mammograms and Education

In the past, California women with more education were more likely to have regular mammograms. Now the gap is narrowing.

Figure 14

California Women Over Age 40, High School Grads and Non-Grads, Who Had a Mammogram in the Previous Two Years



Why Mammogram Use is Up

More California women are having mammograms because they are encouraged to do so—by widespread public education programs, by their physicians, and by the breast cancer awareness movement. In addition, California state government programs provide funding for low-income women to have regular mammograms and conduct outreach to let women know this funding is available.

8

Too Many Tumors Still Diagnosed After They Have Spread

Each year in California, about 25,000 women are diagnosed with breast cancer. These women are more likely to survive if their disease is caught when the tumor is still small and has not yet spread. When breast cancer is detected and treated before it has had a chance to spread, 95 percent of the women who have it are still alive after ten years. When the cancer is detected and treated after it has spread to other parts of the body, only 16 percent of the women survive ten years.

Current methods for figuring out the stage of a breast tumor are not perfect. Some tumors spread faster than others. In some cases, a tumor can be very tiny, and be diagnosed as being at an early stage, indicating that the woman's chance of survival is good. In reality, however, undetectable cells may have already spread to other parts of her body, lowering her chance of survival.

Slight Progress

In California, more and more women are being diagnosed with small tumors that have no signs of having spread. However, this is not necessarily a sign of progress against the disease. An increase in the number of women diagnosed when their tumors are at more curable stages is only good news if there is also a decrease in the number of women whose cancer is diagnosed after their tumors have spread, when survival is less likely.

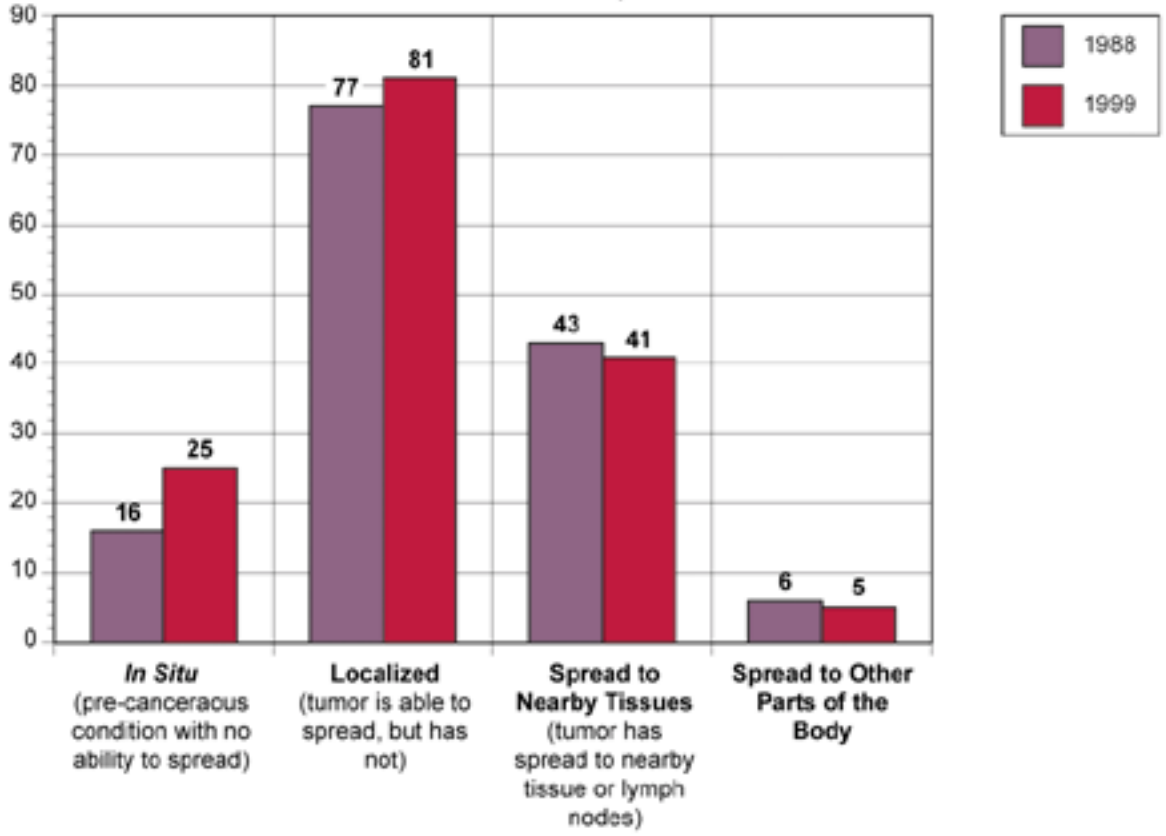
However, California has made only slight progress in reducing the number of women whose tumors are diagnosed after they have spread.

This means it is likely that screening large numbers of women with mammograms is leading to many women being treated for tumors that would never have caused them any trouble. These women are receiving treatments that cause discomfort and stress, and that may also later affect their health.

The chart below shows changes between the years 1988 and 1999.

Figure 15 **Breast Cancer Stage at Diagnosis Among California Women**

Per 100,000 Women

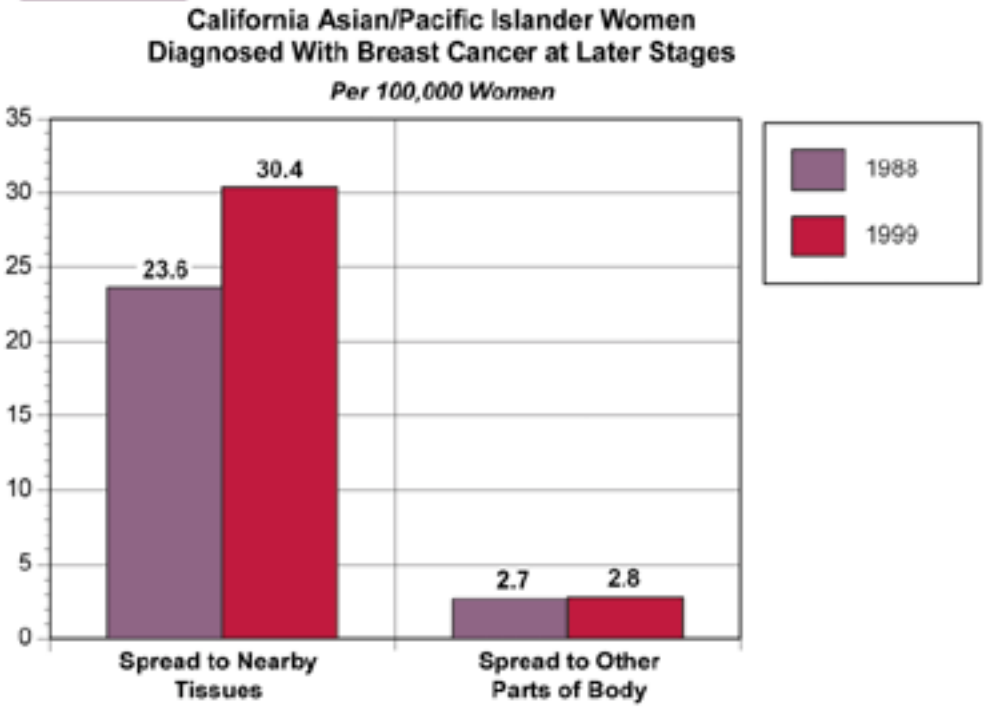


Late-Stage Diagnosis among California Ethnic Groups

Asian/Pacific Islander Women

Asian/Pacific Islander women are the least likely to get breast cancer among California ethnic groups. However, their rates for the more dangerous breast cancers—those that have spread—which were already low in 1988, did not drop between that year and 1999. For all other ethnic groups, the rates for these types of tumors fell during those years.

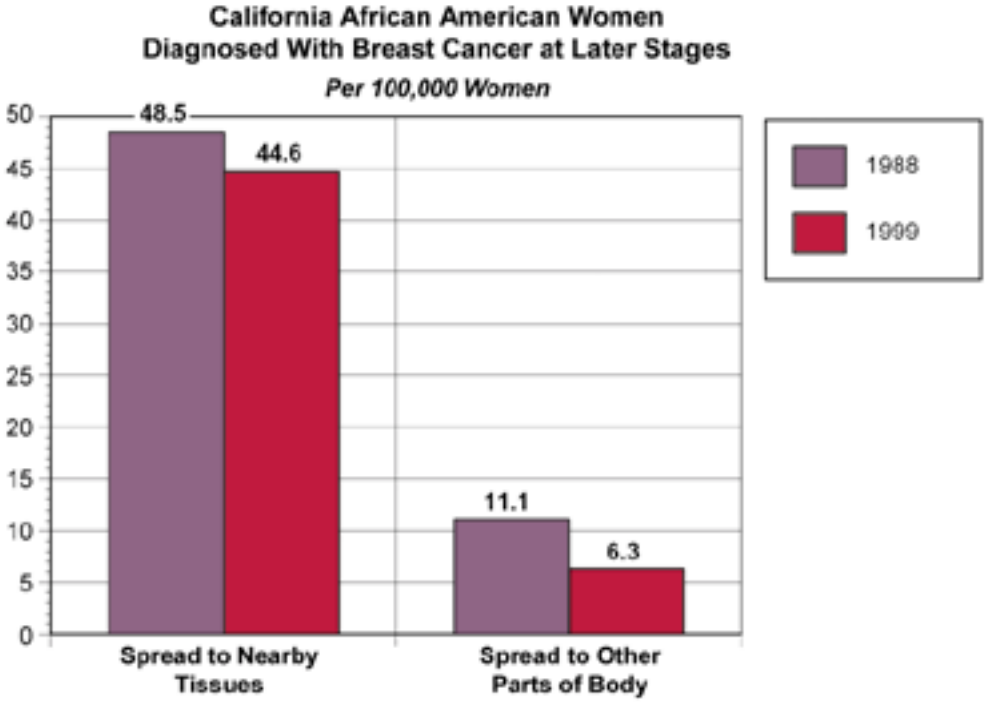
Figure 16



African American Women

African American women have the highest rate of any California ethnic group for being diagnosed at the more dangerous stages, where the tumor has already spread. However, between 1988 and 1999, the rate at which African American women were diagnosed at the most dangerous stage, where the tumor has spread to other locations in the body, dropped by almost half.

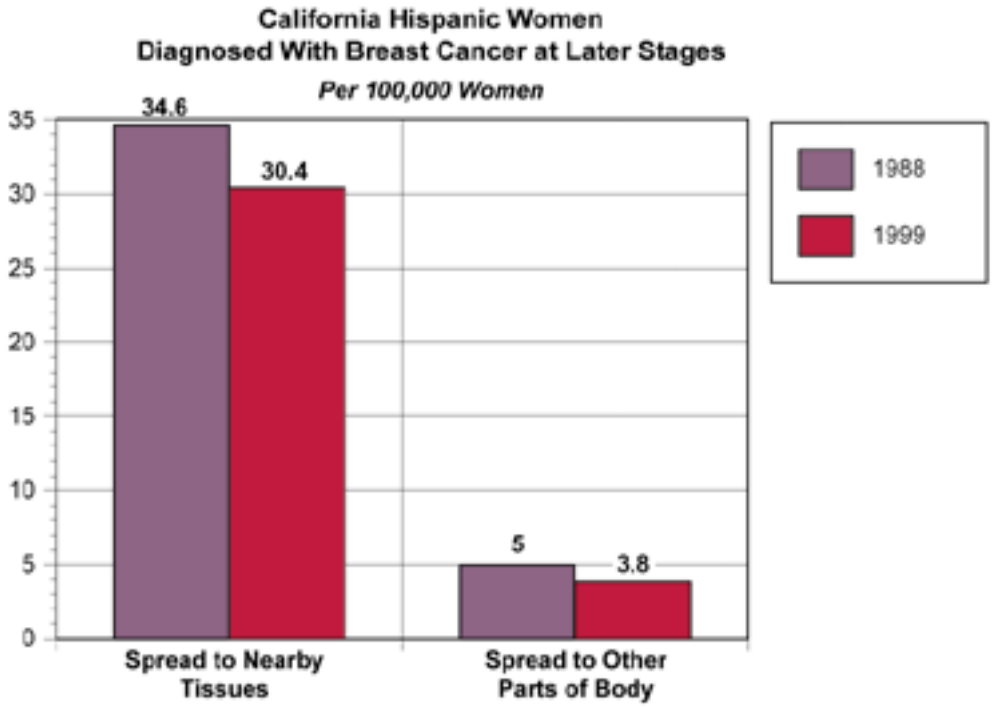
Figure 17



Hispanic Women

The rate at which Hispanic women are diagnosed at a dangerous, late stage of breast cancer was lower than that of white or African American women in 1988. It also dropped a little between 1988 and 1999.

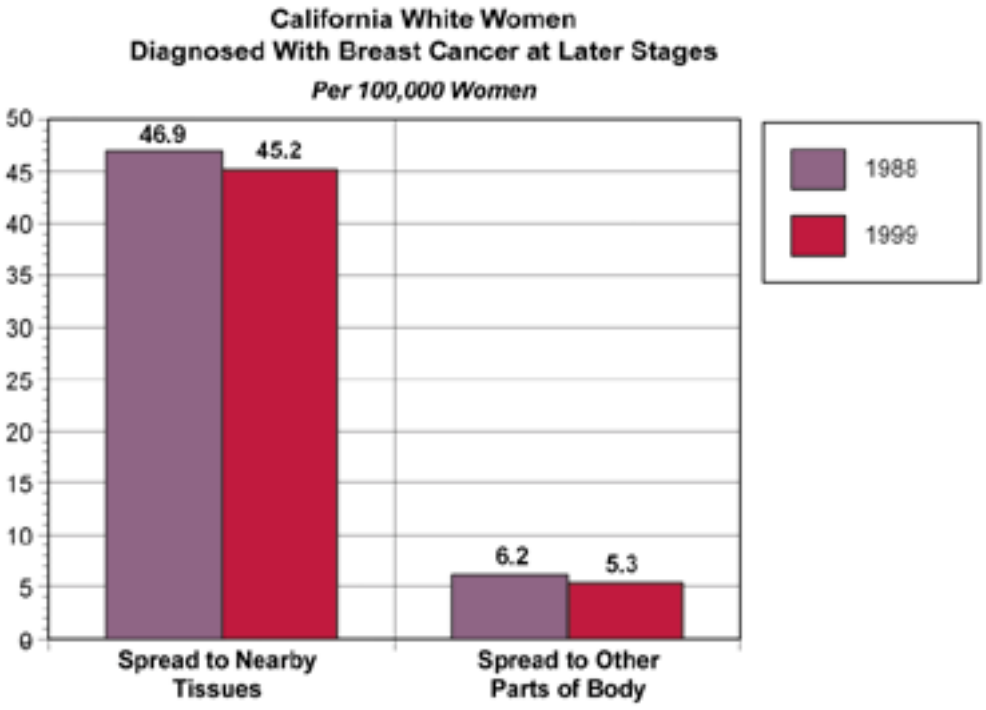
Figure 18



White Women

White women in California are more likely to be diagnosed with breast cancer than any other ethnic group. They also have high rates for being diagnosed with tumors that have already spread, and these rates dropped only slightly between 1988 and 1999.

Figure 19



Improvements Needed

Each year over 7,500 women in California are being diagnosed with breast cancer that has spread beyond its original site.

Although the majority of cases of breast cancer are detected at an early stage, each year over 7,500 women in California are being diagnosed with breast cancer that has spread beyond its original site. Despite widespread use of mammograms to screen for the disease, the rate at which California women are diagnosed with late-stage breast cancer has barely changed. Improvements in detecting breast cancers that will spread before they have a chance to do so—including new technology and new methods such as blood tests—are still needed.

Age-Adjusted Breast Cancer Rates

The figures in this section are adjusted for age. Adjusting for age allows the rates to reflect what they would be if all ethnic groups in California had the same age distribution. Older women are more likely to get breast cancer. Adjusting for age means that the differences between the ethnic groups are not due to one group containing more older women than another.

How This Research Was Done

Researchers used information collected by the California Cancer Registry for the years 1988–1999. For more information on the Registry, and why the figures stop in 1999, see the introduction to this booklet. Information in this section comes from Chapter 8 of *Breast Cancer in California, 2003*, "Stage at Diagnosis of Female Breast Cancer California, 1988–1999," by Paul K. Mills, Ph.D., M.P.H., and Ratnali Jain, M.B.B.S., M.S.

9

Fewer Mastectomies and More Breast-conserving Surgery

Two Surgery Treatment Options

Early stage breast cancer—where the tumor is either precancerous or is cancer, but less than 3/4 inch in diameter—can be treated with one of two types of surgery. The more common type of surgery in the past has been a mastectomy, where the whole breast and sometimes nearby tissue is removed. With breast-conserving surgery, only the tumor and part of the surrounding breast tissue is removed.

Since 1990, the National Institutes of Health have recommended that most women with early stage breast cancer have breast-conserving surgery followed by radiation treatment. This is an important advance in breast cancer therapy, because breast-conserving surgery offers most women the same odds of survival as a mastectomy, while a mastectomy is more disfiguring and can have painful after-effects.

More Breast-conserving Surgery

More California women are receiving breast-conserving surgery, instead of a mastectomy. In 1988, 32 percent of California women with early stage breast cancer had breast-conserving surgery. By 1999, the percentage had more than doubled to 66 percent.

Which Women Get Breast-conserving Surgery?

Regardless of her age, ethnicity, education, or income, a California woman diagnosed with early stage breast cancer today is less likely to have a mastectomy, and more likely to have breast-conserving surgery, than she would have in 1988.

However, some California women are more likely to have breast-conserving surgery than others. Among ethnic groups, a greater percentage of Asian/Pacific Islander and Hispanic women are treated with mastectomies compared to white and African American women. California women with higher incomes and more education are treated with breast-conserving surgery more often; a higher percentage of women with lower incomes and less education have mastectomies.

Why Some Women Still Have Mastectomies

One-third of California women with early stage breast cancer still have a mastectomy, even though breast-conserving surgery is the recommended treatment. There are several possible reasons why.

Women may be following advice from their surgeons to have mastectomies. Some surgeons may recommend mastectomies to women whose tumors are near the high limit in size to be considered early stage. Surgeons get paid more for doing mastectomies, and some surgeons may not be presenting all the options to their patients. Health insurance plans may push some women to have mastectomies, because the overall cost may be less than breast-conserving surgery plus radiation. *In situ* tumors—precancerous tumors that may or may not progress to become cancer—are sometimes found in several places in a woman's breast. In these cases, the recommended treatment is usually removing the whole breast.

Women may also be deciding in favor of mastectomies for themselves. Some women may choose to have their entire breast removed to avoid the hardship of radiation. The recommended treatment is given five days per week for six weeks. Some women may live too far from the radiation facility to travel there every day. Women may fear being fired from their jobs if they take that much time off from work, or they may not have the necessary child care. Another reason some women may choose a mastectomy is the fear of the cancer recurring.

How This Research Was Done

Researchers used data from the California Cancer Registry on 219,744 California women diagnosed with breast cancer between 1988 and 1999. They included only women being diagnosed with the disease for the first time, and the information here is about the first treatment given these women. Information in this section comes from Chapter 10 of *Breast Cancer in California, 2003*, "Surgical Treatment of Female Breast Cancer in California," by Cyllene R. Morris, D.V.M., Ph.D.

10

Characteristics of Women Who Survive Breast Cancer

One way to measure the harm breast cancer does, and the progress medicine makes against the disease, is to look at how long women survive after being diagnosed.

A person who survives five years after diagnosis with some types of cancer is likely to live out a normal lifespan. But this is not true with breast cancer. More than half the women whose breast cancer comes back have survived more than five years after their original diagnosis. While 10-year survival rates give a better measure of lifetime survival, breast cancer can recur at any time. Ultimately, what matters is bringing the death rate down.

Researchers have taken a detailed look at characteristics of women in five Bay Area counties who were diagnosed with breast cancer between 1988 and 1992. The researchers tracked who survived and who died until 2001. Women who died from causes other than breast cancer were taken out of the statistics. They were not counted, for this research, as either dying or surviving.

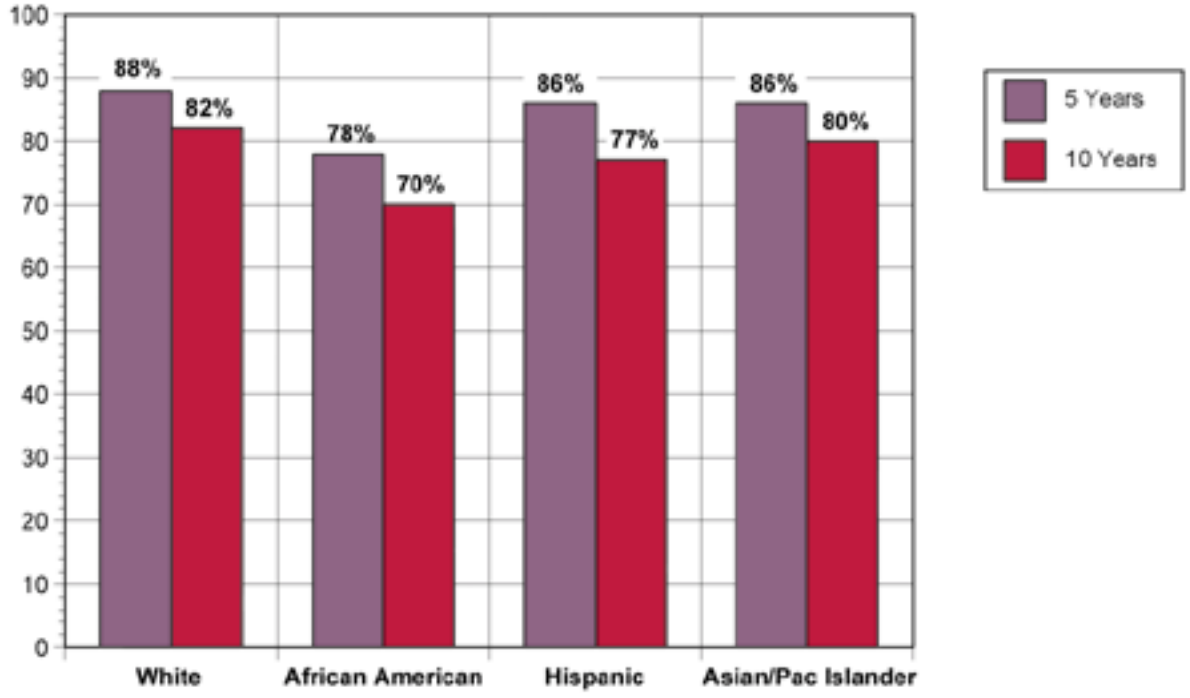
These figures for the five Bay Area counties do not necessarily reflect the picture for the entire state.

Here are some things the researchers found:

African American Women Have Lower Rates of Survival

Figure 20

Percentage of Women Diagnosed with Breast Cancer Who Survive

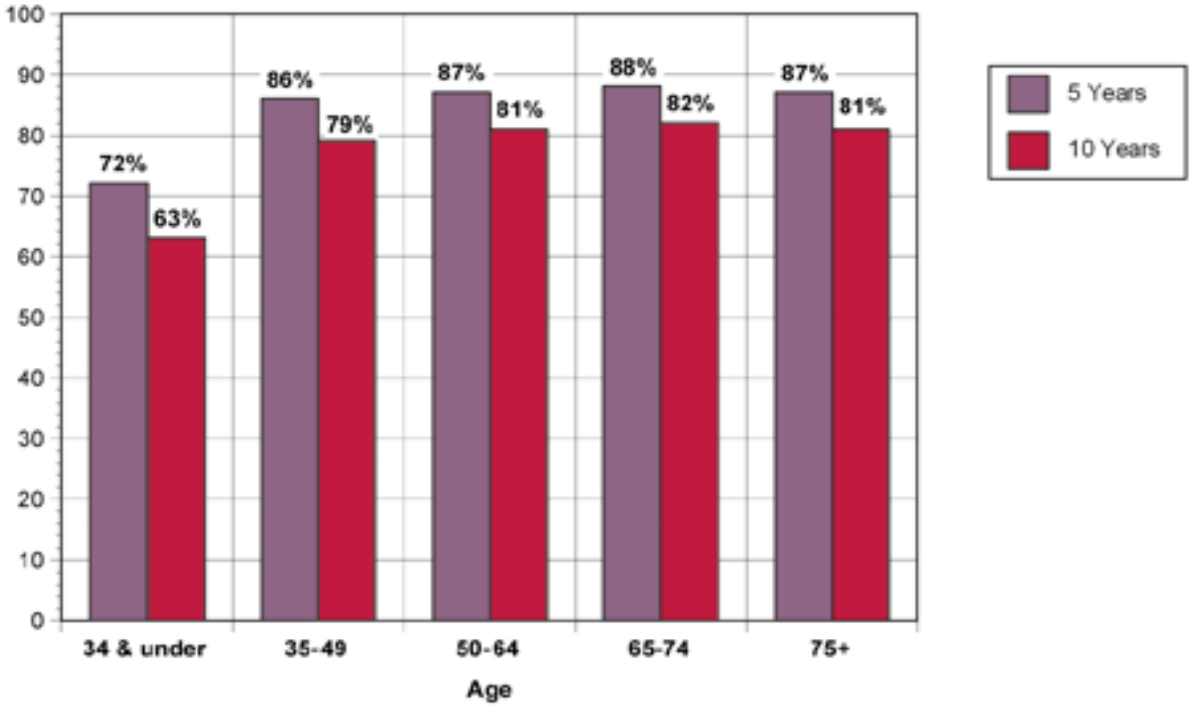


Young Women Are Less Likely to Survive

Unlike many other types of cancer, breast cancer is more deadly when it strikes younger women.

Figure 21

Percentage of Women Diagnosed with Breast Cancer Who Survive



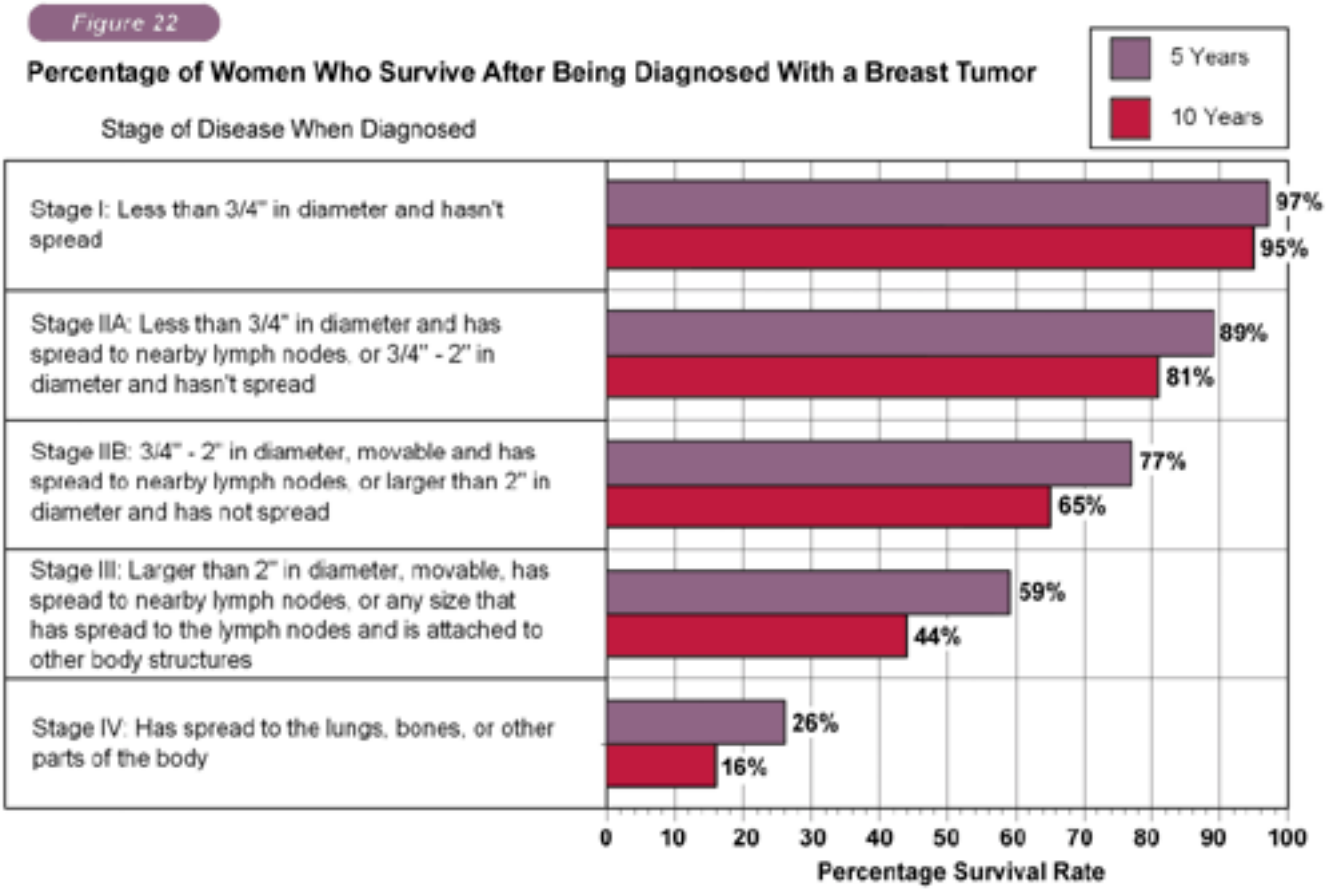
Women Diagnosed at Early Stages Are More Likely to Survive

A woman whose breast cancer is detected before it has spread beyond its original location is more likely to survive than a woman whose cancer was detected at a later stage.

However, some women with breast cancer are not helped by current treatment methods. If their cancer is detected at an early stage, they will have a longer survival time after diagnosis, but their lives may not actually last any longer than they would have with a later diagnosis. A woman whose tumor is going to end her life by age 50, because no treatment will be effective, is not helped if her treatment begins at age 42 rather than at age 48. However, if she is diagnosed and begins treatment at age 42, she will be counted as having survived longer than five years. If she is diagnosed and begins treatment at age 48, she won't. For this reason, widespread detection of breast cancer at earlier stages can make survival figures look better than they actually are.

Figure 22

Percentage of Women Who Survive After Being Diagnosed With a Breast Tumor



Hormone Receptors Make A Difference

Hormone receptors are proteins found in some breast tumors. Two types, estrogen receptors and progesterone receptors, allow the tumors to take in the hormones estrogen and progesterone. These hormones normally circulate in women's blood. Tumors that have these receptors need the hormones to live and grow.

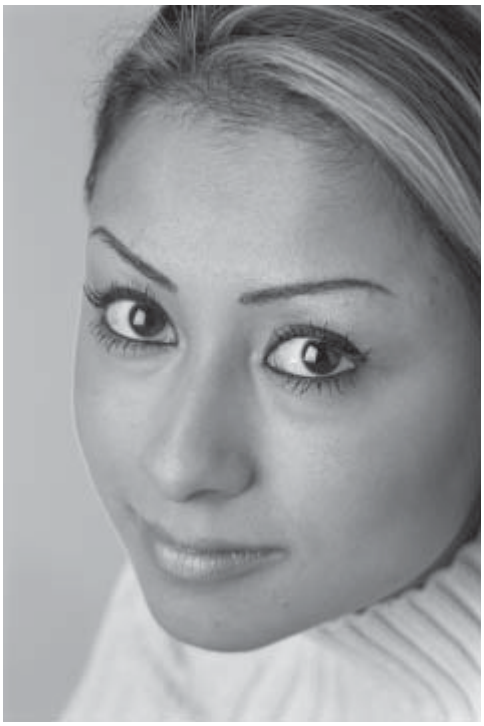
If a woman's tumor is positive for hormone receptors, it improves her chance of surviving. After five years, 91 percent of women whose tumors test positive for hormone receptors are alive, compared with 80–81 percent of women whose tumors test negative for these receptors. After ten years, 84–85 percent of women whose tumors have hormone receptors are alive, compared to 75–76 percent of women whose tumors do not have these receptors.

There are two reasons for the difference in survival. First, tumors that do not contain hormone receptors are more likely to be able to spread to other parts of the body. Second, there are better treatments to reduce recurrence of receptor-positive tumors.

Income and Education Affect Survival

Women with higher incomes and more education, who are more likely to get breast cancer to begin with, are also more likely to survive breast cancer than women with lower incomes and less education. The main reason seems to be that these women get diagnosed at earlier stages of the disease. For more about this, see the section of this booklet, "Income, Education, and Breast Cancer."

Women with higher incomes and more education, who are more likely to get breast cancer to begin with, are also more likely to survive breast cancer than women with lower incomes and less education.



How This Research Was Done

Researchers used information about 9,765 women diagnosed with invasive breast cancer between 1988 and 1992 in Alameda, Contra Costa, Marin, San Francisco and San Mateo counties. The information was collected by the federal government's National Cancer Institute as part of its Surveillance, Epidemiology and End Results (SEER) program. Information in this section comes from Chapter 11 of *Breast Cancer in California, 2003*, "Breast Cancer Survival in the San Francisco Bay Area," by Cynthia O'Malley, Ph.D. and Gem Le, M.S.

11

What Makes a Woman Likely to Get Breast Cancer?

There's no way yet to predict who is most likely to get breast cancer. Although a few men get the disease, the overwhelming majority of people with breast cancer are women. Research shows some women have a higher chance of getting the disease than others. Before age 45, African American women have the highest chance of getting breast cancer, compared to women from other ethnic groups. After age 45, white women are most likely to get the disease.

Here's a summary of characteristics that can lower or raise a woman's chances of getting breast cancer. Each characteristic by itself has only a small effect on risk.

These Characteristics Raise a Woman's Chances of Getting Breast Cancer	These Characteristics Lower a Woman's Chances of Getting Breast Cancer
Older Age	Younger Age
White	Asian/Pacific Islander
African American	Hispanic
Jewish	No corresponding factor
Never married	Married
Higher income and more education	Lower income and less education
Immigrated from a low-income nation to a high-income nation	No corresponding factor
Never had a baby	No corresponding factor
Had first baby after age 30	Had first baby after age 20
Began menstruating before age 12	Began menstruating after age 12
Reached menopause after age 55	Reached menopause before age 55
Taking or recently took estrogen replacement therapy (especially for many years with high-dose combined estrogen and progestin)	No corresponding factor
Taking birth control pills or took them less than 10 years ago	No corresponding factor
Taller	Shorter
After menopause, higher weight relative to height	Before menopause, higher weight relative to height
Drinking two or more alcoholic drinks per day	Regular exercise as an adult
No corresponding factor	Exercise as a teenager reduces the chance of getting breast cancer before menopause
Exposure to radiation (at higher levels than from mammograms)	No corresponding factor
Inheriting breast cancer susceptibility genes	No corresponding factor
A sister, mother, or both who had breast cancer	No corresponding factor
Already had breast cancer	No corresponding factor
Had benign breast disease, especially atypical hyperplasia	No corresponding factor
On a mammogram, breasts look very dense	No corresponding factor

In about half of all breast cancer cases, none of the characteristics listed on the previous page make any difference. Inherited genes, for example, play a role in only 5 to 10 percent of breast cancer cases. In addition, most of the characteristics listed above are probably not direct causes. We don't know why they affect a woman's risk for breast cancer. What makes a particular woman get breast cancer is still a puzzle that can only be solved with more research.

Pt. Reyes, © 2003 Eric Noguchi

How This Research Was Done

Researchers summarized results from many scientific studies published in respected journals over the past decade. The studies summarized here were for the most part based on samples of women from the U.S. population, and they did not necessarily include women from California. Information in this section comes from Chapter 2 of *Breast Cancer in California, 2003*, "Risk Factors for Female Breast Cancer," by Rosemary D. Cress, Dr.P.H.

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