



CANCER PREVENTION INSTITUTE OF CALIFORNIA

Preventing Cancer. Promoting Life.

# Breast cancer in the Greater San Francisco Bay Area\*, 1995-2009

## SUMMARY

Each year, about 4500 Greater San Francisco (SF) Bay Area women are diagnosed with breast cancer, making it the most common cancer—about 1 of every 3 cancers—striking women in our region. To put these numbers into perspective, imagine that Greater SF Bay Area women filled all the seats in the AT&T ballpark, the ~42,000 seat stadium home to the SF Giants; between 50 and 60 of those in the stadium would be diagnosed with breast cancer. Information about each of these cases is collected by the Greater Bay Area Cancer Registry so that scientists can better understand who is getting it, what might be causing it and how to stop it.<sup>1</sup> Did you know that scientists no longer consider breast cancer a single disease? Rather, it is composed of several molecular subtypes, separate study of which should provide new answers in our hunt for causes and cures.

## WHAT ARE BREAST CANCER SUBTYPES?

The surfaces of breast cancer cells have “markers” that may be used as targets for cancer treatment. In particular, estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2) are increasingly used for targeted cancer therapy. ER and PR are markers used as targets for the drug tamoxifen (Nolvadex®), while HER2 is a marker used as a target for the drug trastuzumab (Herceptin®). When tumor cells have these markers, they are considered “positive” for that specific marker. Along with improvements in prevention and early

detection, treatment breakthroughs—mostly against ER positive, PR positive, or HER2 positive breast cancer—have also contributed to a decline in the breast cancer mortality rate nationwide, and in California. However, breast cancer without any of these markers is called “triple-negative” breast cancer, which is known for being aggressive and difficult to treat. Besides improving the effectiveness of specific treatments, separate study of breast cancer according to the presence or absence of markers helps scientists to better isolate the causes.

## BREAST CANCER INCIDENCE RATES BY SUBTYPE

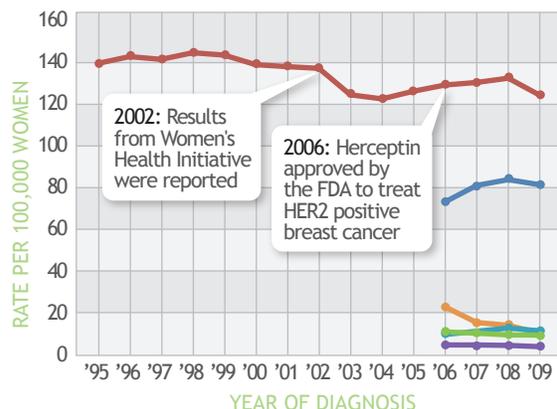
How women in the Greater SF Bay Area have been affected by breast cancer can be measured by the annual incidence rate, or the number of new cases of a disease per 100,000 persons per year. Figure 1 shows how breast cancer rates changed from 1995 to 2009. Information about each subtype individually has been most complete after the Food and Drug Administration (FDA) approved Herceptin in 2006.

### FIGURE 1 SUBTYPES KEY

- All
- ER and/or PR positive, HER2 positive
- ER, PR, and HER2 negative (triple negative)
- ER and/or PR positive, HER2 negative
- ER and PR negative, HER2 positive
- Unclassified

FIGURE 1

Age-adjusted incidence rates of invasive breast cancers in the Greater SF Bay Area, by year of diagnosis, 1995-2009





**BREAST CANCER RATES DROPPED AFTER 2002 REPORT**

In 2002, an important scientific study called the Women’s Health Initiative (WHI) reported that women taking estrogen/progestin-containing hormone therapy for menopausal symptoms had higher risks of several diseases, including breast cancer, than women who did not use these drugs.<sup>2</sup> Following this announcement, a drop in breast cancer incidence rates was observed in the Greater SF Bay Area, as shown in Figure 1. This decline in breast cancer incidence was presumably due to large numbers of women stopping hormone therapies for menopausal symptoms after the WHI report.<sup>3</sup> Since 2004, the incidence of breast cancer has slowly increased, but has not returned to their highest levels seen before the WHI report, in the late 1990s.

**BREAST CANCER RATES VARY BY RACE/ ETHNICITY<sup>1</sup>**

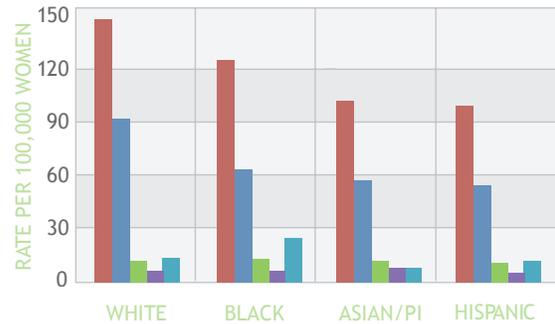
The incidence rate of breast cancer is highest among white women (see Figure 2). This is because white women have a high rate of the subtype of breast cancer that is ER and/or PR positive and HER2 negative, which is the most common subtype overall. However, white women do not have the highest rates of all subtypes of breast cancer. For example, black women experience the highest rate of triple-negative breast cancer.<sup>4</sup> Scientists are working to understand the reasons for these differences across racial and ethnic groups.

**HIGH RATE OF BREAST CANCER SUBTYPE IN BAY AREA**

White women in the Greater SF Bay area experience a slightly higher rate of breast cancer than white women in California overall (see Figure 3). Although rates for three of the four breast cancer subtypes are similar between the Greater SF Bay Area and California, white women in the Greater SF Bay Area experience slightly more of the breast cancer subtype that is ER and/or PR positive and HER2 negative. Scientists are working to understand what may explain this difference.<sup>5</sup>

**FIGURE 2**

Average annual age-adjusted incidence rates of invasive breast cancers in Greater SF Bay Area, by race/ethnicity <sup>1</sup>, 2006-2009

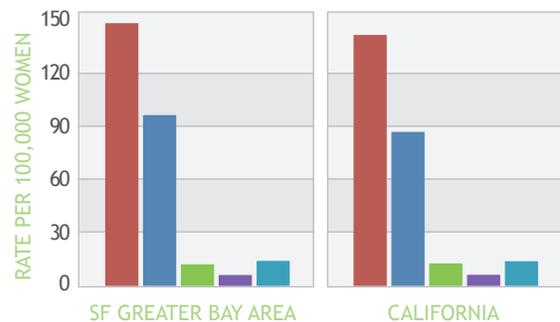


**FIGURES 2-3 SUBTYPES KEY**

- All
- ER and/or PR positive, HER2 positive
- ER, PR, and HER2 negative (triple negative)
- ER and/or PR positive, HER2 negative
- ER and PR negative, HER2 positive

**FIGURE 3**

Average annual age-adjusted incidence rates of invasive breast cancers among White women in California, by region, 2006-2009



\*FOOTNOTE: The Greater Bay Area is a nine-county area including Alameda, Contra Costa, Marin, Monterey, San Benito, San Francisco, San Mateo, Santa Clara, and Santa Cruz.

<sup>1</sup>Race/ethnicity: White refers to non-Hispanic (NH) white; black refers to NH black; Asian/PI refers to NH Asian and Pacific Islander. Hispanic may be of any race.

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For additional information, please see our website or email us at [data.release@cpic.org](mailto:data.release@cpic.org)