



Racial/Ethnic and Geographic Differences in Female Invasive Breast Cancer Incidence and Subtypes, Greater Bay Area, 1988-2016

Breast Cancer Incidence, 1988-2016

Invasive breast cancer is the most common cancer among females in the Greater Bay Area. The incidence (number of new cases per year) increased significantly starting in the mid-1990s, particularly in non-Hispanic (NH) Whites. Several investigations identified:

- an association between hormone replacement therapy use and breast cancer incidence, and
- major differences in incidence between racial/ethnic groups (Figure 1).

Overall, since 2000, rates have stabilized or decreased for all racial/ethnic groups except Asians/Pacific Islanders, whose rates have steadily increased at 1% per year.

Geographic differences in incidence by race/ethnicity have also been noted (Figure 2). Incidence rates for NH Whites have historically been higher than all other racial/ethnic groups across the Greater Bay Area; however, in several counties, the rates for NH Blacks and Asians/Pacific Islanders have been closing the gap.

- Among Asians/Pacific Islanders, there is significant variation in rates across counties: rates are highest in Marin, Monterey and San Mateo Counties (~128 per 100,000) and lowest in Alameda and Santa Clara Counties (~100 per 100,000).
- While NH Whites experienced the highest incidence rates in Marin County from the 1990s through the 2000s, NH White incidence rates are now highest in San Mateo and Santa Cruz Counties (160 and 155 per 100,000, respectively).

Figure 1: Invasive breast cancer incidence rates and trends, Greater Bay Area Cancer Registry, 1988-2016

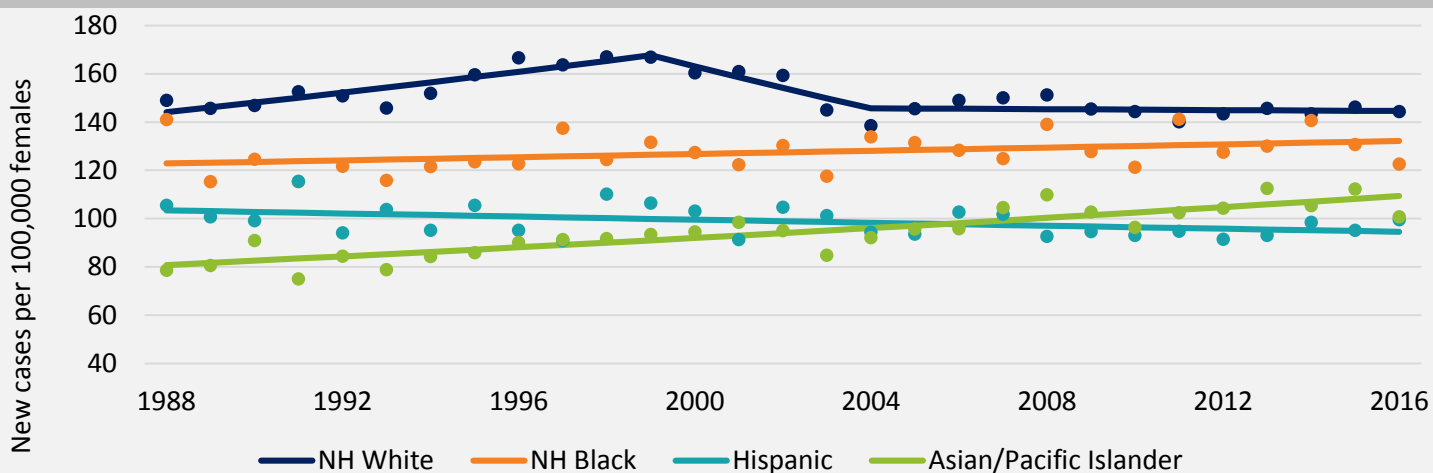
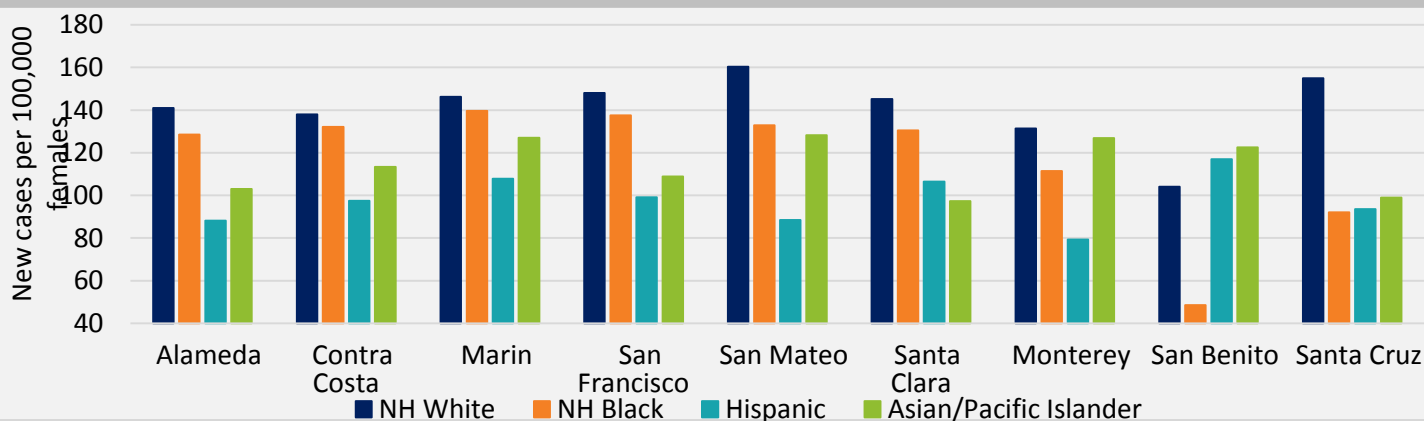


Figure 2: Invasive breast cancer incidence by county and race/ethnicity, Greater Bay Area Cancer Registry, 2012-2016





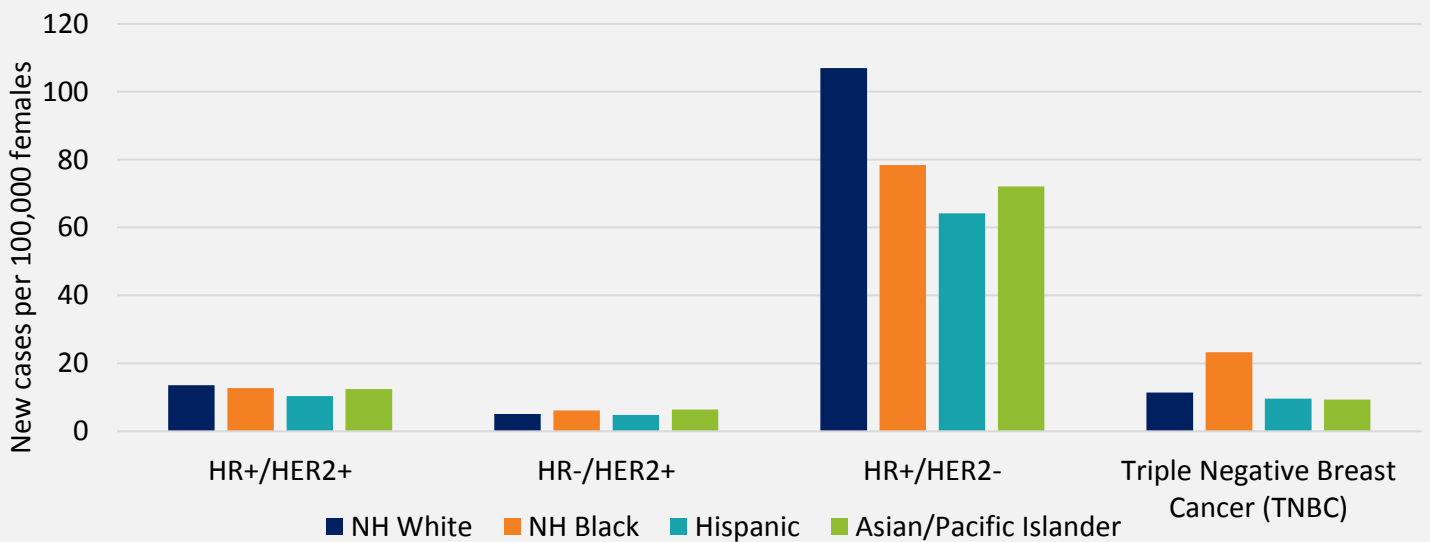
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Breast Cancer Subtypes

The distribution of breast cancer subtypes vary by race/ethnicity, resulting in breast cancer subtypes that are more common in specific racial/ethnic groups. This has implications for treatment and survival. The various subtypes are defined by tumor expression of hormone receptors (HR), and expression of human epidermal growth factor-2 (HER2), a protein which promotes the growth of cancer cells.

- **HR+ (positive)/HER2- (negative)** breast cancer makes up approx. 75% of invasive breast cancers; NH Whites have the highest incidence (Figure 3). This subtype tends to be less aggressive than other subtypes and responds well to hormone therapy treatment, particularly when diagnosed and treated at early stages.
- **HR+/HER2+** breast cancer has little variation by race/ethnicity. These tumors tend to grow more slowly than those that are HR-; therefore, women tend to have a better response to treatment.
- **HR-/HER2+** breast cancer also has little variation by race/ethnicity. Treatment with hormone therapy drugs is not helpful for these tumors. HR- breast cancer is more common in pre-menopausal women.
- **HR-/HER2-** breast cancer indicates a triple negative subtype (TNBC). This subtype is diagnosed more frequently in younger, pre-menopausal women and is more common in NH Blacks. These breast cancer cells do not have hormone receptors and therefore do not respond to treatment with hormone therapy drugs; although, they may respond better to chemotherapy than other types of breast cancer.

Figure 3: Invasive breast cancer incidence rates by race/ethnicity and subtype, Greater Bay Area Cancer Registry, 2012-2016



Key Messages

- Breast cancer is the most common invasive cancer in women.
- In the past few decades, the incidence of breast cancer among Asians/Pacific Islanders has steadily increased, while the rates for NH Blacks, Hispanics, and NH Whites has declined or remained stable.
- Breast cancer subtypes also occur differentially across racial/ethnic groups, which has implications for treatment and survival.
- Factors that increase breast cancer risk in the US include:
 - having no or few children
 - later age at first birth
 - moderate to high consumption of alcohol
 - late age at menopause
 - use of combined (estrogen + progestin) hormone replacement therapy during menopause