



Female invasive breast cancer by estrogen receptor status in the Greater San Francisco Bay Area

1990-2003

Spring 2006

Hormone receptor status, such as estrogen-receptor (ER) status, can suggest different pathways for developing breast cancer or predict the responsiveness to hormonal therapy for breast cancer. Of more than 4,000 invasive breast cancer cases that were diagnosed among females in the Greater Bay Area in 2003, almost 70% of these cases were ER-positive (ER+), 7% are ER-negative (ER-), and the remaining cases were not yet tested or undetermined.

INCIDENCE TRENDS

Between 1988 and 2003 in the Greater Bay Area, the incidence rate of ER-positive breast cancer increased steadily, peaking in 1999-2000, while the rate of ER-negative breast cancer declined slightly (below, Figure 1).

Figure 1. Age-adjusted incidence rates of female invasive breast cancer by ER-status and year of diagnosis, Greater San Francisco Bay Area, 1990-2003

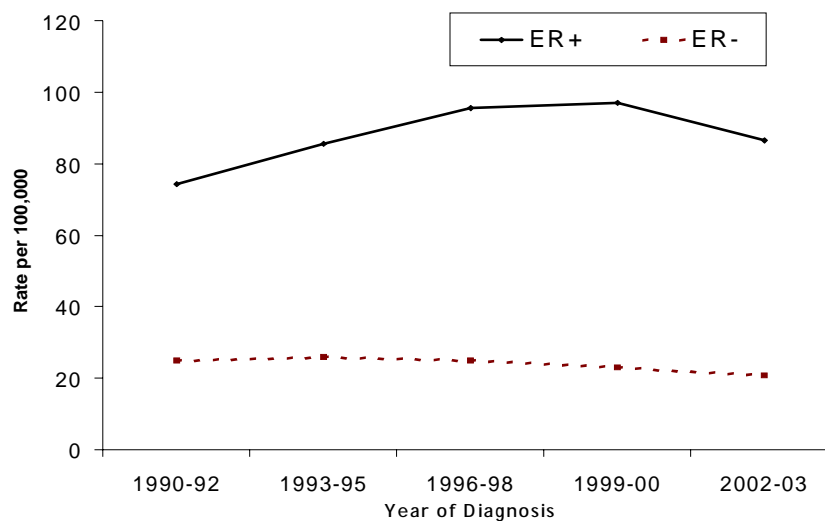


Figure 2. Age-adjusted incidence rates of female invasive breast cancer by ER-status and race/ethnicity, Greater San Francisco Bay Area, 1999-2003

RACIAL/ETHNIC PATTERNS

Non-Hispanic white females are more likely than females in other racial/ethnic groups to be diagnosed with ER-positive breast cancer (right, Figure 2), while ER-negative breast cancer rates were highest in non-Hispanic black females.

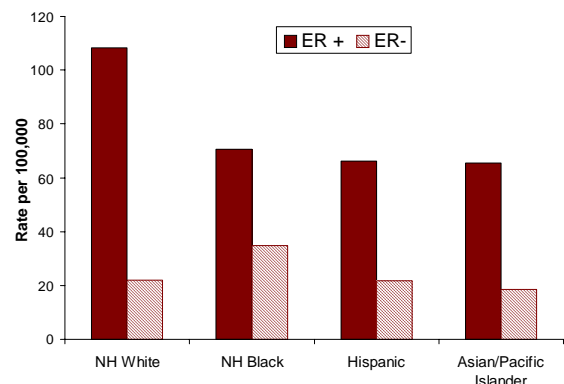




Figure 3. Age-specific incidence rates of female invasive breast cancer by ER-status, Greater San Francisco Bay Area, 1999-2003

AGE-SPECIFIC INCIDENCE

Incidence of ER-positive breast cancer rises sharply after age 35 and peaks in the 75-79 age group (right, Figure 3). ER-negative breast cancer shows a more gradual increase in incidence with age, with a plateau in middle age and declining slightly thereafter.

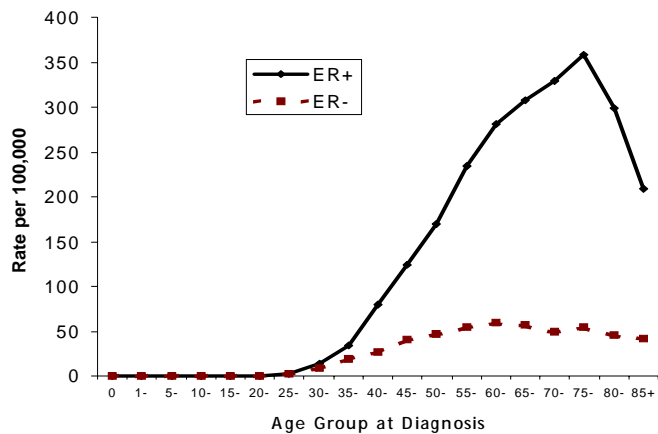
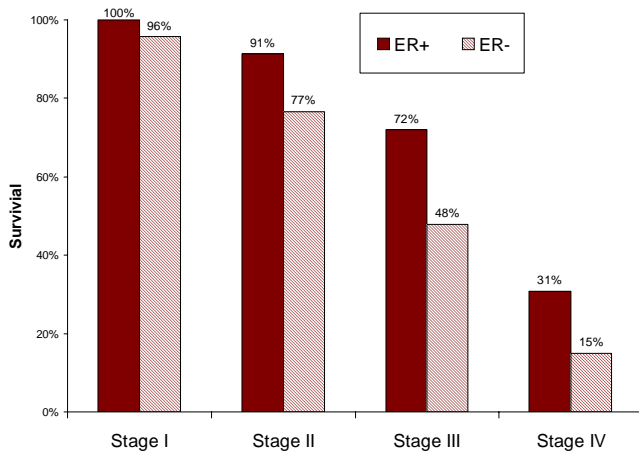


Figure 4. Five-year relative survival of female invasive breast cancer by ER-status and AJCC stage at diagnosis, Greater San



SURVIVAL BY STAGE AT DIAGNOSIS

During the sixteen-year period between 1988 and 2003, five-year relative survival was higher in females diagnosed with ER-positive breast cancer than in females diagnosed with ER-negative breast cancer across all stages (left, Figure 4).

Technical Notes: Because age distributions vary by population, a standard statistical procedure called “age-adjustment” was used so that we can examine differences in cancer incidence and mortality rates due to factors other than age. Rates are age-adjusted (using the Year 2000 population standard) unless noted to be age-specific. Race/ethnicity was categorized as four mutually-exclusive racial/ethnic groups: non-Hispanic whites (whites), non-Hispanic blacks (blacks), Hispanics, and non-Hispanic Asians/Pacific Islanders (Asians/Pacific Islanders).

About the data: Cancer data have been collected in Alameda, Contra Costa, Marin, San Francisco, and San Mateo counties since 1973, and in Monterey, San Benito, Santa Clara, and Santa Cruz counties since 1988, forming two parts (Regions 1 and 8) of the California Cancer Registry. These counties, referred to as the Greater San Francisco Bay Area are also part of the National Cancer Institute’s Surveillance, Epidemiology, and End Results (SEER) registry program.

Founded in 1974, the mission of the Northern California Cancer Center is to reduce the burden of cancer through surveillance, epidemiology, prevention research and education. Essential to this mission is collaboration with partners in cancer research, education and the community.

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