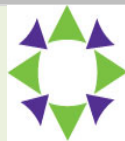


Trends in Thyroid Cancer Incidence in the Greater Bay Area, 1988-2012



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Background

In the United States, thyroid cancer is the 9th most common cancer diagnosed, with an estimated 62,980 new cases in 2014^{1,2}. Incidence has increased significantly in recent years, both in the Greater Bay Area* and nationwide. For the period 2008 through 2012, rates are highest among non-Hispanic (NH) white and NH Asian/Pacific Islander females in the Greater Bay Area, and are lowest in NH black males (Figures 1 and 2). Since 1988, incidence rates for both genders have increased in the Greater Bay Area, most significantly among NH whites and Hispanics, and among females of the four main racial/ethnic groups (Figure 3). Mortality rates, however, are low (0.6 per 100,000 deaths for all races, both genders) and have remained stable over the past few decades. Relative survival (an estimate that excludes the chance of death from diseases other than the cancer) has increased over time; for cases diagnosed nationwide in the period 2004 through 2010, five-year relative survival was 97.8%^{1,2}.

Among the four main types of thyroid cancer (papillary, follicular, medullary, and anaplastic), the most common is papillary (80 – 86%) (3). This type is generally slow-growing and not as aggressive as the other forms. Known risk factors for papillary thyroid cancer are: older age, being female (3 times higher risk than males), a history of radiation to the head and neck, prior thyroid disease, and rare genetic disorders. The rapidly increasing incidence has prompted questions regarding additional risk factors. One apparent contributor is more sensitive detection methods. Technological advances in imaging and scanning equipment—and more people taking advantage of them—have enabled earlier detection of smaller tumors and resulted in higher rates of diagnosis. However, broader use of diagnostic imaging may only partially account for the rise in rates³. Research is ongoing to identify additional potential risk factors such as obesity, environmental radiation, immune and endocrine disruptors^{4,5}.

Figure 1: Age-adjusted incidence rates and 95% confidence intervals of thyroid cancer in males by race/ethnicity, 2008-2012

Figure 2: Age-adjusted incidence rates and 95% confidence intervals of thyroid cancer in females by race/ethnicity, 2008-2012

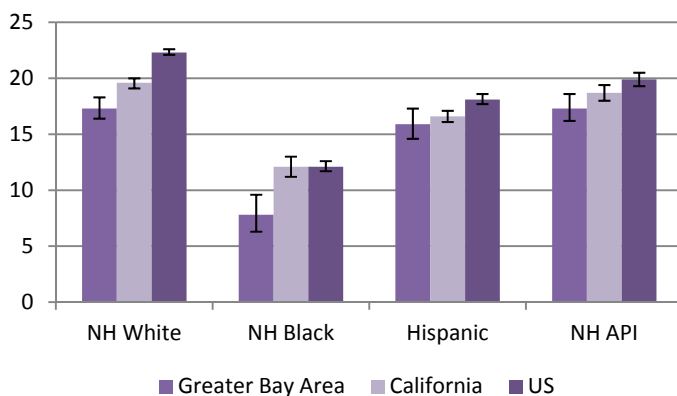
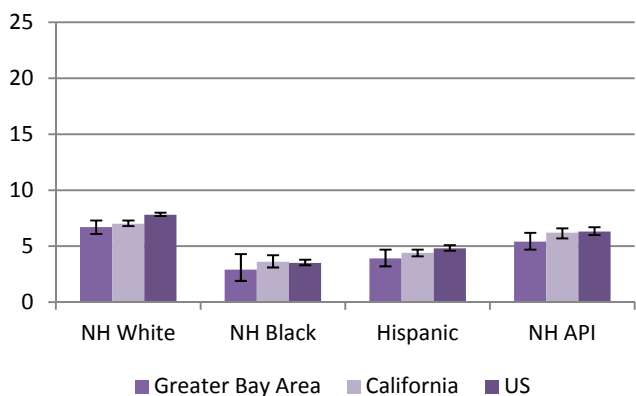
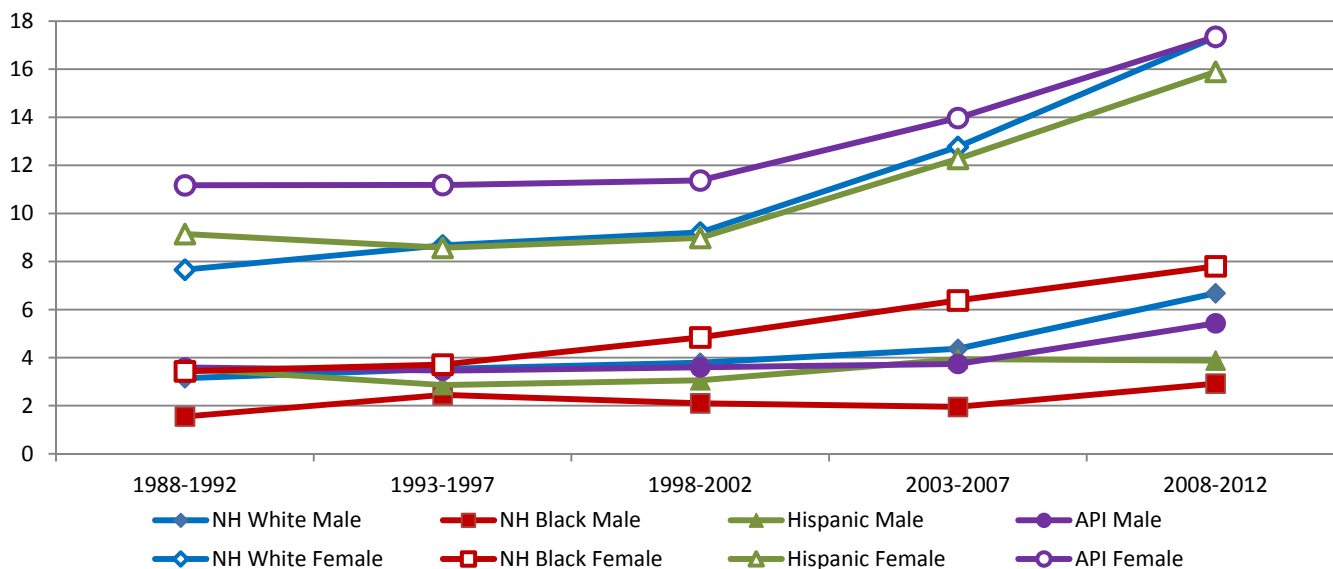


Figure 3: Age-adjusted incidence rates of thyroid cancer in the Greater Bay Area, by race/ethnicity and gender over time, 1988-2012



Trends in Thyroid Cancer Incidence in the Greater Bay Area, 1988-2012, cont'd



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Figure 4: Thyroid cancer incidence rates by tumor size, males, Greater Bay Area, 2004-2012

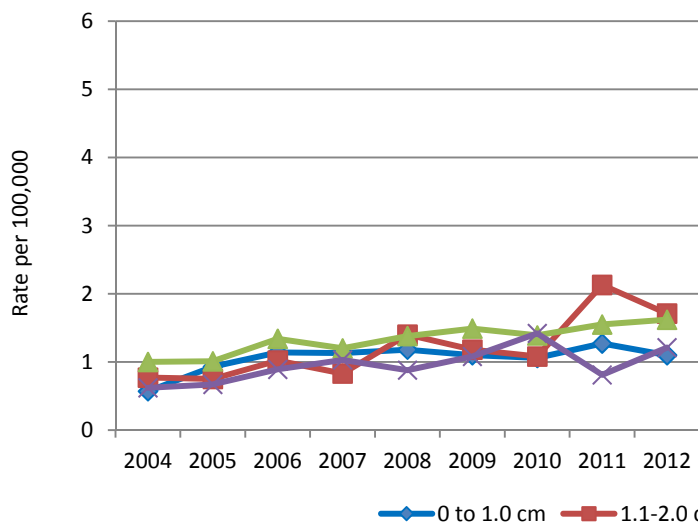
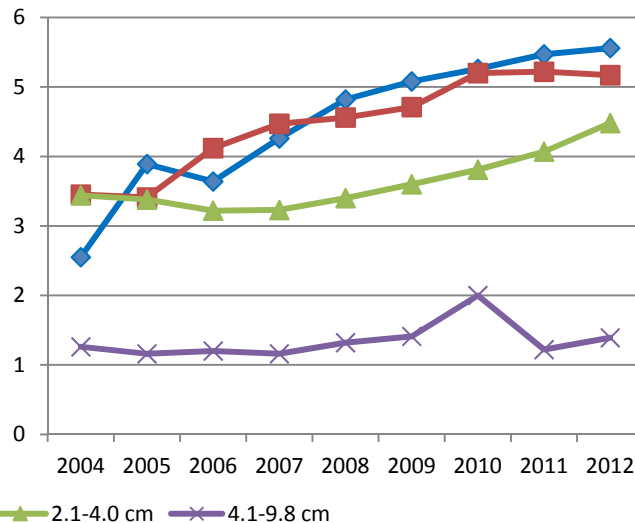


Figure 5: Thyroid cancer incidence rates by tumor size, females, Greater Bay Area, 2004-2012



Key Points

- Thyroid cancer incidence has increased dramatically in recent years, however, mortality has remained low and stable.
- In the most recent five years for which data are available by region (2008-2012), the incidence rates in the Greater Bay Area are lower than those seen statewide and nationwide (Figures 1 and 2).
- In the Greater Bay Area, thyroid cancer incidence is three-fold higher among females than males.
- Current thyroid cancer incidence rates are highest in NH whites and NH Asian/Pacific Islanders and lowest in NH blacks and Hispanics. However, since the late 1990s, incidence has increased dramatically in all groups (Figure 3).
 - Among males, the rates from 2000 through 2012 increased by 79% in NH whites, 7% in NH blacks, 57% in Hispanics, and 118% in NH Asian/Pacific Islanders.
 - Among females, the rates from 2000 through 2012 increased by 98% in NH whites, 165% in NH blacks, 110% in Hispanics, and 72% in NH Asian/Pacific Islanders.
- The rise in thyroid cancer rates can be explained at least in some part, by wider use of sensitive scanning technologies, which results in the detection of smaller and perhaps asymptomatic and/or non-invasive tumors. However, in the Greater Bay Area, the incidence of larger tumor sizes has increased over time as well, particularly among females (Figures 4 and 5). The search for explanations is ongoing, with researchers postulating environmental factors and the obesity epidemic as possible keys to this phenomenon⁵.

***The Greater Bay Area Cancer Registry includes all newly diagnosed cancers occurring in residents of Alameda, Contra Costa, Marin, Monterey, San Benito, San Francisco, San Mateo, Santa Clara and Santa Cruz counties.**

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