

Cervical Cancer Mapping Project

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Although cancer of the cervix can largely be prevented through vaccination and screening, the CCR estimates that approximately 1,400 California women will be diagnosed in 2014 and 400 women will die from the disease; suggesting that many women are not receiving the health care they need. This topic was of particular interest to a UC Davis graduate student, Fran Maguire, who has been working with the CRGC as part of her required public health practicum project. Fran wanted to identify geographic and demographic predictors of advanced stage cervical cancer in California. Using the methodology previously utilized by CCR research scientists to create maps of late stage breast and colorectal cancer, Fran used mapping and statistical software to map advanced stage cervical cancer in California and to model predictors of late stage.

http://www.ccrca.org/Data_and_Statistics/GISBreast/index.shtml

http://www.ccrca.org/Data_and_Statistics/CRC/index.shtml

This study was based on 7,336 incident cases of cervical cancer diagnosed from 2007 to 2011. For the purpose of this project, advanced stage was defined as the proportion of cervical cancer patients diagnosed with stage II, III, or IV cancer. The proportion of advanced stage cancers was calculated for each Medical Service Study Area (MSSA). MSSAs are geographic units defined by the Office of Statewide Health Planning and Development and designed to be rational service areas for the purposes of designating medically underserved areas. Socioeconomic status (SES) was based on the CCR's Yang quintiles, which use census data to describe SES in a patient's neighborhood. MSSAs with fewer than 15 cases were suppressed from the map to protect patient confidentiality and to avoid unstable estimates. Cases with unknown stage were excluded and age was restricted to women eighteen and over. With these exclusions, there were 5,144 cases in 235 MSSAs represented in the map.

The percentage of cases in each MSSA diagnosed at an advanced stage ranged from 5% to 83% with an overall state average of 49%. Many MSSAs had too few cases to calculate percentages. There were 56 MSSAs with a high percentage of cases diagnosed at an advanced stage (59%-83%). These MSSAs were located in the central part of the state, the San Francisco Bay Area, and in southern coastal parts of California. A review of the 5 MSSAs with the highest percentage of cases diagnosed at an advanced stage showed that all 5 have a high percentage of people living under 100% or 200% of poverty and 4 out of 5 have healthcare shortage designations.

Analysis of the predictors of advanced stage showed that diagnosis with stage II, III, or IV cervical cancer was associated with Asian/Pacific Islander and black race, low SES, Medicare and Medicaid/low income insurance types, and older age. There was no difference by urban or rural residence. In multivariable analysis (controlling for all variables) race, insurance, and age were the most important predictors.

We plan to conduct further analysis to explore these findings. Type of insurance at diagnosis may not reflect a woman's history of access to care, and some women are likely to have enrolled in emergency Medicaid at diagnosis. Fran is entering the doctoral program at UC Davis this fall, and is planning to continue to work with the Cancer Registry of Greater California on this and other research.

Advanced Stage Cervical Cancer in California, 2007-2011

