

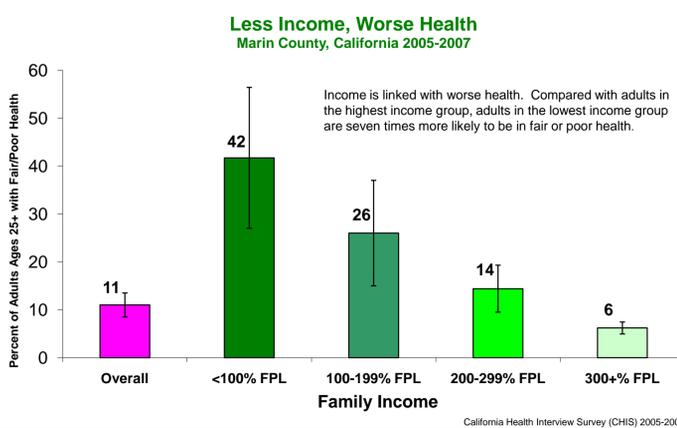
## Introduction

- Countywide health reports in affluent counties like Marin County, California often mask serious health inequities that exist among residents.
- Marin County ranked first in California in both Health Outcomes and Health Factors in the University of Wisconsin's Population Health Institute and the Robert Wood Johnson Foundation's 2010 and 2011 County Health Rankings.<sup>1,2</sup>
- In these rankings, counties like Marin that ranked highest in social and economic factors also ranked highest in health behaviors.<sup>1,2</sup>
- The counties with the three highest household incomes also received the highest ranks in the Mortality category lending further support for the tie between wealth and health.<sup>1,2</sup>
- Although Marin scored well in the majority of categories, Marin scored poorly in income inequality, which signals poor distribution of income among residents.<sup>2</sup>
- While many Marin residents enjoy affluence and good health, about 25% live below the self-sufficiency standard for the county which is the income needed by working families to meet their basic needs including housing, food, and health care, as well as costs associated with work including transportation, child care, and taxes.<sup>3-5</sup>
- Additional local analyses showed that location, education, and/or income affected individual health behaviors as well as health outcomes such as life expectancy within Marin County.

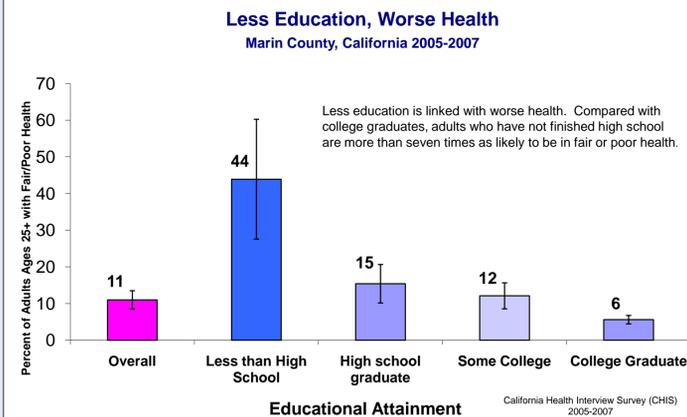
## Methods

- Data from the California Health Interview Survey (CHIS 2005-2007) were used to calculate the prevalence of health risk factors and health outcomes by education and income among Marin residents ages 25 and older.<sup>3,6</sup>
  - The prevalence of health outcomes/behaviors were considered significantly different if the 95% confidence intervals did not overlap.
- The average per capita income and prevalence of adults ages 25+ with a college degree by census tract were obtained from the 2000 US census and mapped using ArcGIS.<sup>7</sup>
- Life expectancy from birth with associated 95% confidence intervals were calculated by census tract using deaths occurring among Marin residents during 2005-2010 and life tables constructed by CL Chiang, 1968.<sup>8,9</sup>
- Census tract life expectancies were compared to the average life expectancy of Marin County and were considered significantly higher or lower if the confidence intervals did not overlap.
- The comparison of each census tract life expectancy to the Marin County average life expectancy (significantly lower, significantly higher, or no difference) was mapped using ArcGIS.

## Results



## Results



- While the overall health status for Marin County is very similar to that of the highest income and education groups, a clear gradient exists between income and education with overall health status.
- Individuals in the lowest income category or the lowest education group were significantly more likely to be in fair or poor health than individuals in the highest income or education groups.
- Similar gradients by income and education also occurred with other health behaviors and health outcomes of Marin residents.
- The prevalence for Marin County overall was nearly identical to the prevalence of the highest income and highest education groups and masks any disparities that may occur by factors such as income, education, or location.

	Overall	0-99% FPL	100-199% FPL	200-299% FPL	300% + FPL
Current Smoker	8.7%	18.1%	14.3%	10.1%	7.5%
Little to No Physical Activity	59.5%	76.3%	67.1%	63.3%	57.4%
Binge Drank Past Month	17.5%	7.5%		19.0%	

- Smoking, physical activity level, and binge drinking, all show a clear gradient with income.
  - Generally, greater incomes are associated with improved health outcomes
  - Direction of gradient is opposite with binge drinking: greater incomes are associated with higher prevalence of binge drinking in Marin County.

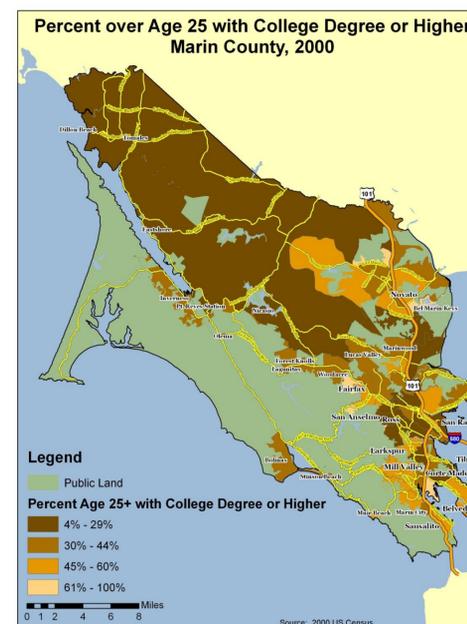
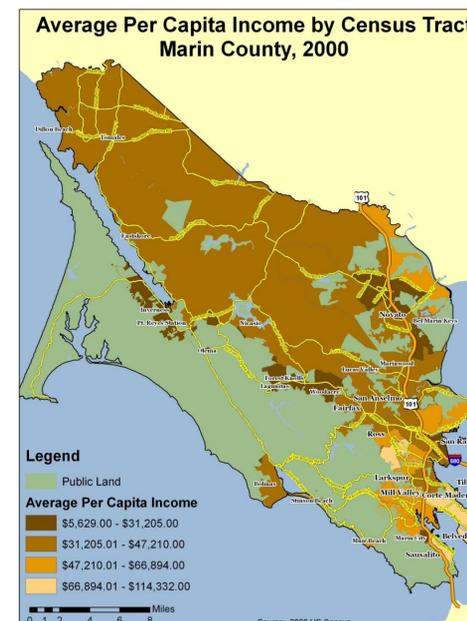
	Overall	Less than High School	High School Graduate	Some College	College Graduate
Current Smoker	8.7%	13.7%	14.2%	5.5%	
Little to No Physical Activity	59.5%	78.5%	65.6%	63.8%	55.5%
Overweight / Obese	44.7%	54.3%	48.1%	40.8%	
Fruit / Vegetables 5+ daily	53.7%	45.4%	49.8%	57.4%	

## Results

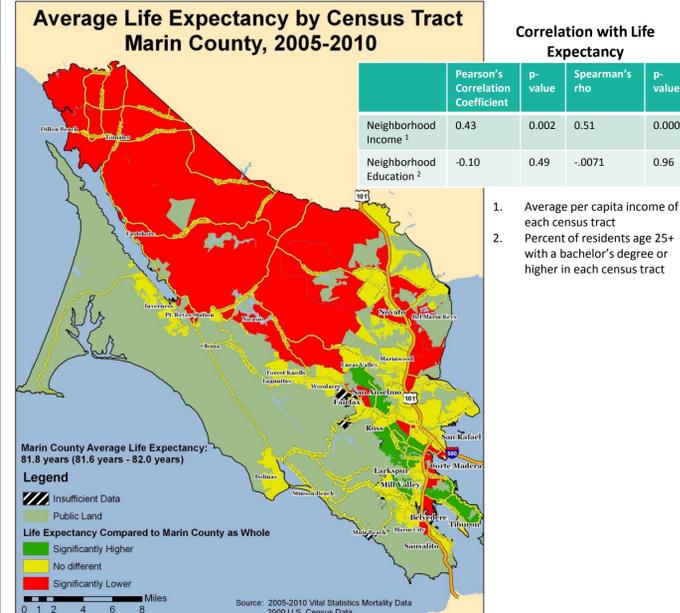
- College graduates were less likely to smoke, get little to no physical activity, or be overweight/obese and were more likely to eat 5+ servings of fruits or vegetables daily.

### Place Matters

- Health is not only affected by personal income and education levels, but can also be affected by neighborhood income and education levels as well.
- The following three maps show percent of residents with a college degree, average per capita income, and average life expectancy by census tract to determine how neighborhood income and education level affect life expectancy.



## Results



- Average neighborhood income was significantly correlated with life expectancy in Marin County.
- 51% of the variability in life expectancy could be explained by average neighborhood income.
- Neighborhood education was not correlated with life expectancy in Marin County.

## Discussion

- While Marin County as a whole fares well on the majority of health indicators, not everyone in Marin is enjoying the same level of health.
- Significant differences in health behaviors and health outcomes exist by income and education level showing the importance of these factors on overall health.
- While county level health statistics and rankings are important for gauging the overall health of the county, further community level or demographic group analysis is important to make sure everyone is enjoying the same level of health.
- One way to begin to ensure better health for everyone in the county is to take steps to help reduce disparities.
- Implement policies and practices that enable all schools to provide equitable and quality education for all their students.<sup>10</sup>
- Implement policies that support local changes at local, state, and federal levels that foster local economic development.<sup>10</sup>
- Taking steps such as these to reduce health disparities in Marin County can help us bring all residents to the same level of excellent health.

## References

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