California Building Resilience Against Climate Effects (CalBRACE) Project

Short Title: Health Insurance
Full Title: Percent of adults aged 18 - 64 without health insurance

Domain: Population Sensitivities (BRACE) and Meets basic needs of all (HCI)

HCI Aspirational goal: Affordable, accessible and high quality health care

Why is this important to health?

Insurance coverage is a key determinant of timely access and utilization of health services, which is a fundamental pathway to improved health outcomes. Excessive heat exposure, elevated levels of air pollutants, and extreme weather conditions are expected to cause direct and indirect health impacts, particularly for vulnerable populations with limited or no access to health services. Health insurance enables access to care by connecting people to health care providers and by protecting persons against the high and often unexpected costs of medical care. A lack of health insurance among vulnerable populations that are exposed to the effects of climate changes may lead to greater health impacts. Some of these vulnerable populations include the following: women of Black, Latino, or Asian/Pacific Islander ethnicity; low-income households; undocumented immigrants, particularly children; and displaced populations.[1-5]

Summary of Evidence for Climate Change and health

A national systematic review in 2010 found that patients who were uninsured were less likely to receive critical care services than those with insurance.[6] Additionally, a systematic review of literature in 2008 found consistent evidence demonstrating that health insurance increases utilization of health care services and improves health.[7] A national study demonstrated an increased risk of mortality among the uninsured compared with the insured and estimated 44,789 annual deaths among Americans aged 18 to 54 associated with lack of health insurance.[8]

Key References:

1. Kjellstrom T, McMichael A. Climate change threats to population health and well-being: the imperative of protective solutions that will last. Sweden: Global Health Action; 2013.
2. Los Angeles County Department of Public Health. Health Indicators for Women in Los Angeles County: Highlighting Disparities by Ethnicity and Poverty Level. Los Angeles, CA: Los Angeles County Department of Public Health Office of Women's Health and Office of Health Assessment & Epidemiology; 2010.
3. Greenough PG, Lappi MD, Hsu EB, et al. Burden of disease and health status among Hurricane Katrina-displaced persons in shelters: a population-based cluster sample. *Annals of Emergency Medicine.* 2008; 4: 426-32.
4. Stevens GD, West-Wright, Tsai K. Health Insurance and Access to Care for Families with Young Children in California, 2001-2005: Differences by Immigration Status. *Journal of Immigrant and Minority Health.* 2010; 12(3): 273-281.
5. Chung YK, Leigh JP. Medicaid use by documented and undocumented farm workers. *Journal of Occupational and Environmental Medicine.* 2015; 57(3): 329-333.
6. Fowler RA, Noyahr L, Thornton D, et al. An Official American Thoracic Society Systematic Review: The Association between Health Insurance Status and Access, Care Delivery, and Outcomes for Patients Who Are Critically Ill. *American Journal of Respiratory and Critical Care Medicine.* 2010; 181: 1003-1011.
7. Freeman JD, Kadiyala S, Bell JF, et al. The causal effect of health insurance on utilization and outcomes in adults: A systematic review of US studies. *Med Care.* 2008; 46(10): 1023-32.

8.	Wilper AP, Woolhandler S, Lasser KE, et al. Health Insurance and Mortality in US Adults. *Research American Journal of Public Health.* 2009; 99(12).

What is the Indicator?

<u>Detailed Definition:</u>

- Indicator (percent) $= \dfrac{\text{Total civilian noninstitutionalized population aged } 18-64 \text{ without health insurance}}{\text{Total civilian noninstitutionalized population}}$
- Stratification: 8 race/ethnicity strata (African American, AIAN, Asian, Latino, Multiple, NHOPI, White, total)
- Interpretation: Populations with no health insurance coverage are more vulnerable to the health impacts of climate change

<u>Data Source and Description:</u>

- American Community Survey (ACS) (http://factfinder2.census.gov).
    - Years available: 2009-2013, 2011-2013
    - Geographies available: census tracts, cities/towns, counties, regions (derived), state

The estimates of individuals without health insurance coverage were obtained from the ACS (S2701 and S0201 tables). Estimates and standard errors of the estimates were obtained from the margin of error provided by the ACS. Population-weighted regional estimates and standard errors were calculated. Regions in the BRACE project are based on county aggregations in the *Adaptation Planning Guide Understanding Regional Characteristics.* Relative standard errors and 95% confidence intervals were calculated. Decile rankings for places and census tracts as well as relative risk were calculated.

Limitations

Health insurance coverage was added to the 2008 ACS so no equivalent measure is available from previous ACS surveys or Census 2000. Logical editing was applied to 2009 ACS health insurance in which survey responses, that are likely inaccurate, are changed so that they are consistent with other information obtained in the survey. The sample population does not include active-duty military personnel and populations living in correctional facilities and nursing homes. ACS 3-year estimates are published only for areas with a population of 20,000 or more. ACS did not make any changes related to the Affordable Care Act enacted in 2010.

Acknowledgement and Disclaimer

Examples of Maps, Figures, and Tables:

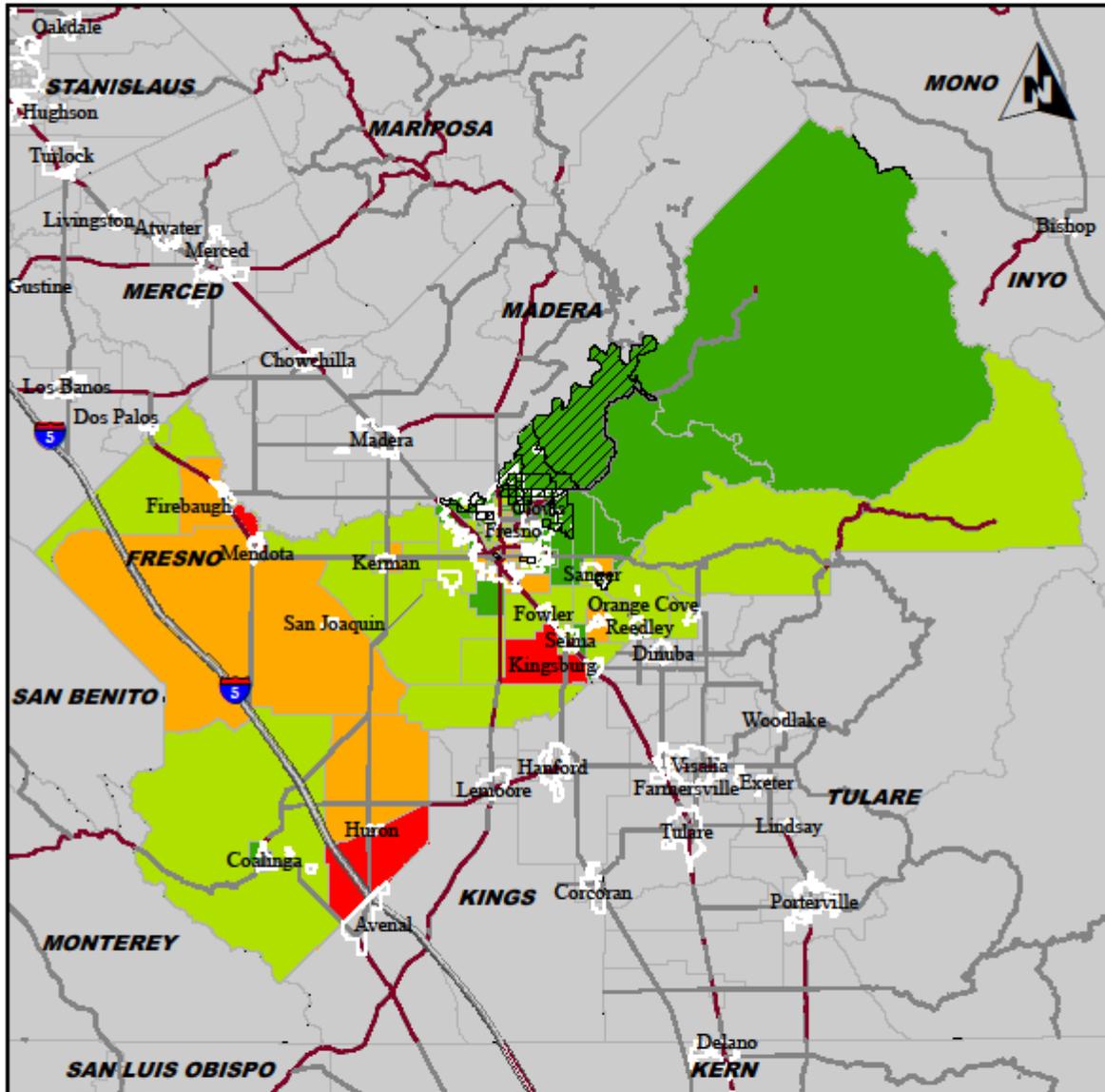**Figure 1. Percent of Population Without Health Insurance by Race/Ethnicity, San Diego City, CA, 2011-2013**
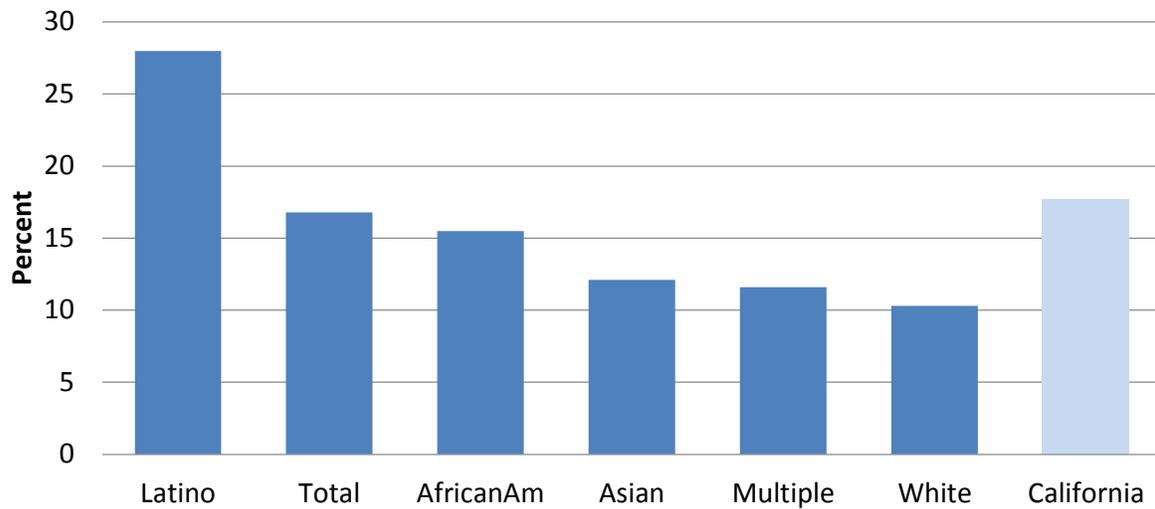
AIAN, American Indian/Alaska Native; AfricanAm, African-American; NHOPI, Native Hawaiian/Other Pacific Islander.

Source: American Community Survey (ACS), 2011-2013

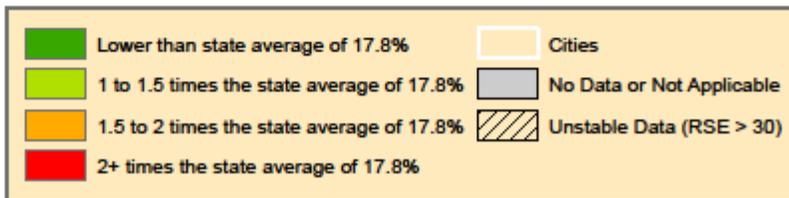**Table 1. Percent of Population Without Health Insurance by Cities and Towns, Alameda County, California, 2009-2013**

City or Town	Population without Health Insurance		Total Population
	Population	Percent	
Ashland	4,891	22%	22,711
Cherryland	2,879	20%	14,651
Hayward	26,652	18%	146,218
Oakland	68,356	17%	394,672
Emeryville	1,554	15%	10,175
San Leandro	12,014	14%	85,660
Alameda	8,468	12%	73,511
Union	7,626	11%	70,549
Fairview	1,089	10%	10,467
Newark	4,450	10%	43,118
San Lorenzo	2,413	10%	24,057
Castro Valley	5,435	9%	60,795
Livermore	7,206	9%	82,303
Berkeley	9,730	9%	113,656
Fremont	18,463	9%	217,423
Albany	1,367	7%	18,740
Pleasanton	4,996	7%	71,296
Dublin	2,530	6%	43,328
Sunol	38	5%	839
Piedmont	112	1%	10,840
Alameda County	**191,264**	**13%**	**1,522,768**
California	**6,601,519**	**18%**	**37,130,876**

Source: American Community Survey (ACS), 2009-2013

Map1: Percent of Population Without Health Insurance by Census Tracts, Fresno County, California, 2009-2013

Legend:
- Green: Lower than state average of 17.8%
- Light green: 1 to 1.5 times the state average of 17.8%
- Orange: 1.5 to 2 times the state average of 17.8%
- Red: 2+ times the state average of 17.8%
- Cities
- No Data or Not Applicable
- Unstable Data (RSE > 30)

Source: American Community Survey (ACS), 2009 - 2013

Analysis by CDPH and UC Davis