

## Summary

The Public Health Alliance of Southern California conducted several analyses to understand the degree to which high overall CalEnviroScreen (CES) 2.0 scores co-occur with high poverty and high overall population characteristics scores, as presented in the CES 2.0 tool among California census tracts. Two analyses were conducted:

(a) **Poverty:** Analyzed what proportion of the most impoverished census tracts in the state (those in the upper 15%) are *also* identified as being in the top 15% of overall CES 2.0 scores.<sup>1</sup> Our analysis suggests that only 56.5% of these most impoverished census tracts are also in the top 15% of overall CES 2.0 scores.

(b) **Population Characteristics:** Analyzed what proportion of census tracts with the highest 15% of overall population characteristics scores are *also* identified as being in the top 15% of overall CES 2.0 scores. Our analysis indicates that 61.8% of the census tracts with the highest (top 15%) Population Characteristics Scores are also in the top 15% in terms of their overall CES Score.

## Methods

CalEnviroScreen 2.0 data were downloaded from the CalEPA website ([http://oehha.ca.gov/ej/CalEnviroScreen\\_v2%200.xlsx](http://oehha.ca.gov/ej/CalEnviroScreen_v2%200.xlsx), Accessed 4/21/2014). Census tracts were cross tabulated for agreement between high CES 2.0 Score (yes/no) status (in the highest 15<sup>th</sup> percentile) and (a) high poverty (yes/no) status (in the highest 15<sup>th</sup> percentile) or (b) high population characteristics summary score (yes/no) status (in the highest 15<sup>th</sup> percentile). The population characteristics summary score factored young and old demographics, poverty, unemployment, low educational attainment, linguistic isolation, asthma emergency room visits and prevalence of low birth weight.

CES 2.0 Score	Percentile (a) Poverty and (b) Population Characteristics Score	
	Top 15%	Bottom 85%
Top 15%	a	b
Bottom 85%	c	d

This analysis was implemented using SAS (Version 9.3) statistical package. Technical assistance in this analysis was provided by the California Department of Public Health.

<sup>1</sup> As described in Office of Environmental Health Hazard Assessment. *Approaches to Identifying Disadvantaged Communities*. Oakland, CA: California Environmental Protection Agency. August 2014.  
<http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/workshops/calepaapproaches-to-identify-disadvantaged-communities-aug2014.pdf>

**(a) Poverty Analysis**

CalEnviroScreen (CES) 2.0 Upper 15% Classification by Poverty Upper 15% Classification California Census Tracts				
CES 2.0		Poverty		Total
		TOP 15%	BOTTOM 85%	
TOP 15%	Count	628	568	1196
	% in CES2.0 Group	52.5%	47.5%	
	% in Poverty Group	56.5%	8.3%	
BOTTOM 85%	Count	483	6254	6737
	% in CES2.0 Group	7.2%	92.8%	
	% in Poverty Group	43.5%	91.7%	
Total		1111	6822	7933

  

Agreement statistics of Poverty (reference) and CES 2.0 (screening)		
Agreement statistic	Percent	Interpretation for CES 2.0
Sensitivity (%)	56.5%	Proportion of CTs in upper 15% for poverty who are ALSO in upper 15% for CES 2.0
Positive predictive value (%)	52.5%	Proportion of CTs in upper 15% for CES 2.0 who are ALSO upper 15% for poverty

**Results:** Our analysis suggests that only 56.5% of these most impoverished census tracts are also in the top 15% as defined by CES 2.0, overall CalEnviroScreen Score (see *Sensitivity (%)* in table above). 52.6% of the census tracts in the upper 15% for CES 2.0 are also in the upper 15% for poverty.

**(b) Population Characteristics Analysis:**

Population Characteristics	
Sensitive Populations Indicators	Children and Elderly Low Birth-Weight Births Asthma Emergency Departmental Visits
Socioeconomic Factors Indicators	Educational Attainment Linguistic Isolation Poverty Unemployment

The Public Health Alliance with technical assistance from California Department of Public Health has conducted an analysis of the correlation between CES 2.0 Score and the overall “Population Characteristics” score. In addition to the “Socioeconomic Factor Indicators,” the population characteristic score includes “Sensitive Population Indicators” including Children and Elderly, Low Birth-Weight births, and Asthma Emergency Department visits as indicated in the graphic at left from the CES 2.0 report.

In a document released in August 2014 titled “Approaches to Identifying Disadvantaged Communities,” proposed ‘Method 3’ would identify communities based on the Population Characteristics score alone. This analysis studies how this method of identifying disadvantage would correlate to ‘Method 1’ proposed in the document, overall CES 2.0 score.

CalEnviroScreen (CES) 2.0 Upper 15% Classification by Population Characteristics Upper 15% Classification				
Census Tracts				
CES 2.0		Population Characteristics		Total
		TOP 15%	BOTTOM 85%	
TOP 15%	Count	690	506	1196
	% in CES2.0 Group	57.7%	42.3%	
	% in Poverty Group	61.8%	7.4%	
BOTTOM 85%	Count	427	6,350	6777
	% in CES2.0 Group	6.3%	93.6%	
	% in Poverty Group	38.2%	92.6%	
Total		1117	6856	7973
Agreement statistics of Population Characteristics (reference) and CES 2.0 (screening)				
Agreement statistic	Percent	Interpretation for CES 2.0		
Sensitivity (%)	61.8%	Proportion of CTs in upper 15% for Population Characteristics who are ALSO in upper 15% for CES 2.0		
Positive predictive value (%)	57.7%	Proportion of CTs in upper 15% for CES 2.0 who are ALSO upper 15% for Population Characteristics		

Technical Assistance Provided by CDPH.

**Results:** Our analysis finds that less than 62% of the census tracts identified by methodology 3 as being the most vulnerable due to population characteristics are *also* in the top 15% of CES 2.0 scores. Putting this another way, Method 1 (overall CES score) only positively identifies the most population-characteristic-disadvantaged census tracts 57.7% of the time. This indicates a relatively poor statistical correlation between pollution-burden and population characteristics, as currently measured in CES 2.0