

Geographic Variation in Advanced Stage Colorectal Cancer in California

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Overview

- The California Cancer Registry
- Colorectal cancer in California: state perspective
- Colorectal cancer in California: local perspective

The California Cancer Registry (CCR)

- Established by state law passed in 1985
- The CCR has collected information on all new cancer cases (incidence) and deaths (mortality) for the entire state of California since 1988
- Hospitals and physicians are required to report cancer cases to the CCR

The CCR continued

- We receive over 200,000 cancer case reports each year
- After weeding out duplicate reports, we end up with about 160,000 new cases added to the database each year
- As of 2015, the CCR database contains 3.8 million patient tumors

Colorectal Cancer in California

- The 3rd most commonly diagnosed cancer among California men and women
- 14,114 cases diagnosed in 2012
- Accounts for 9% of all newly diagnosed cancers

Colorectal Cancer in California

- 2nd most common cause of cancer death among Californians (men and women combined)
- 5,189 deaths in 2012
- Colorectal cancer kills more Californians than any other cancer except lung cancer – even though it is one of the most preventable cancers through screening

State Perspective: Good News

Colorectal cancer (CRC) incidence and mortality rates have declined dramatically in California since 1988

- Incidence rates dropped by 39%
- Mortality (death) rates dropped by 40%

State perspective: Bad News

Colorectal cancer mortality rates have declined among all major racial/ethnic groups - but the rate of decline is not equal

Non-Hispanic whites: 43% decline

African Americans: 27% decline

Asian/Pacific Islanders: 29% decline

Hispanics: 10% decline

The other bad news

Despite the availability of highly effective screening tests, over 50% of colorectal cancer cases in California are diagnosed at advanced stage - after the disease has already spread beyond the colon or rectum, and survival rates drop.

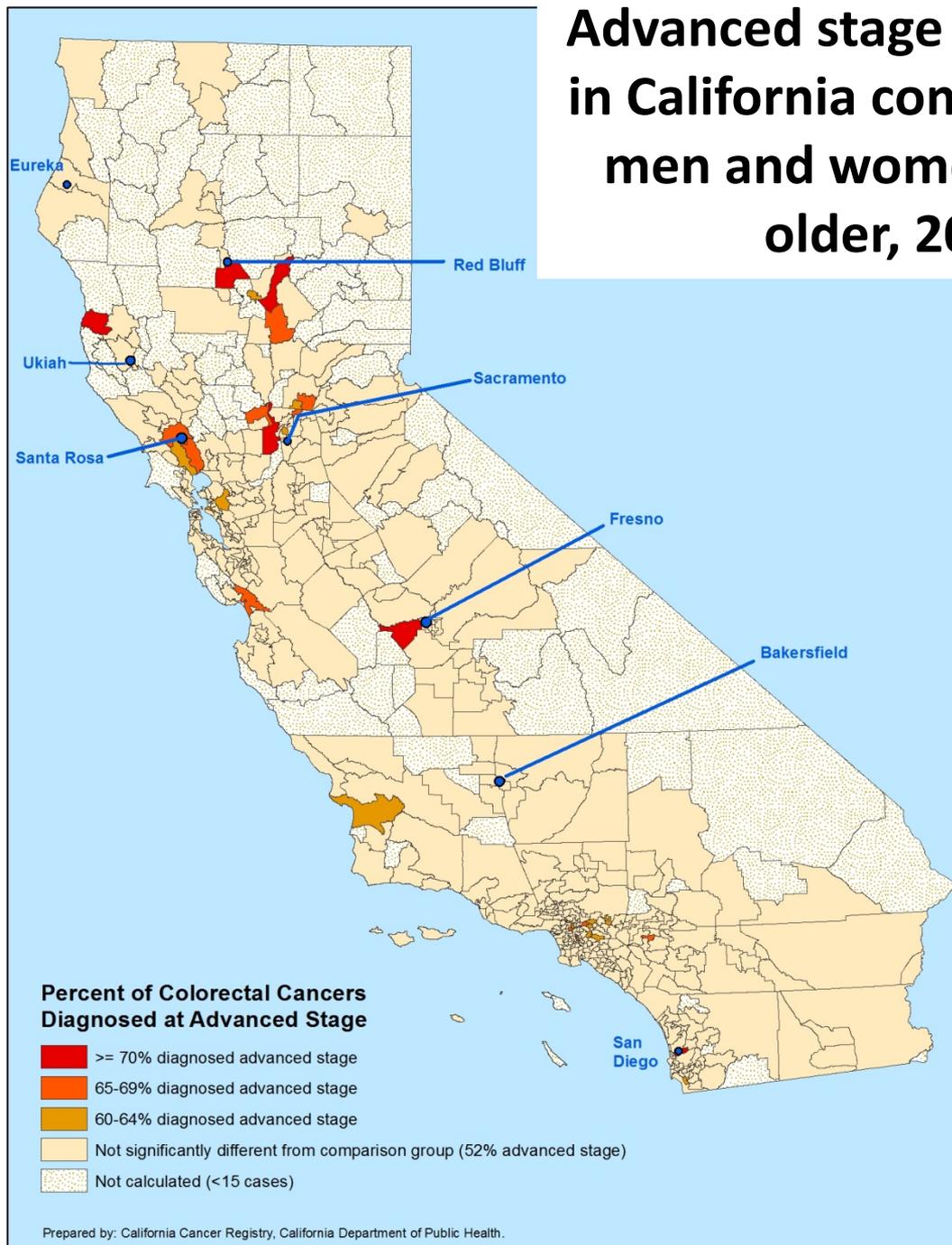
State Perspective: Summary

- Colorectal cancer incidence and mortality rates are declining overall in California, but not equally for all race/ethnic groups
- Earlier stage at diagnosis is associated with much improved chance of survival

Colorectal cancer in California: the local level

- Statewide statistics give an overview of colorectal cancer in California
- How can we bring information to communities for local action?

Advanced stage colorectal cancer in California communities among men and women 50 years and older, 2007-2011



Map identifies communities where the proportion of colorectal cancer cases is significantly higher than the state average

Maps: Background

Goal to identify communities that appear to have an excess of cases diagnosed at advanced stage

This can be used as an indirect indicator of colorectal cancer screening intensity in that community

Case selection

- We looked at colorectal cancer diagnosed in California from 2007-2011 among men and women age 50 years and older (a total of 64,364 cases)

Community definition: Medical Service Study Area (MSSA)

- MSSA: geographic unit defined by Office of Statewide Health Planning and Development (OSHPD) for determining medical shortage areas
- MSSAs are “rational service areas for healthcare” or “healthcare communities”
- 542 MSSAs in California based on Census 2010

Methodology

In each MSSA we analyzed:

- Out of all the colorectal cancer cases diagnosed during the 5-year period, how many were diagnosed at advanced stage (regional or distant stage)?
- How do those % and numbers of advanced stage colorectal cancer cases compare to a benchmark group?

Methods: the benchmark group

- Benchmark group was non-Hispanic whites living in high socioeconomic status (SES) neighborhoods statewide (census data)
- 52% of cases in benchmark group were diagnosed at advanced stage
- We chose this because it is the demographic group with the lowest % of advanced-stage colorectal cancer

Analysis

- We compared the proportion of advanced stage cases in each community with the proportion in our benchmark group
- The analysis was age-adjusted to account for any differences in age distribution between the populations in the community and the benchmark group
- We tested to see if the difference was statistically significant

Results

32 communities: % of advanced stage cases significantly higher than the benchmark group

6 communities: $\geq 70\%$ advanced stage

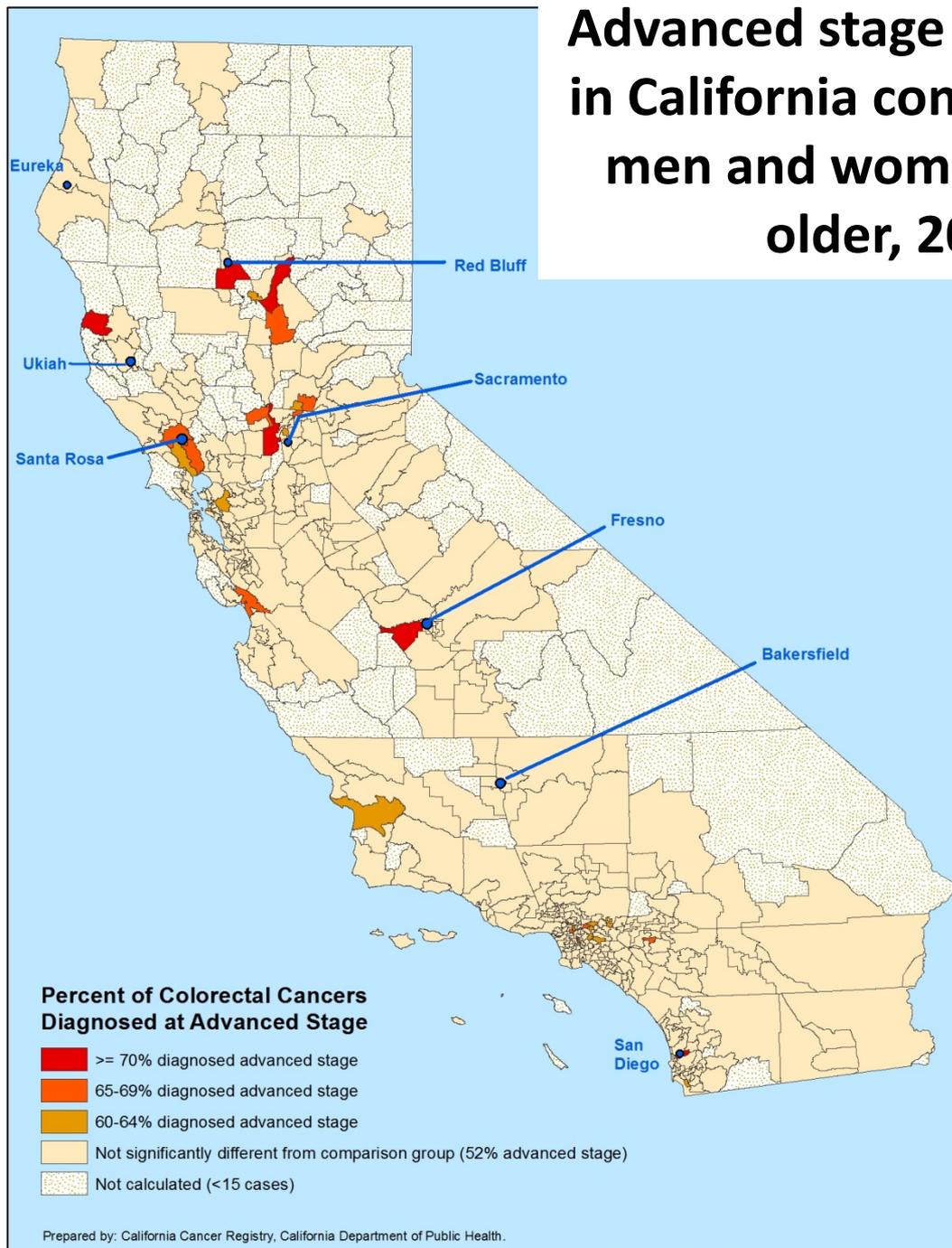
11 communities: 65-69% advanced stage

15 communities: 60-64% advanced stage

408 communities: % of advanced stage cases was not significantly different

102 communities: too few cases to do calculation (<15 cases in 5 years)

Advanced stage colorectal cancer in California communities among men and women 50 years and older, 2007-2011



Dark red: 70% or more of cases diagnosed at advanced stage

Dark Orange: 65-69% of cases diagnosed at advanced stage

Orange: 60-64% of cases diagnosed at advanced stage

Beige: % of advanced stage not significantly different from comparison group

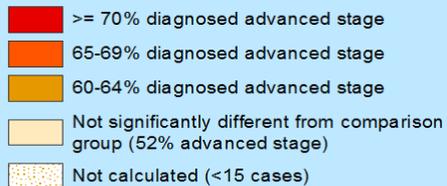
White: not calculated (<15 cases in 5-year period)



Advanced Stage Colorectal Cancer in Mendocino County Communities Among Adults 50 Years and Older, 2007-2011

MSSA 89: Fort Bragg/Westport

Percent of Colorectal Cancers Diagnosed at Advanced Stage



Mendocino County

MSSA 89: Fort Bragg/Westport

19 total cases

14 diagnosed advanced stage
= 74% advanced stage

2010 Population= 11,563

% White= 87.6

% Black= 0.8

% Native American= 4.1

% Other/Multi-Racial= 11.4

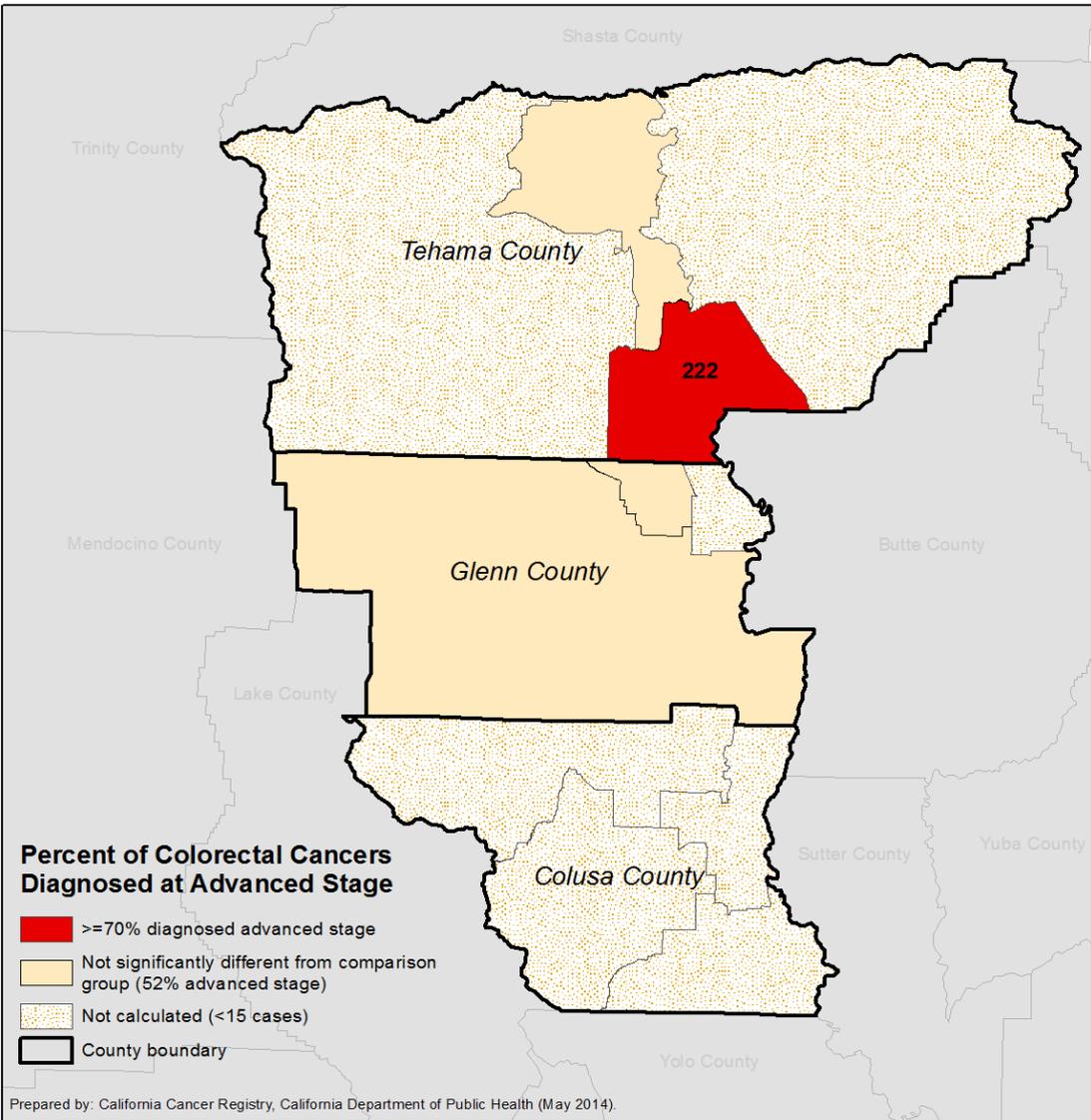
% Asian/Pacific Islander= 1.3

% Hispanic Ethnicity= 24

% at 100 Poverty = 21.5

% at 200 Poverty= 44.0

Advanced Stage Colorectal Cancer in Communities of Colusa, Glenn and Tehama Counties Among Adults 50 Years and Older, 2007-2011



Colusa, Glenn & Tehama

MSSA 222: Corning/ Los Molinos/ Tehama/ Vina

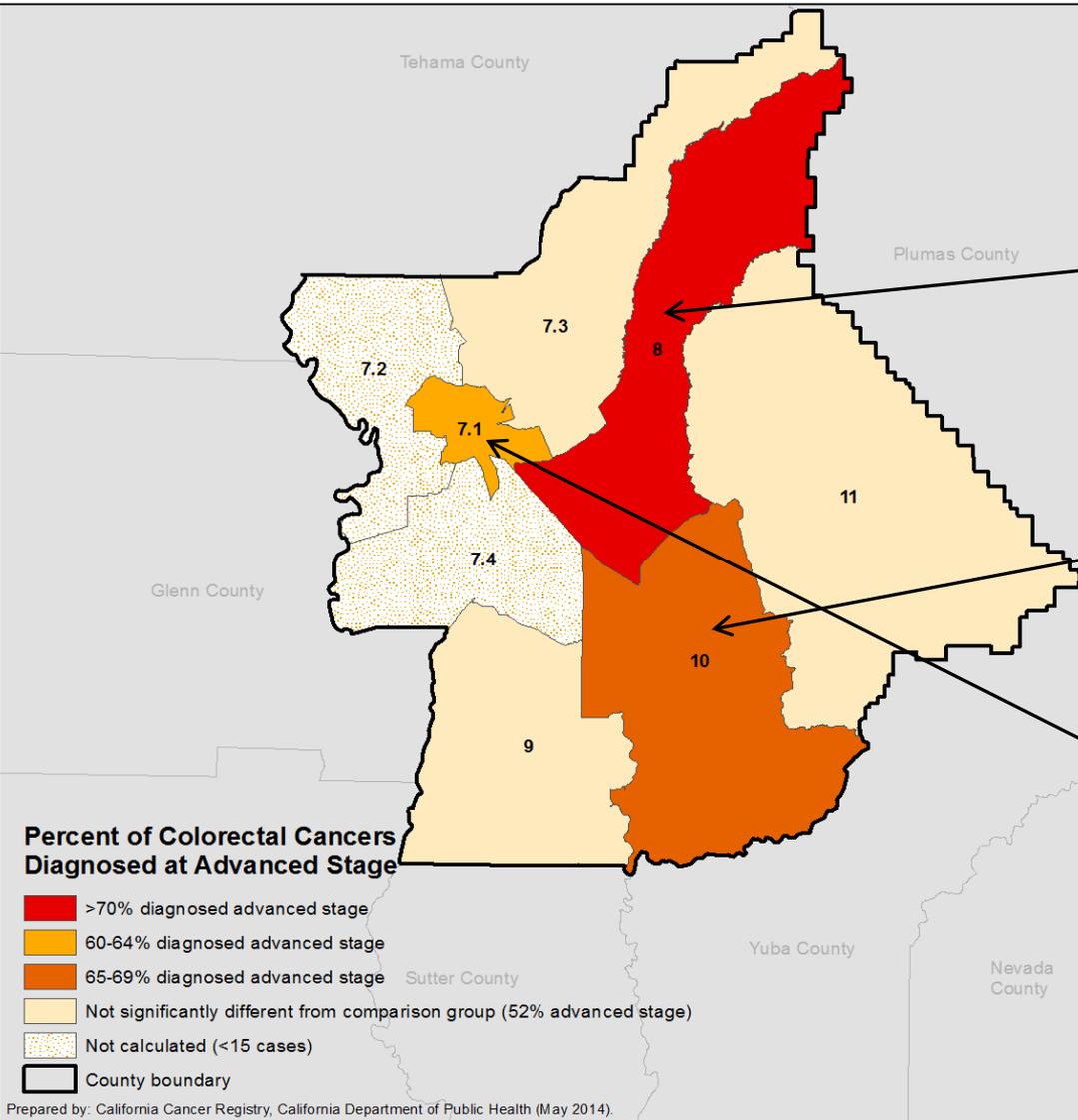
43 total cases
 32 diagnosed advanced stage
 =74% advanced stage

2010 Population= 18,053
 % White= 82.0
 % Black= 1.1
 % Native American= 4.0
 % Other/Multi-Racial= 18.5
 % Asian/Pacific Islander= 1.4
 % Hispanic Ethnicity= 28.7

% at 100 Poverty = 20.3
 % at 200 Poverty= 43.8



Advanced Stage Colorectal Cancer in Butte County Communities Among Adults 50 Years and Older, 2007-2011



MSSA 8: Magalia/Paradise/Stirling City

72% of cases were diagnosed advanced stage

MSSA 10: Oroville/Palmero/Thermalito

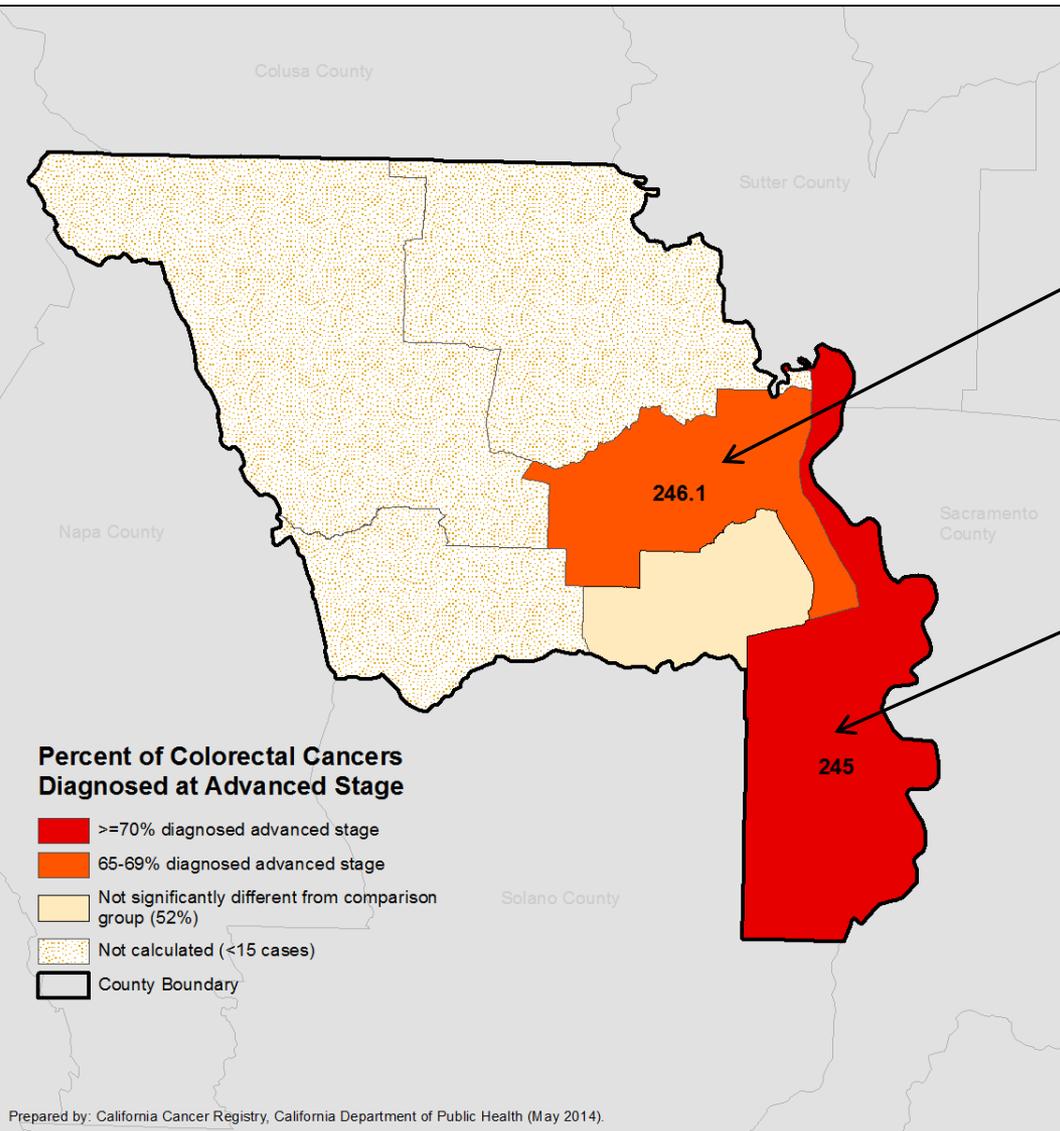
67% of colorectal cancer cases diagnosed advanced stage

MSSA 7.1: Chapmantown/Chico

63% of colorectal cancer cases diagnosed advanced stage



Advanced Stage Colorectal Cancer in Yolo County Communities Among Adults 50 Years and Older, 2007-2011



MSSA 246.1: Woodland

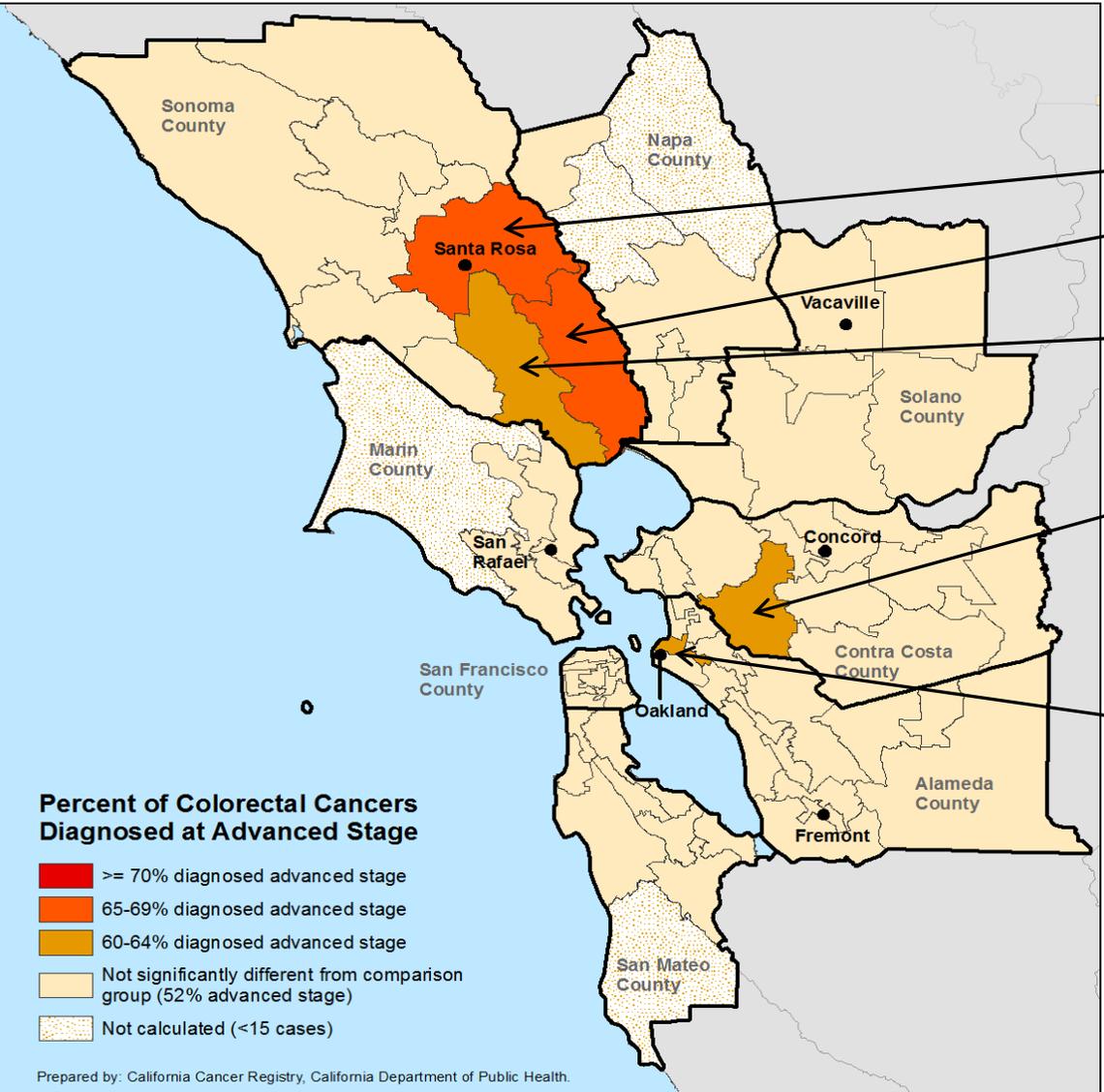
- 69% of cases were diagnosed advanced stage

MSSA 245: West Sacramento/ Bryte/Broderick/Clarksburg/ Riverview

- 70% of colorectal cancer cases diagnosed advanced stage



Advanced Stage Colorectal Cancer in Bay Area Communities Among Adults 50 Years and Older, 2007-2011



Sonoma County:

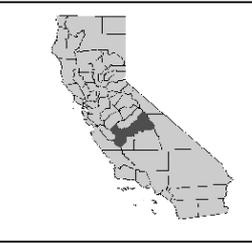
- Santa Rosa= 65% advanced stage
- Boyes Hot Springs/Glen Ellen= 65% advanced stage
- Petaluma= 62% advanced stage

Contra Costa:

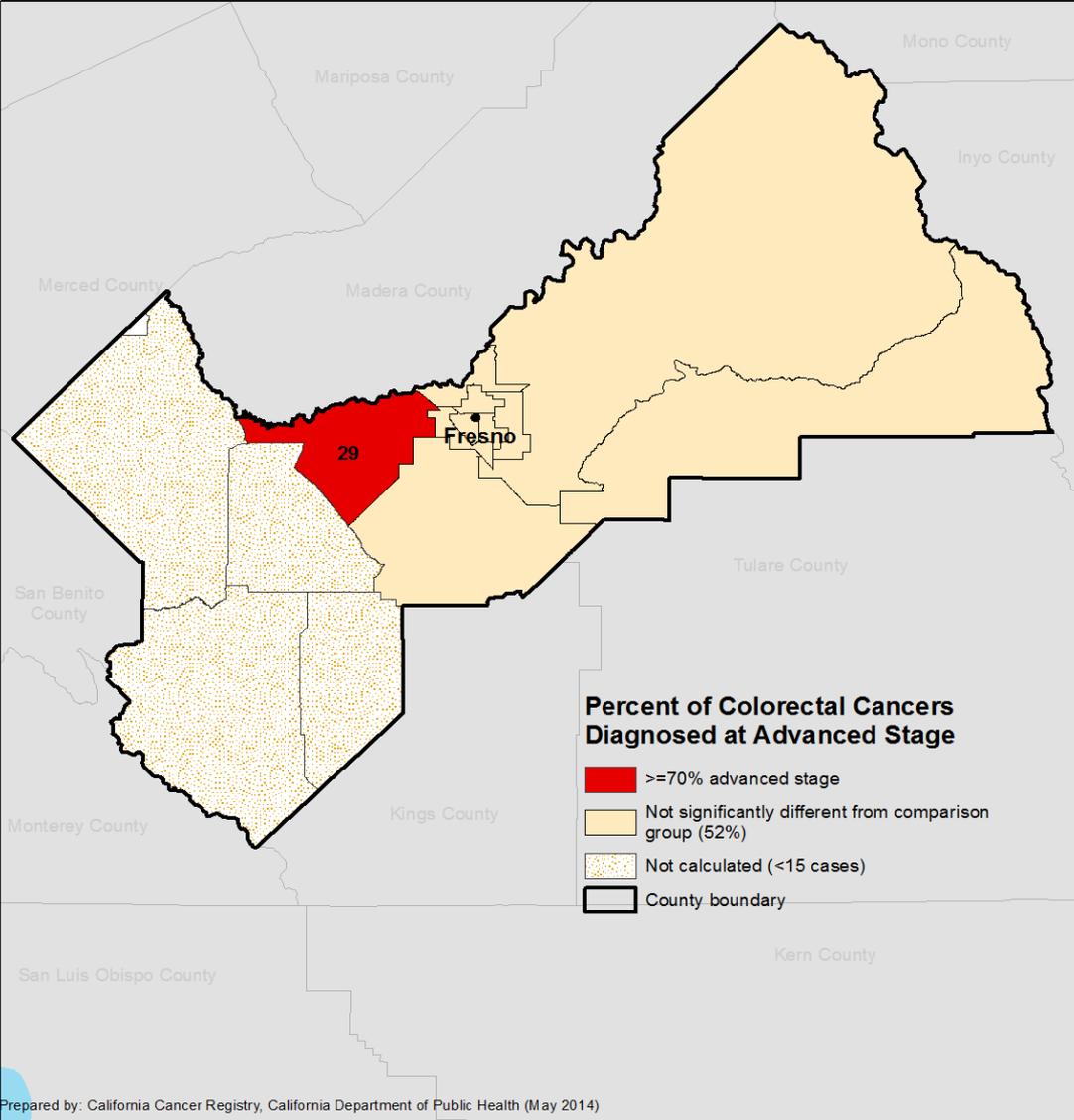
- Lafayette/ Martinez South= 61% advanced stage

Alameda County:

- Oakland West Central= 63% advanced stage



Advanced Stage Colorectal Cancer in Communities of Fresno County Among Adults 50 Years and Older, 2007-2011



Fresno County

MSSA 29: Biola/Herndon/
Highway City/Kerman

51 cases in five years
 36 diagnosed advanced stage
 = 71% advanced stage

2010 Population= 34,871

% White= 72.2

% Black= 4.8

% Native American= 1.2

% Other/Multi-Racial= 18.5

% Asian/Pacific Islander= 9.5

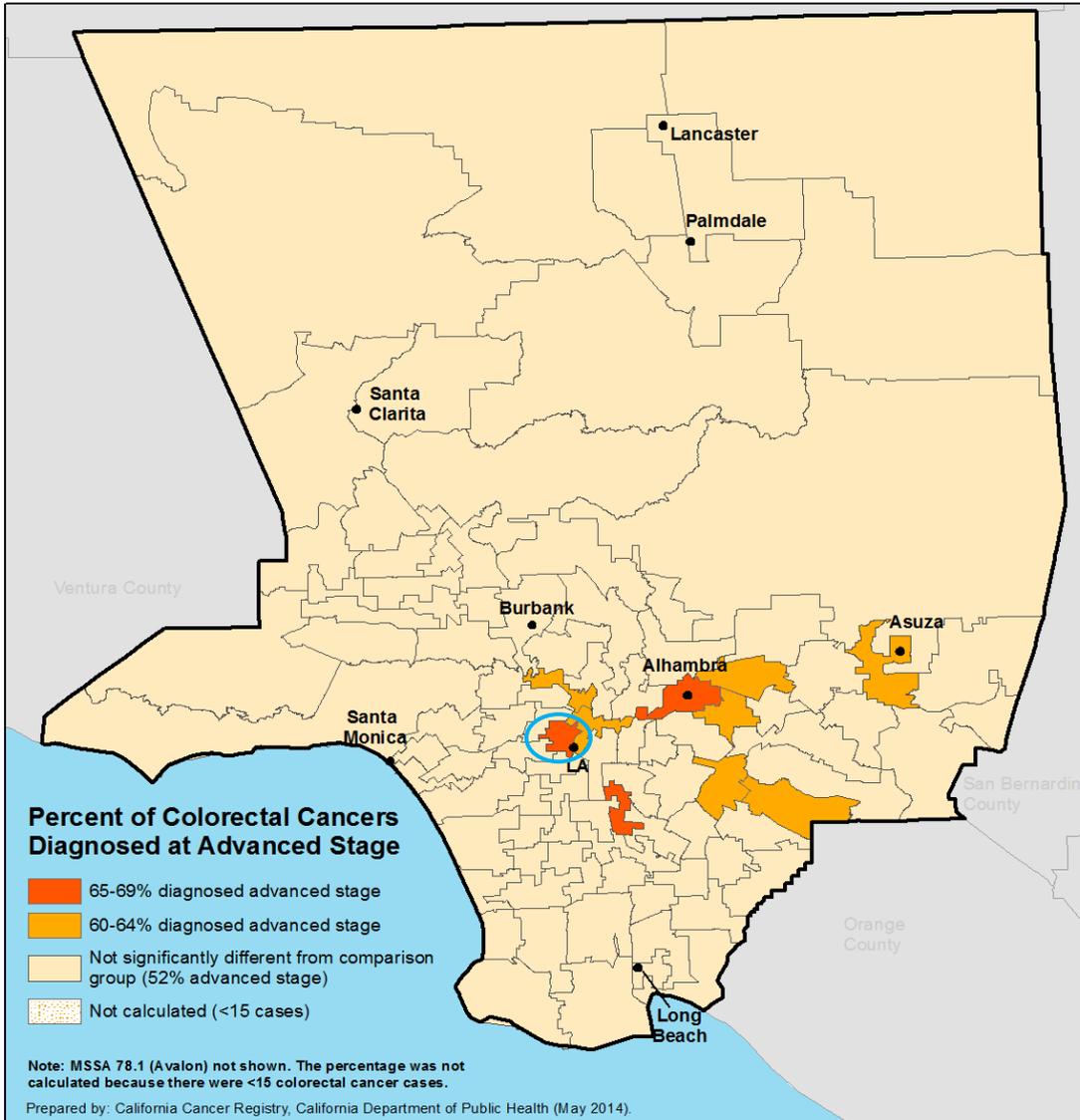
% Hispanic Ethnicity= 61.7

% at 100 Poverty = 21.5

% at 200 Poverty= 48.0



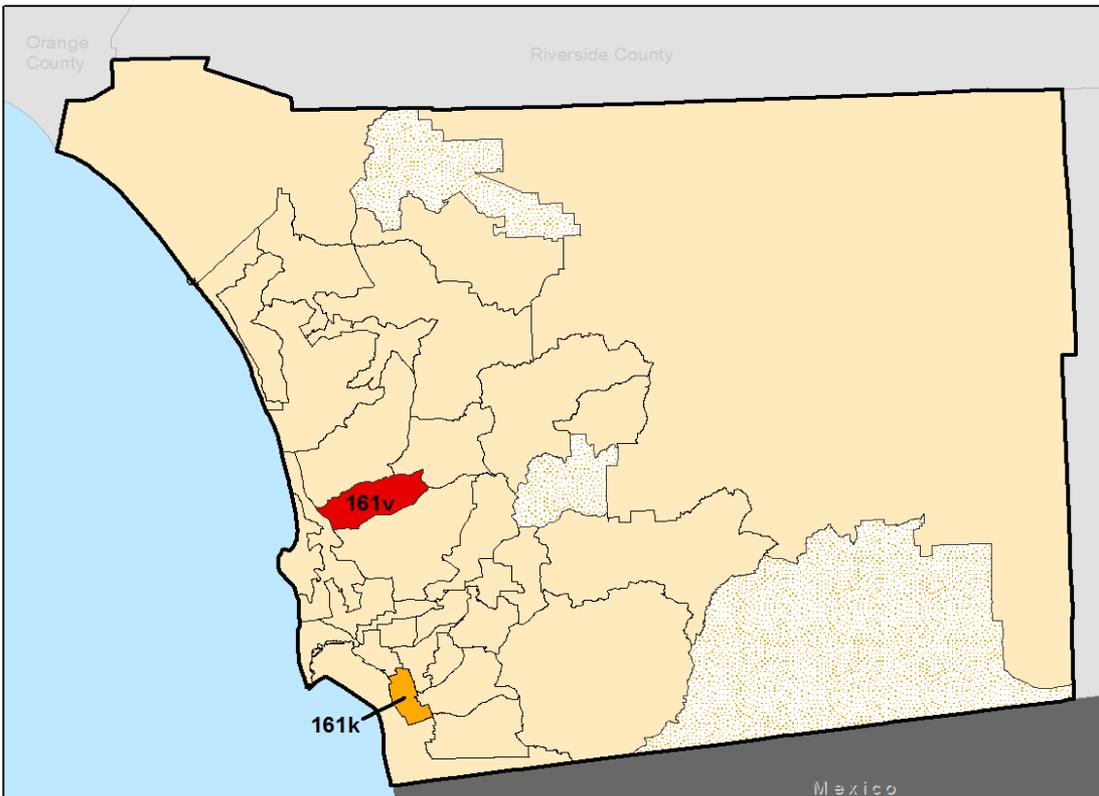
Advanced Stage Colorectal Cancer in Los Angeles County Communities Among Adults 50 Years and Older, 2007-2011



- 10 of 99 communities in LA county had significantly higher percentages of advanced stage colorectal cancer.
- Common demographic characteristics:
 - Poor $\geq 33\%$ 100% FPL
 - Minority
 - Urban areas



Advanced Stage Colorectal Cancer in San Diego County Communities Among Adults 50 Years and Older, 2007-2011



Percent of Colorectal Cancer Diagnosed at Advanced Stage

- >=70% advanced stage
- 60-64% diagnosed advanced stage
- Not significantly different from comparison group (52% advanced stage)
- Not calculated (<15 cases)

Prepared by: California Cancer Registry, California Department of Public Health (May 2014).

MSSA 161v: Mira Mesa/Scripps Miramar Ranch

- 71% of cases were diagnosed advanced stage

MSSA 161k: Chula Vista Central and Northwest/National City West

- 63% of colorectal cancer cases diagnosed advanced stage

Why do some communities have more advanced stage disease than others?

These maps tell us where but not why

Possible reasons:

- population characteristics (i.e., poverty, lack of insurance, education level)
- community characteristics (i.e., # of doctors doing screening, rural area with few services)
- chance

Interpreting the maps: cautions

- These maps do not compare overall colorectal cancer incidence rates by community.
- They do not suggest any information about underlying causes of colorectal cancer.
- They do not suggest that communities with no statistically significant excess of advanced stage colorectal cancers should be ignored.
- The maps should not be used in isolation.
- They are the beginning of the discussion - not the end!

Interpreting proportions: caution

- Colorectal cancer screening by endoscopy identifies pre-cancerous polyps
- These pre-cancers are not reportable to the CCR
- A shift to greater proportion of the range of CRC stage as 'very early' will not be captured
- Can't rely only on % of late stage as an indicator of screening success - need to factor incidence as well

Summary

- Colorectal cancer incidence and mortality rates have declined, but not among all groups.
- More than half of colorectal cancers in California are diagnosed at advanced stage, regardless of race, ethnicity, and SES.
- Maps can be used to identify geographic variations in stage distribution.
- Evaluate differences in local demographics and health services that might relate to results.
- Results need to be interpreted in conjunction with local knowledge.
- % late stage does not tell the whole story!

For more information

California Cancer Registry: www.ccrca.org

Maps and Tables:

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

Contact information: jrico@ccr.ca.gov

Thank you!