

# Geographic Variation of Advanced Stage Colorectal Cancer in California

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# Overview

- Colorectal cancer in California: State perspective
- Colorectal cancer in California: Local perspective

# State Perspective: Good News

Colorectal cancer incidence and mortality rates have declined dramatically in California between 1988 through 2013

- Incidence rates declined by 39%
- Mortality rates declined by 42%

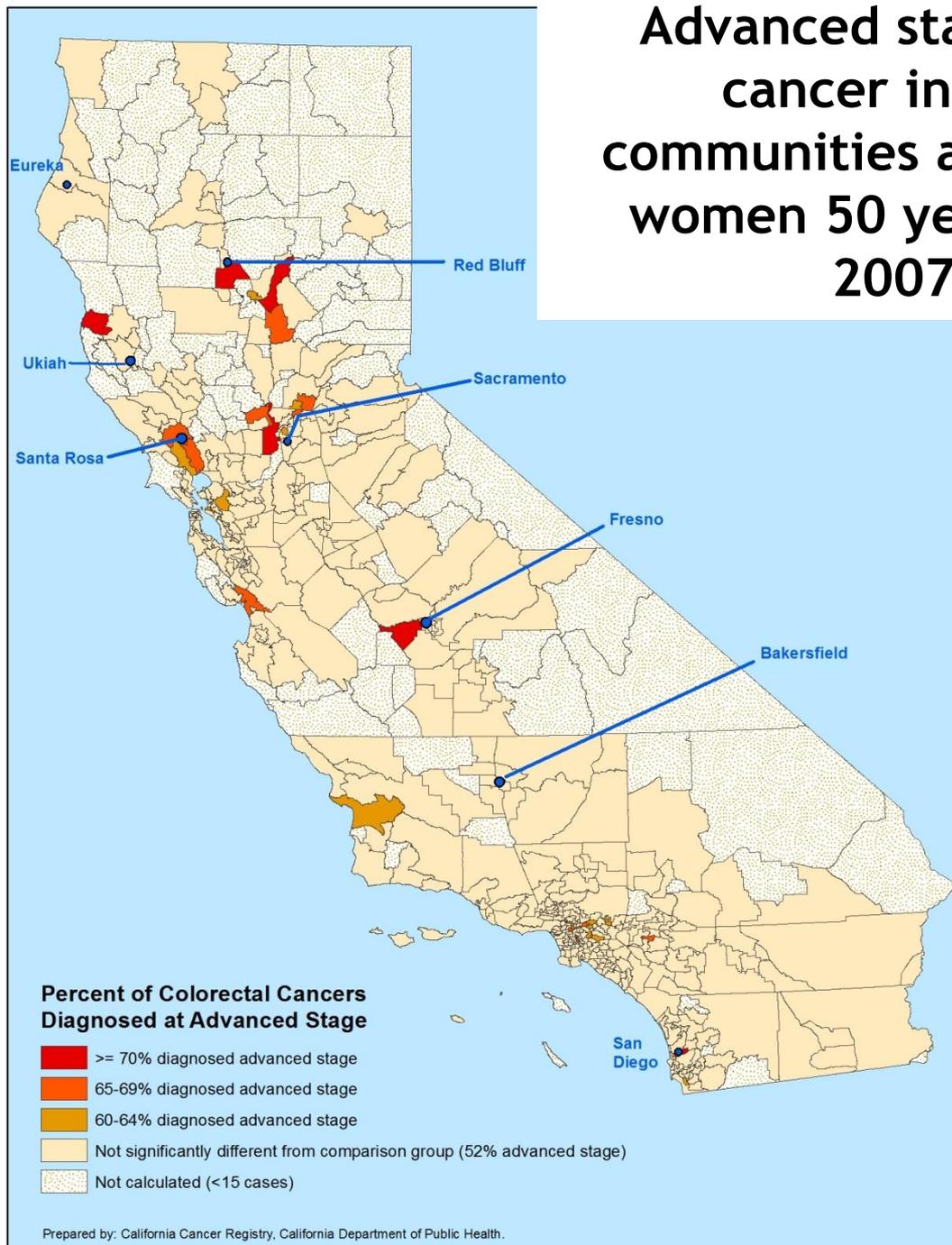
# The bad news

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.

# Colorectal cancer in California: the local level

- Statewide statistics give an overview of colorectal cancer in California
- How can we help inform more targeted intervention?

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



- Project initiated by CCR
- Identified Medical Study Service Areas (MSSA) throughout the state with higher than average (52%) advanced stage colorectal cancer
- Goal: Help to inform and assist more targeted colorectal screening interventions.

# Patient Selection Criteria:

- Included men and women who were:
  - Residents of California
  - Diagnosed with a cancer of the colon or rectum
  - Diagnosis years: 2007-2011
  - Ages 50+
  - n= 64,364

# Community definition: 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 five-year period, how many were diagnosed at advanced stage (SEER Summary Stage regional or distant stage)?
- How do those percents and numbers of advanced stage colorectal cancer cases compare to a comparison group?

# Methods:

## the comparison group

- Comparison group included non-Hispanic whites living in high socioeconomic status neighborhoods statewide
- 52% of cases in comparison group were diagnosed at advanced stage
- Selected because it is the demographic group with the lowest percent of advanced-stage colorectal cancer

# Analysis

- We compared the proportion of advanced stage cases in each community with the proportion in our comparison group
- We tested to see if the difference was statistically significant

# Results: Summary

32 communities: Percent of advanced stage cases significantly higher than the comparison group

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

11 communities: 65-69% advanced stage

15 communities: 60-64% advanced stage

408 communities: Percent of advanced stage cases was not significantly different from the comparison group

102 communities: Too few cases to do calculation (< 15 cases in five-years)

# OSHPD Data Sources

## Proxies of “Access to Care”:

- Health Professional Shortage Areas- Primary Care (HSPA)
  - Primary Care Shortage Area (PCSA)
    - Designated based on primary care physician availability
- Medically Underserved Area (MUA)
  - Designation based upon:
    - % residents below Federal Poverty Level
    - % of population 65+ years
    - Infant mortality rate
    - Population to primary care physician ratio

# 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

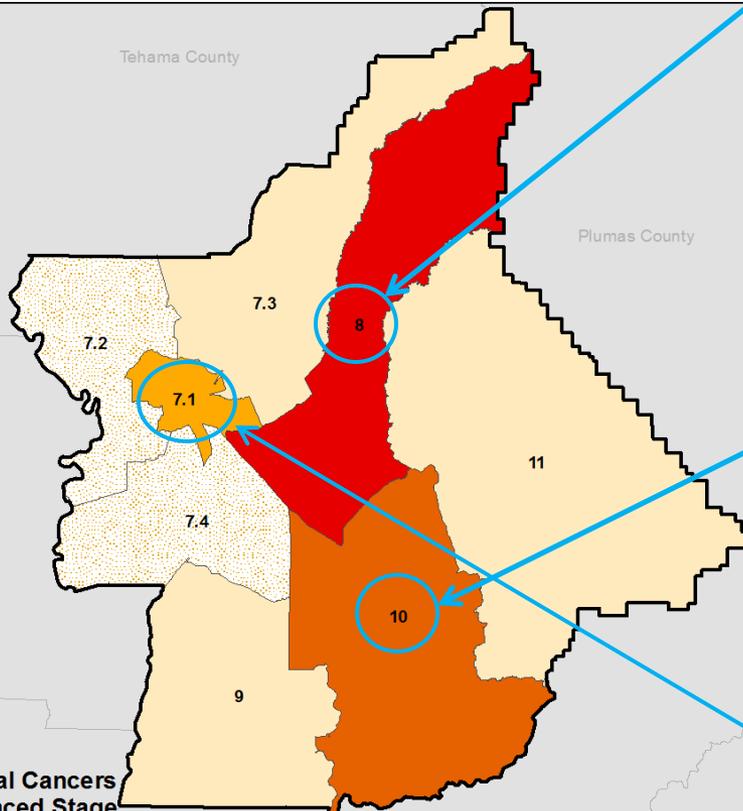
White: not calculated (<15 cases in five-year period)

# Butte County





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



**Percent of Colorectal Cancers  
Diagnosed at Advanced Stage**

- >70% diagnosed advanced stage
- 60-64% diagnosed advanced stage
- 65-69% diagnosed advanced stage
- Not significantly different from comparison group (52% advanced stage)
- Not calculated (<15 cases)
- County boundary

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

**Butte County:**

**MSSA 8: Magalia/Paradise/  
Stirling City**

124 total cases

89 advanced stage

**72% advanced stage**

**Medically Underserved Area**

**MSSA 10: Oroville/Palermo/  
Thermalito**

100 total cases

67 advanced stage

**67% advanced stage**

**Primary Care Shortage Area  
Medically Underserved Area**

**MSSA 7.1:**

**Chapmantown/Chico**

138 total cases

87 advanced stage

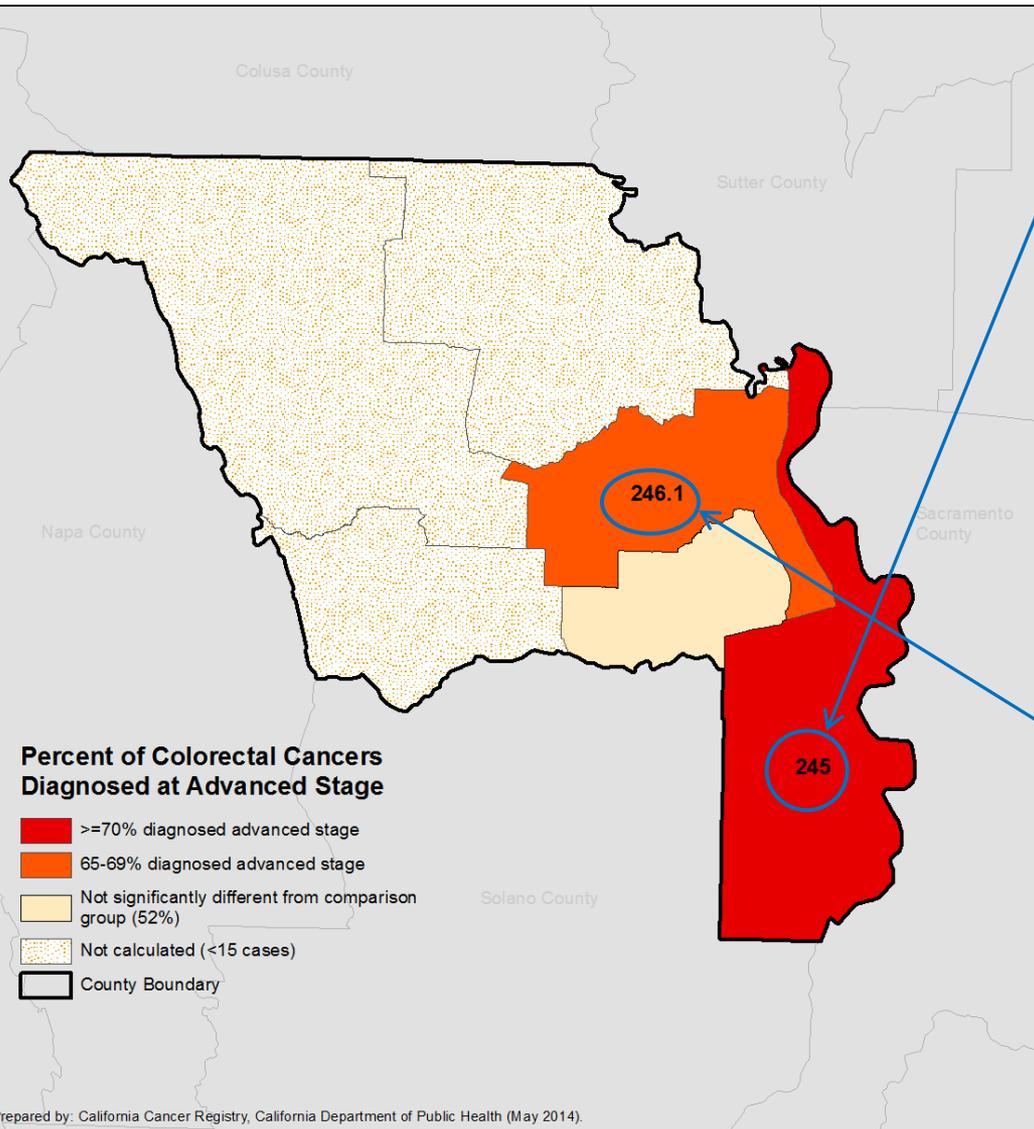
**63% advanced stage**

# Yolo County





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



### Yolo County:

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

81 total cases

57 advanced stage cases

**70% advanced stage**

#### **Primary Care Shortage Area Medically Underserved Area**

#### **MSSA 246.1: Woodland**

96 total cases

66 advanced stage cases

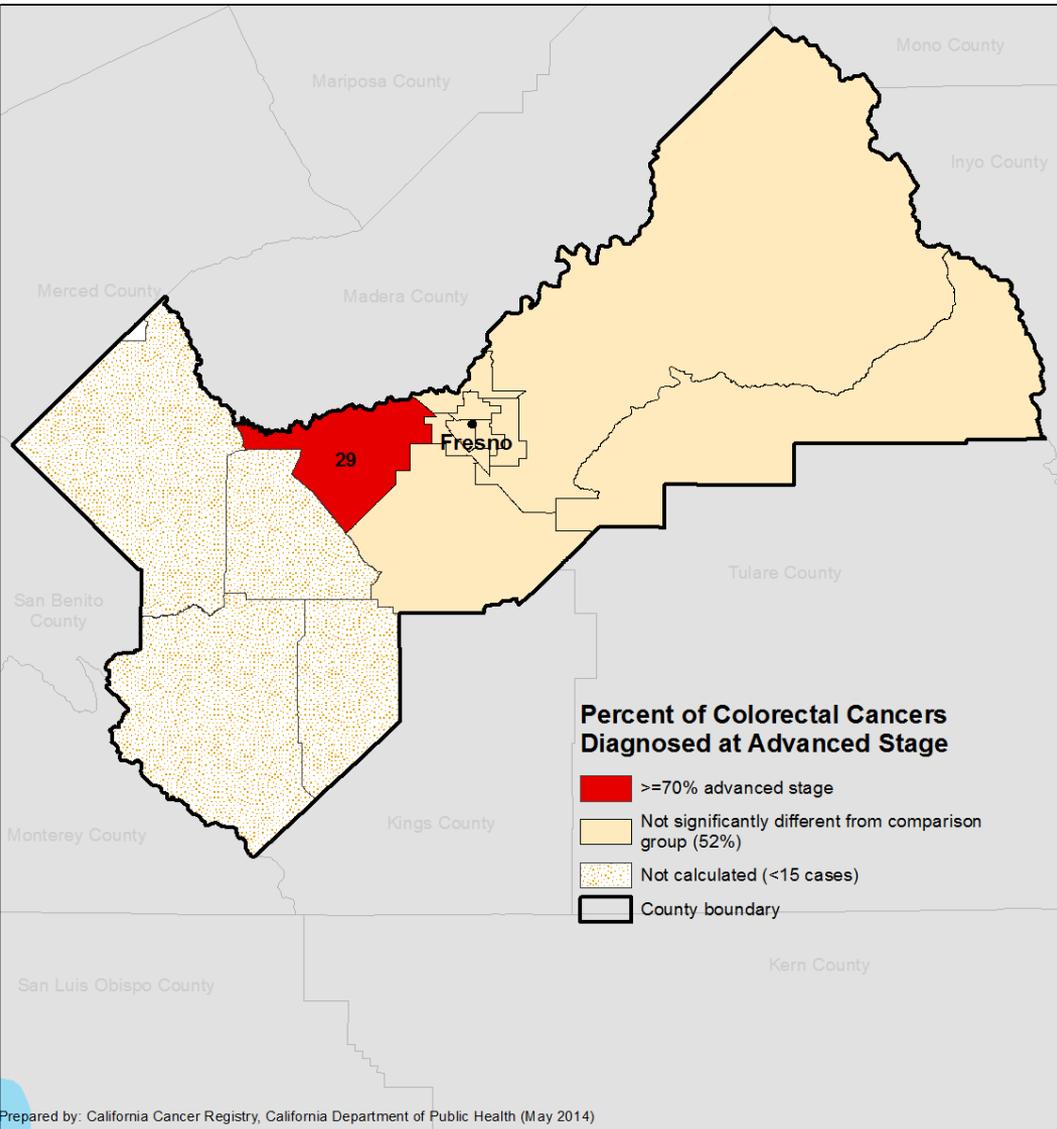
**69% advanced stage**

# Fresno County





## 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 total cases

36 advanced stage

**71% advanced stage**

**Primary Care Shortage Area**

**Medically Underserved Area**

# Why do some communities have more cases diagnosed at advanced stage?

These maps tell us where, but not why.

## Possible reasons:

- Population characteristics
- Community characteristics
- Chance

# Population Characteristics:

## **Poverty:**

### MSSA-level:

50% of the communities with the highest proportions of advanced stage colorectal cancer had  $\geq 20\%$  of residents living at or below 100% FPL.

# Population Characteristics (cont.)

- **Insurance Status (cohort-specific):**

<b>Insurance Status</b>	<b>%</b>
Medicare with Supplement	32.2
Private Insurance- Managed Care, HMO, PPO	25.4
Medicare without Supplement; Medicare, NOS	13.1
Insurance, NOS	6.8
Medicare with Medicaid eligibility	6.8
Medicaid	5.3
Other	10.4
<b>Total</b>	<b>100</b>

## Population Characteristics (cont.)

- **Socioeconomic Status (cohort-specific):**

SES Index	%
High-SES	2.5
Upper-Middle SES	14.6
Middle SES	23.6
Lower-Middle SES	39.1
Lowest SES	20.2

# Community characteristics

- **Physician Availability**

- 50% of the communities with the highest proportions of advanced colorectal cancer were designated as PCSA's.

- Population to Primary Care Physician ratios ranged from:

- **1,000:1 - 8,900:1**

- **Rurality**

- 50% Rural

- 50% Urban

# External Cancer Control Utilization

- American Cancer Societies “Communities of Focus”
  - Project objective: Recommend specific geographic communities and criteria for prioritizing communities for colorectal cancer interventions.
    - Particular emphasis on Federally Qualifying Health Centers (FQHCs)
- California’s Colorectal Cancer Coalition (C4)
  - Utilized the ACS Communities of Focus report when selecting grant recipients

# Summary

- Colorectal cancer incidence and mortality rates have declined, but not equally among all groups.
- More than half of colorectal cancers in California are diagnosed at advanced stage, regardless of race, ethnicity, and socioeconomic status.
- Maps can be used to identify geographic variations in stage distribution and can assist in cancer control efforts.
- Results need to be interpreted in conjunction with local knowledge.

# Thank you!

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