



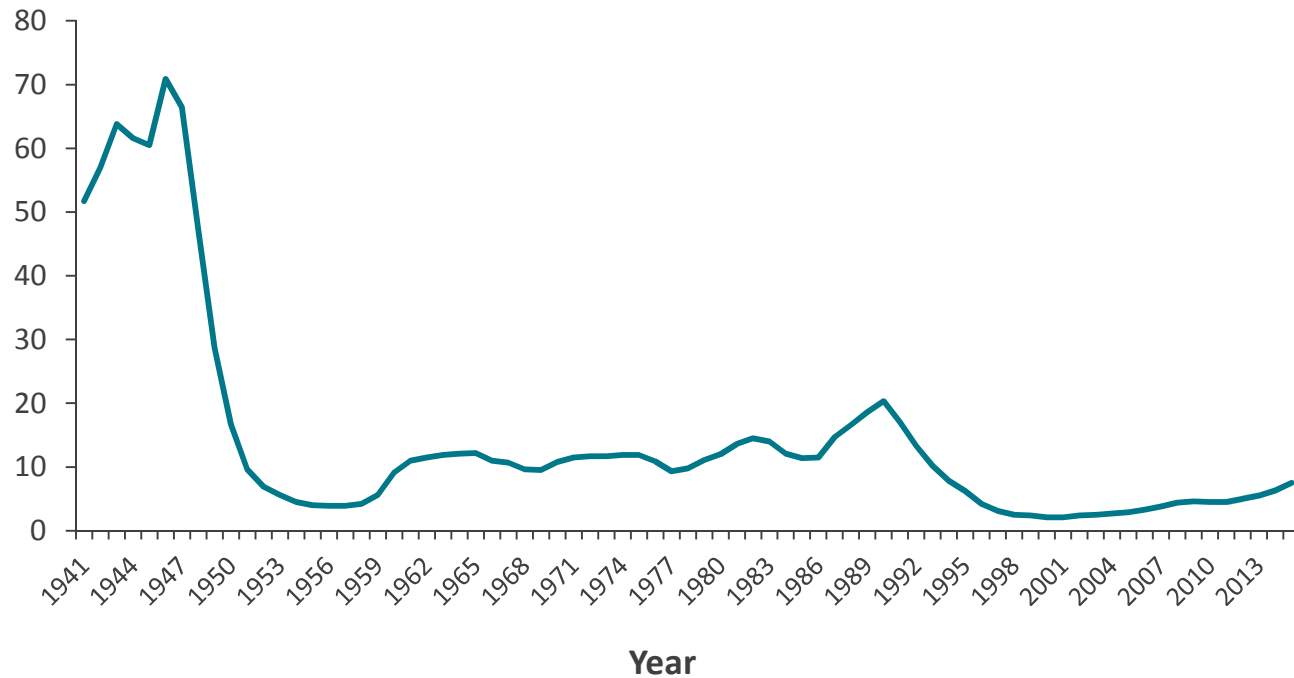
## **Syphilis in the United States: National Trends and Epidemiology**

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**Surveillance Team**  
**Division of STD Prevention**  
**Centers for Disease Control and Prevention**

California Syphilis Prevention Summit  
January 10, 2017

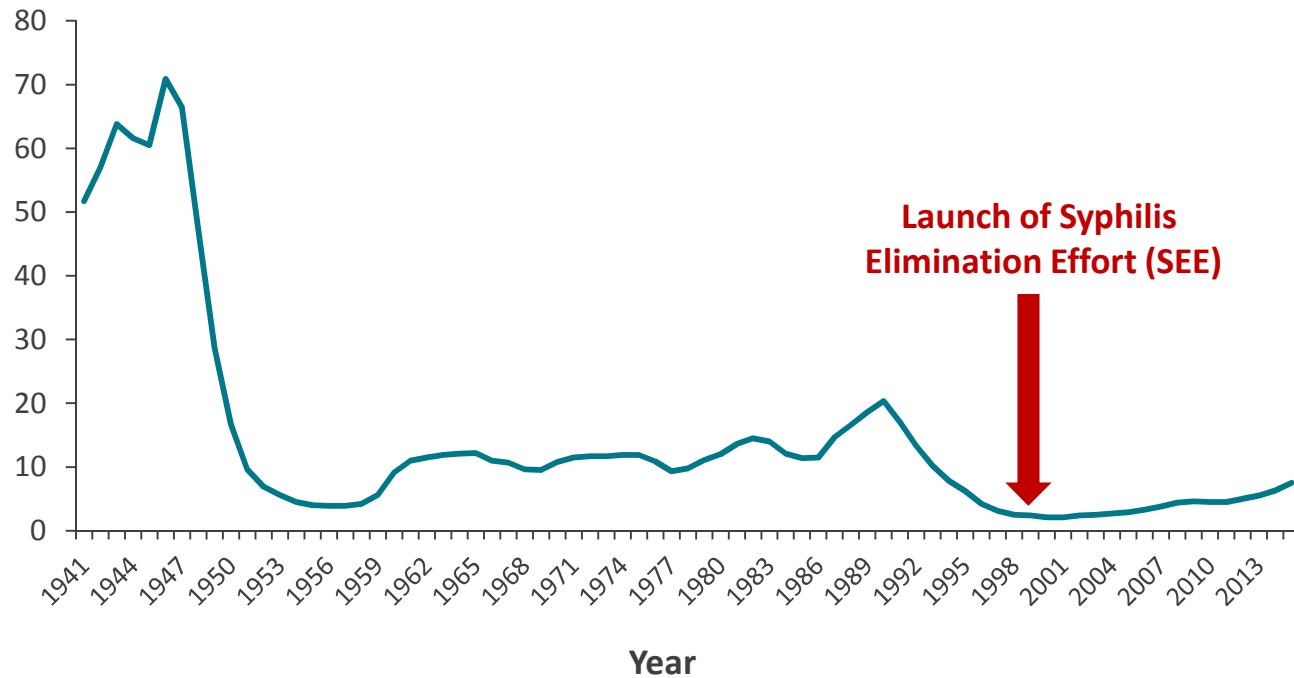
## Primary and Secondary Syphilis — Rate of Reported Cases, United States, 1941–2015

Rate per 100,000 population



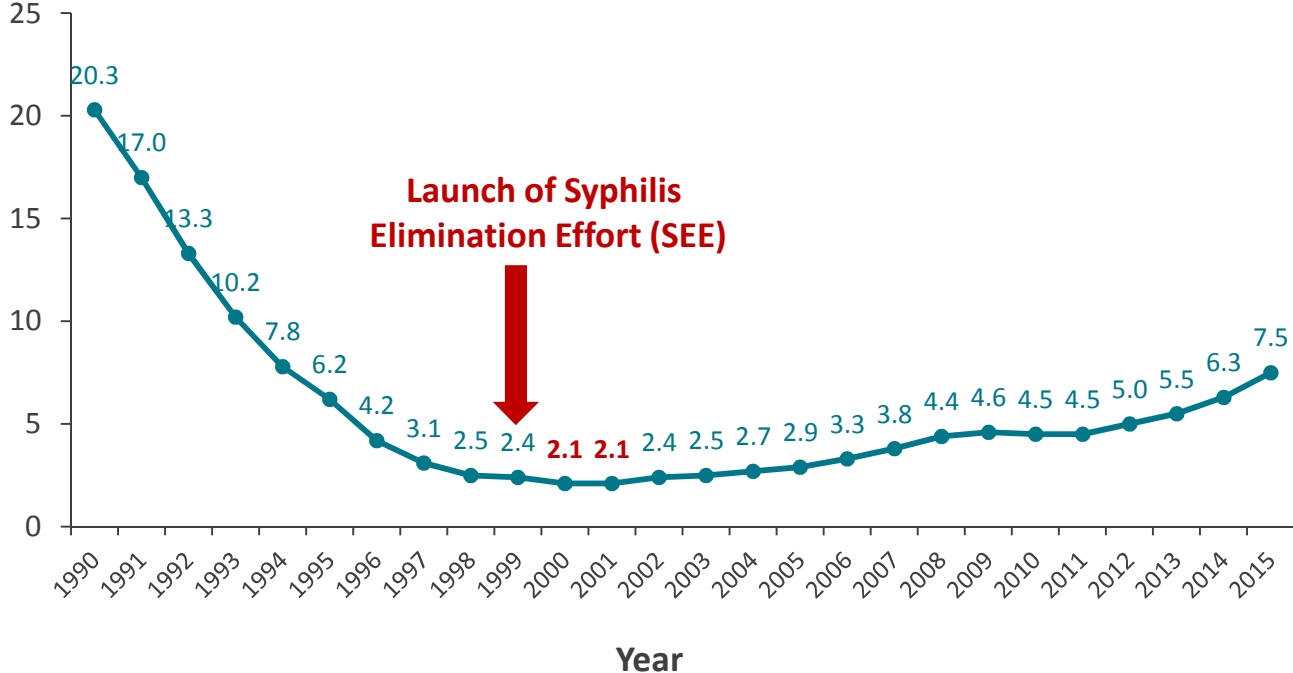
## Primary and Secondary Syphilis — Rate of Reported Cases, United States, 1941–2015

Rate per 100,000 population



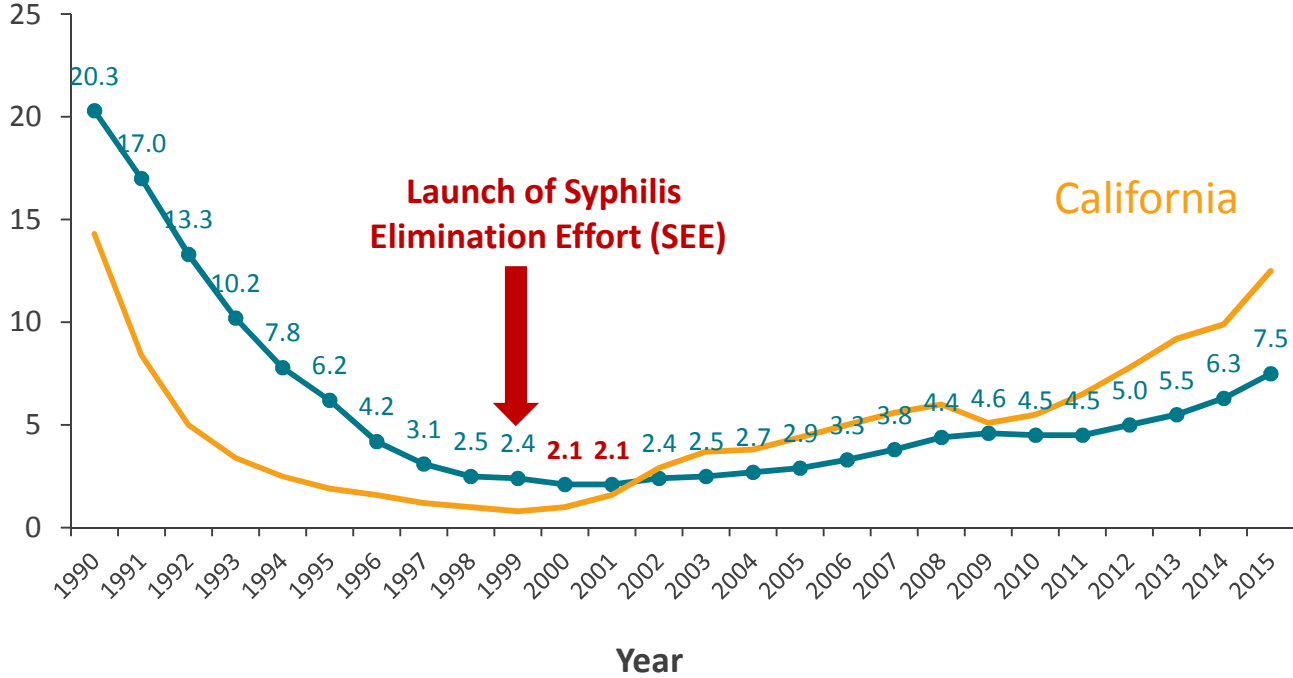
# Primary and Secondary Syphilis — Rate of Reported Cases, United States, 1990–2015

Rate per 100,000 population



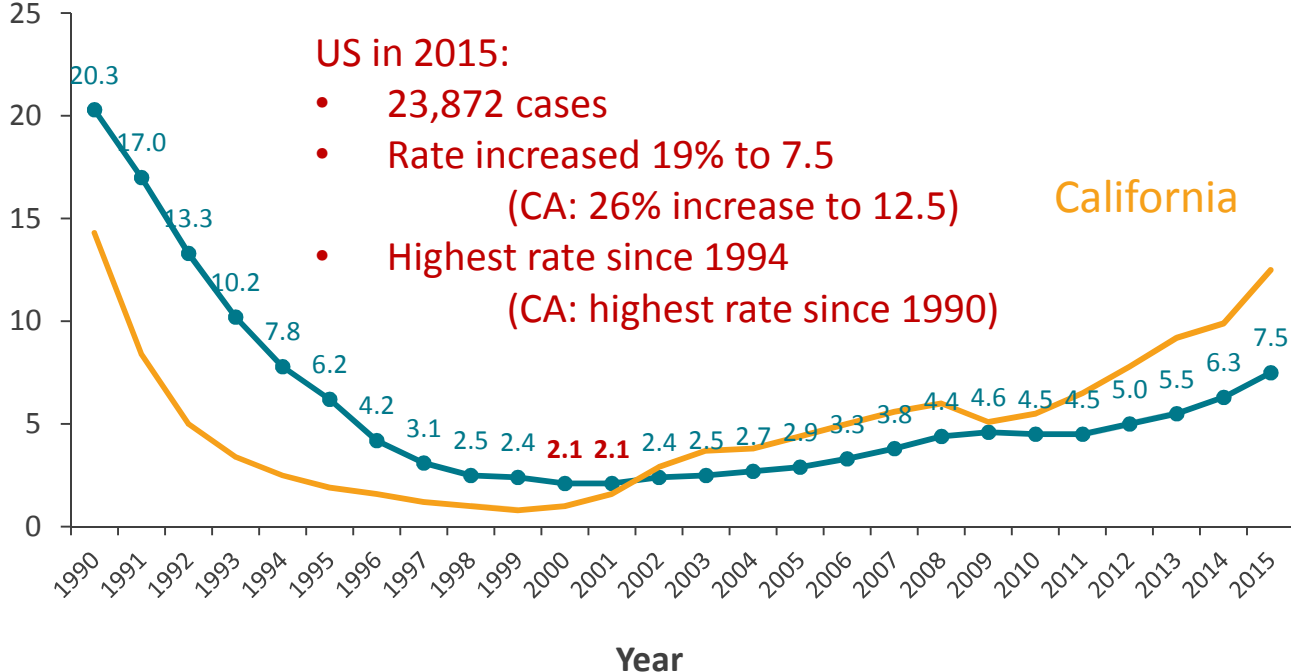
# Primary and Secondary Syphilis — Rate of Reported Cases, United States, 1990–2015

Rate per 100,000 population



# Primary and Secondary Syphilis — Rate of Reported Cases, United States, 1990–2015

Rate per 100,000 population



US in 2015:

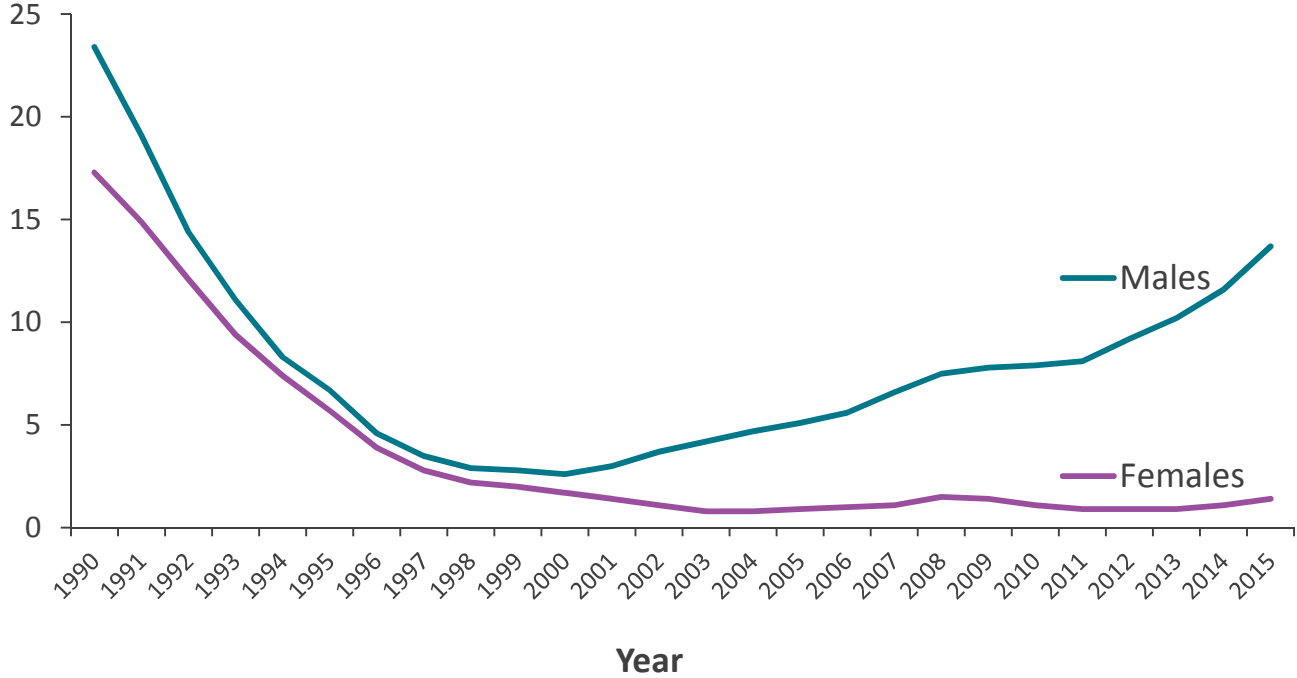
- 23,872 cases
- Rate increased 19% to 7.5  
(CA: 26% increase to 12.5)
- Highest rate since 1994  
(CA: highest rate since 1990)

California



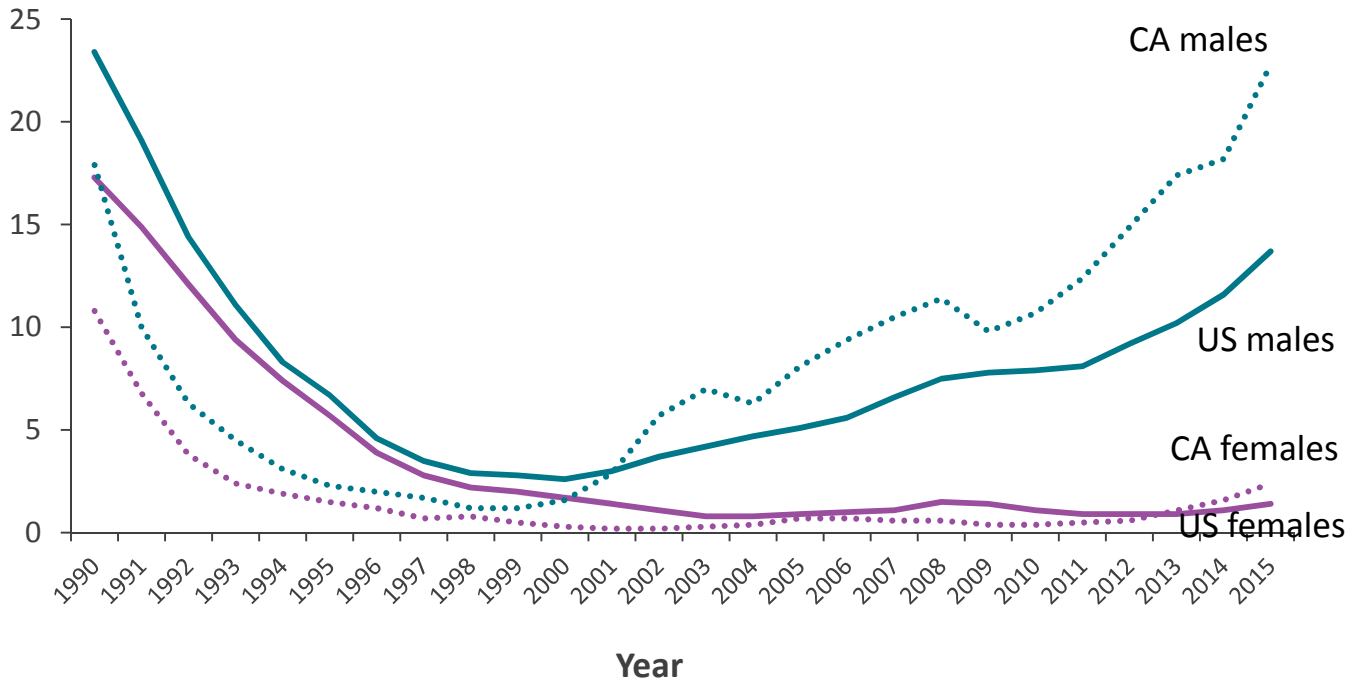
# Primary and Secondary Syphilis — Rate of Reported Cases by Sex, United States, 1990–2015

Rate per 100,000 population



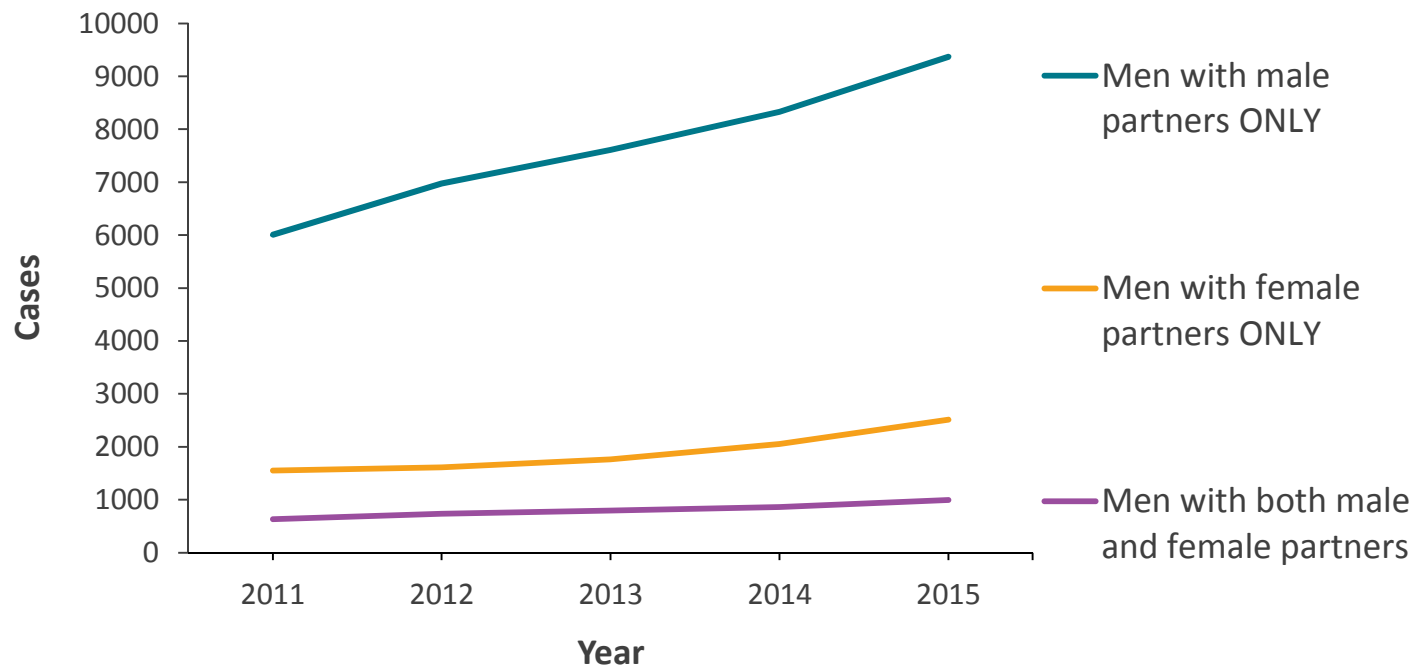
# Primary and Secondary Syphilis — Rate of Reported Cases by Sex, United States, 1990–2015

Rate per 100,000 population



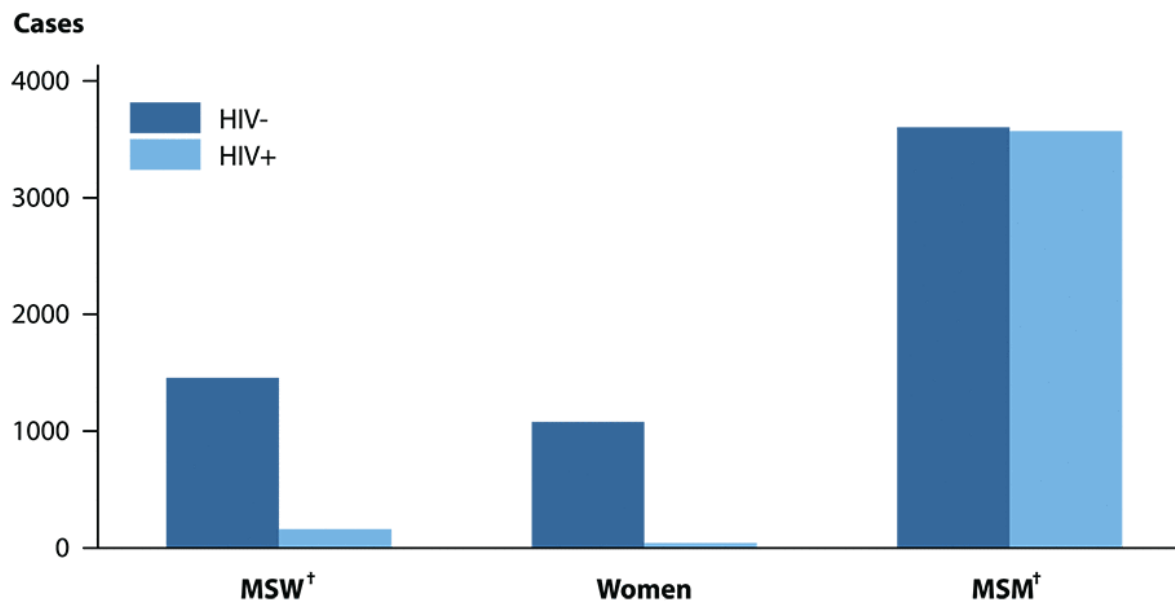


## Primary and Secondary Syphilis Among Men—Reported Cases by Sex of Sex Partner, 37 States\*, 2011–2015



\*37 states were able to classify  $\geq 70\%$  of reported cases of primary and secondary syphilis as either men who have sex with men (MSM), men who have sex with women only (MSW), or women for each year during 2011–2015.

## Primary and Secondary Syphilis — Reported Cases by Sex, Sexual Behavior, and HIV Status, 31 States\*, 2015



\* 31 states were able to classify  $\geq 70\%$  of reported cases of primary and secondary syphilis as MSW, MSM, or women and  $\geq 70\%$  of cases as HIV-positive or HIV-negative during 2015.

<sup>†</sup> MSM = Gay, bisexual, and other men who have sex with men (collectively referred to as MSM); MSW = Men who have sex with women only.



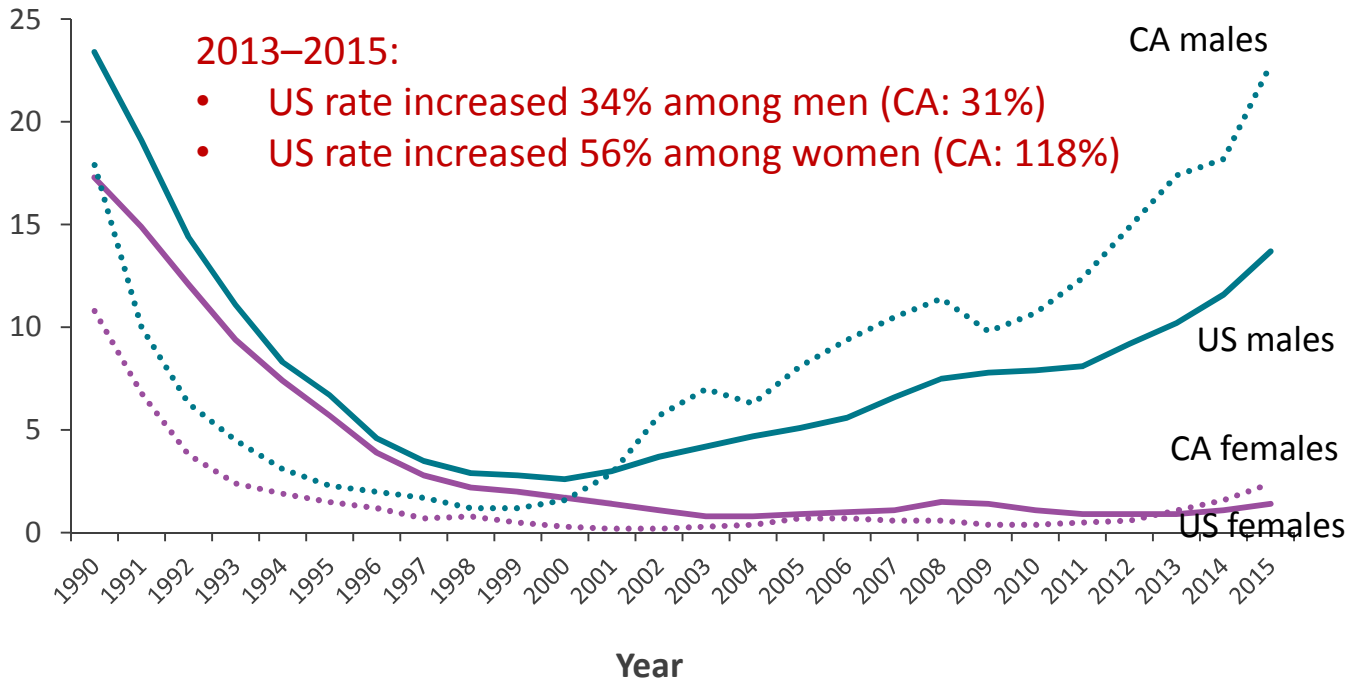
## Primary and Secondary Syphilis —Proportion of Cases by Sex and Sex Behavior, United States, 2015

	US cases	CA cases
MSM	60%	54%
Men who reported male partners only	54%	50%
Men who reported male and female partners	6%	4%
MSW	13%	11%
Men with unknown sex of sex partner	17%	25%
Women	10%	10%

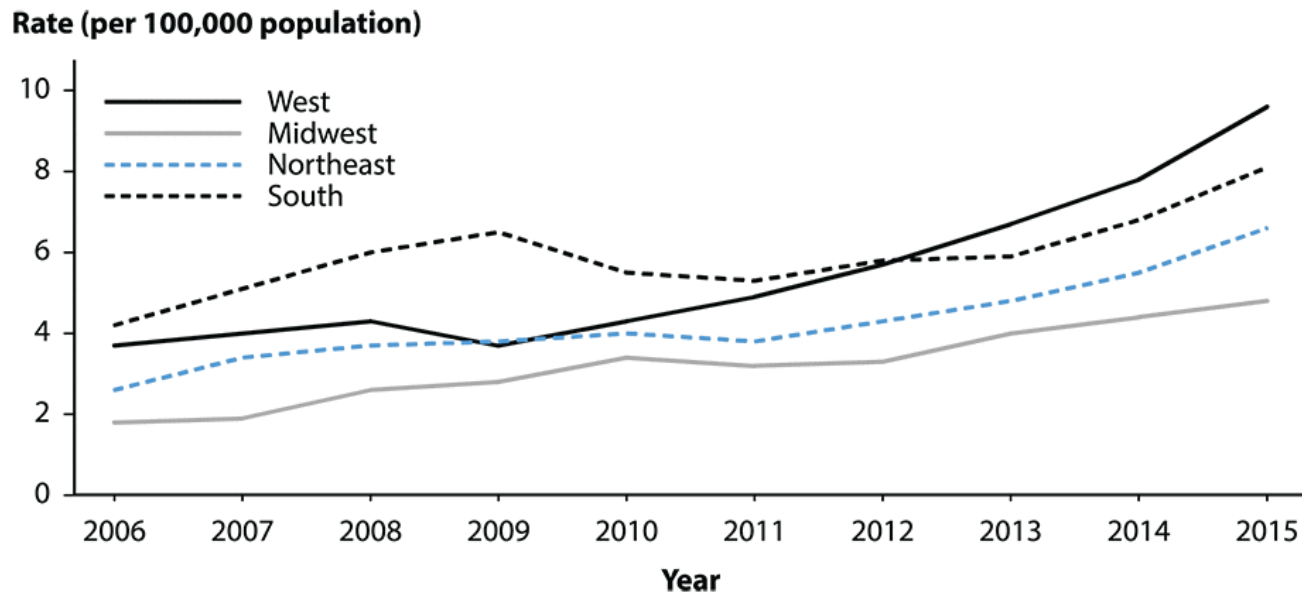


# Primary and Secondary Syphilis — Rate of Reported Cases by Sex, United States, 1990–2015

Rate per 100,000 population



## Primary and Secondary Syphilis — Rates of Reported Cases by Region, United States, 2006–2015



## Primary and Secondary Syphilis Rates\* by Region and Sex, United States, 2011–2015

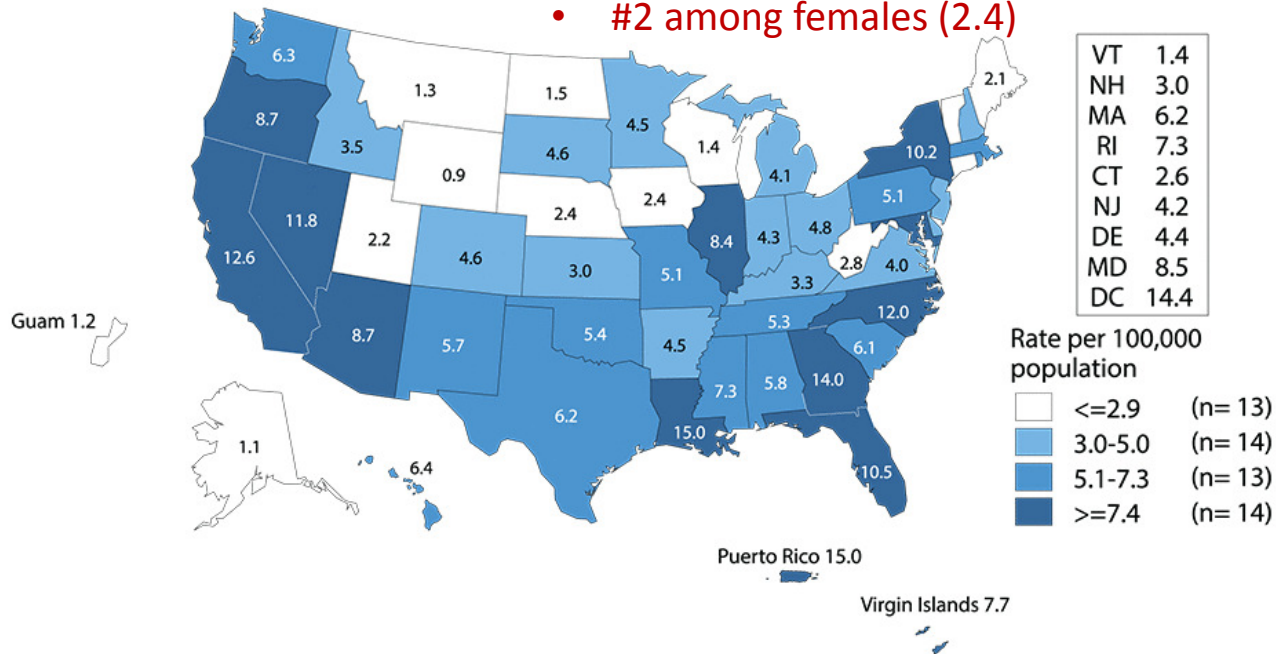
	2011	2012	2013	2014	2015	% change 14–15
<b>West total</b>	<b>4.9</b>	<b>5.7</b>	<b>6.7</b>	<b>7.8</b>	<b>9.6</b>	<b>23%</b>
Females	0.4	0.5	0.8	1.2	1.7	42%
Males	9.3	10.9	12.6	14.4	17.6	22%
<b>Midwest total</b>	<b>3.2</b>	<b>3.3</b>	<b>4.0</b>	<b>4.4</b>	<b>4.8</b>	<b>9%</b>
Females	0.7	0.7	0.7	0.9	1.0	11%
Males	5.8	6.0	7.4	7.9	8.6	9%
<b>South total</b>	<b>5.3</b>	<b>5.8</b>	<b>5.9</b>	<b>6.8</b>	<b>8.1</b>	<b>19%</b>
Females	1.7	1.5	1.4	1.5	1.8	20%
Males	9.1	10.2	10.6	12.3	14.6	19%
<b>Northeast total</b>	<b>3.8</b>	<b>4.3</b>	<b>4.8</b>	<b>5.5</b>	<b>6.6</b>	<b>20%</b>
Females	0.4	0.4	0.4	0.5	0.7	40%
Males	7.4	8.4	9.3	10.7	12.8	20%

\*Rates per 100,000 population.

# Primary and Secondary Syphilis — Rates of Reported Cases by State, United States and Outlying Areas, 2015

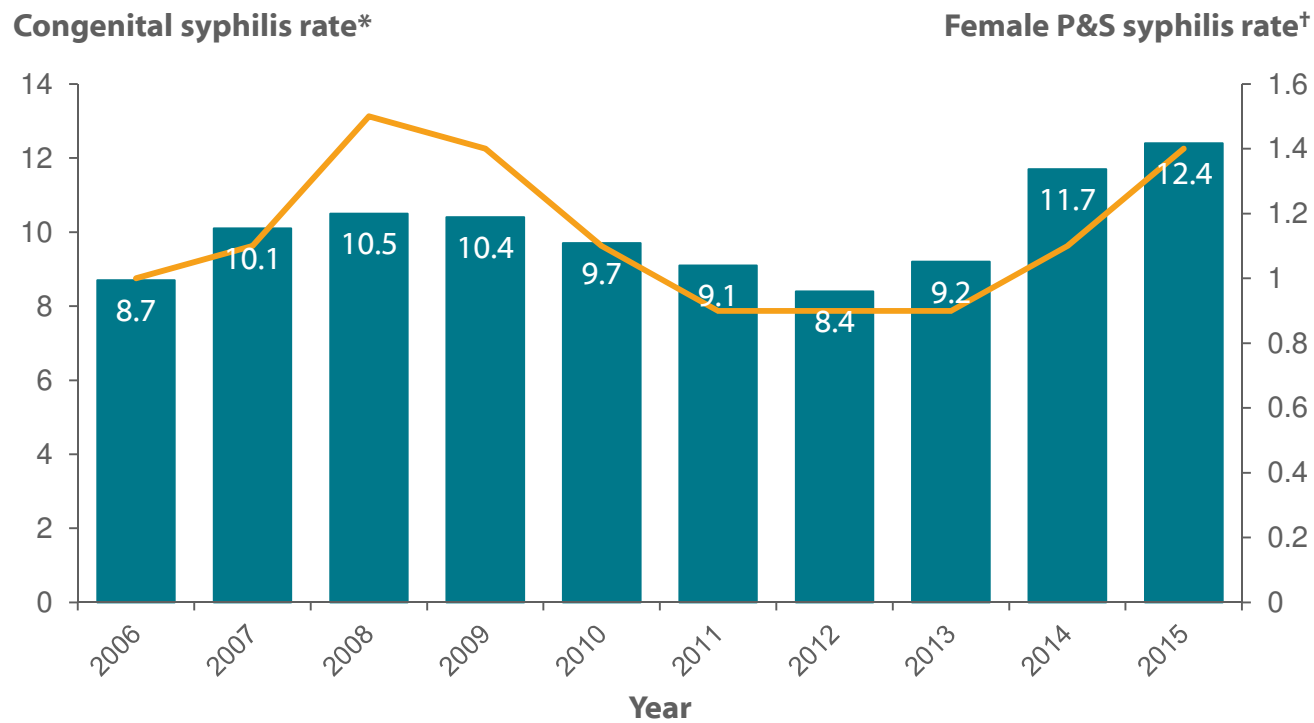
CA state ranking by rates: #3 overall

- #2 among males (23.0)
- #2 among females (2.4)



**NOTE:** The total rate of primary and secondary syphilis for the United States and outlying areas (Guam, Puerto Rico, and Virgin Islands) was 7.6 per 100,000 population.

## Congenital Syphilis and Female Primary and Secondary (P&S) Syphilis — Rates of Reported Cases, United States, 2000–2015



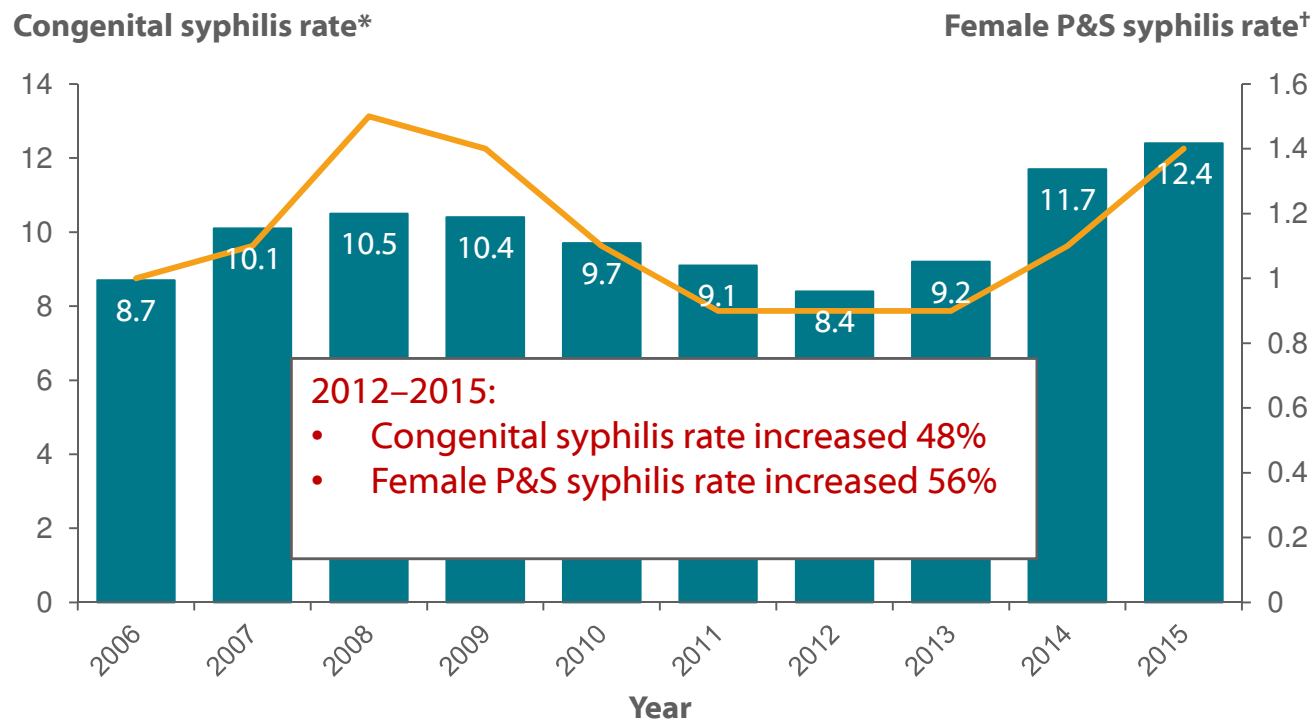
\*Congenital syphilis rate per 100,000 live births

†Female primary and secondary syphilis rate per 100,000 female population





## Congenital Syphilis and Female Primary and Secondary (P&S) Syphilis — Rates of Reported Cases, United States, 2000–2015

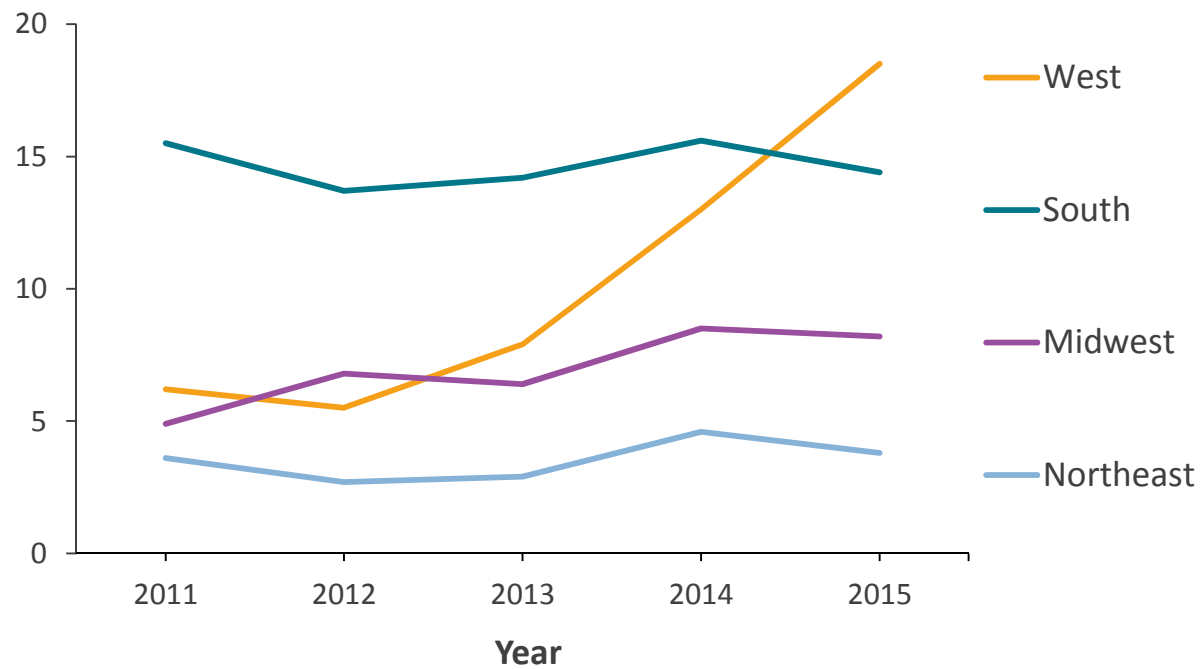


\*Congenital syphilis rate per 100,000 live births

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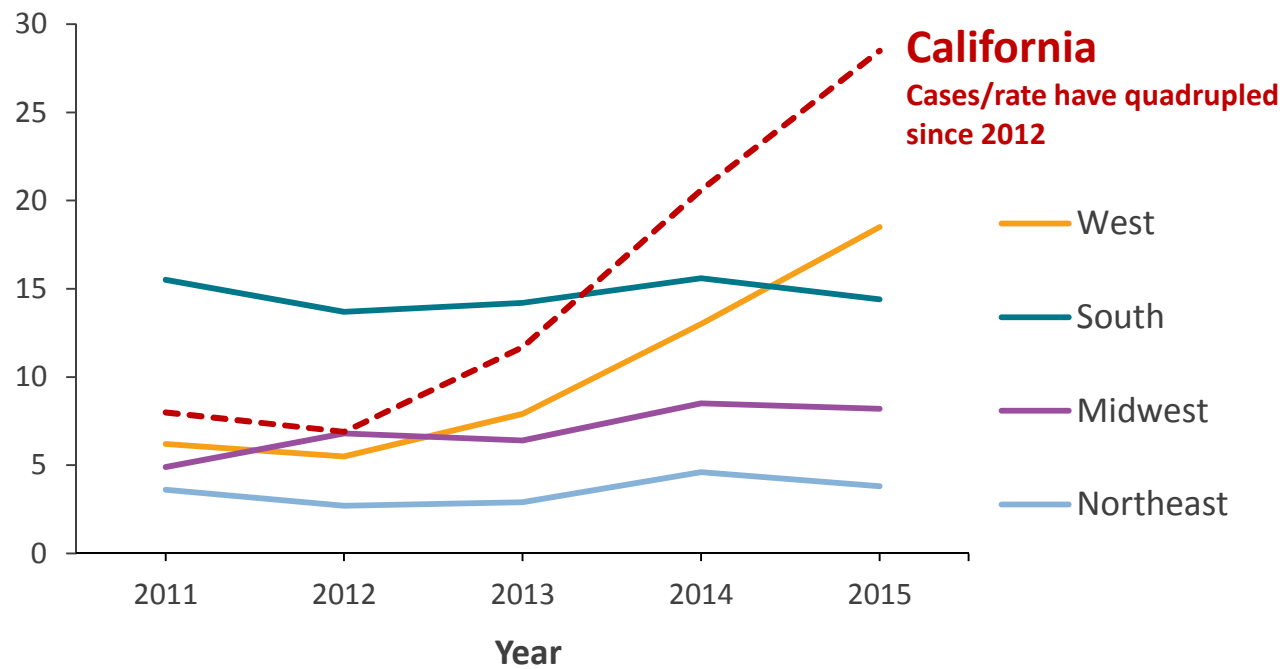
## Congenital Syphilis — Rates of Reported Cases by Region, United States, 2011–2015

Rate per 100,000 live births



## Congenital Syphilis — Rates of Reported Cases by Region, United States, 2011–2015

Rate per 100,000 live births



## Congenital Syphilis — States with Largest Absolute Increases in Reported Cases, United States, 2014–2015

State	2014 Cases	2015 Cases	% Increase 2014–2015	Absolute Increase 2014–2015
<b>United States</b>	<b>461</b>	<b>487</b>	<b>6%</b>	<b>26</b>
<b>California</b>	<b>102</b>	<b>141</b>	<b>38%</b>	<b>39</b>
Louisiana	46	53	15%	7
Georgia	17	21	24%	4
Oregon	2	6	200%	4
Illinois	27	30	11%	3
Nevada	5	8	60%	3
North Carolina	6	9	50%	3
Pennsylvania	4	7	75%	3
Tennessee	2	5	150%	3
Washington	2	5	150%	3

## Congenital Syphilis — States With Highest Number of Cases and Highest Rates per 100,000 Live Births, 2015

### States with Highest Number of Cases:

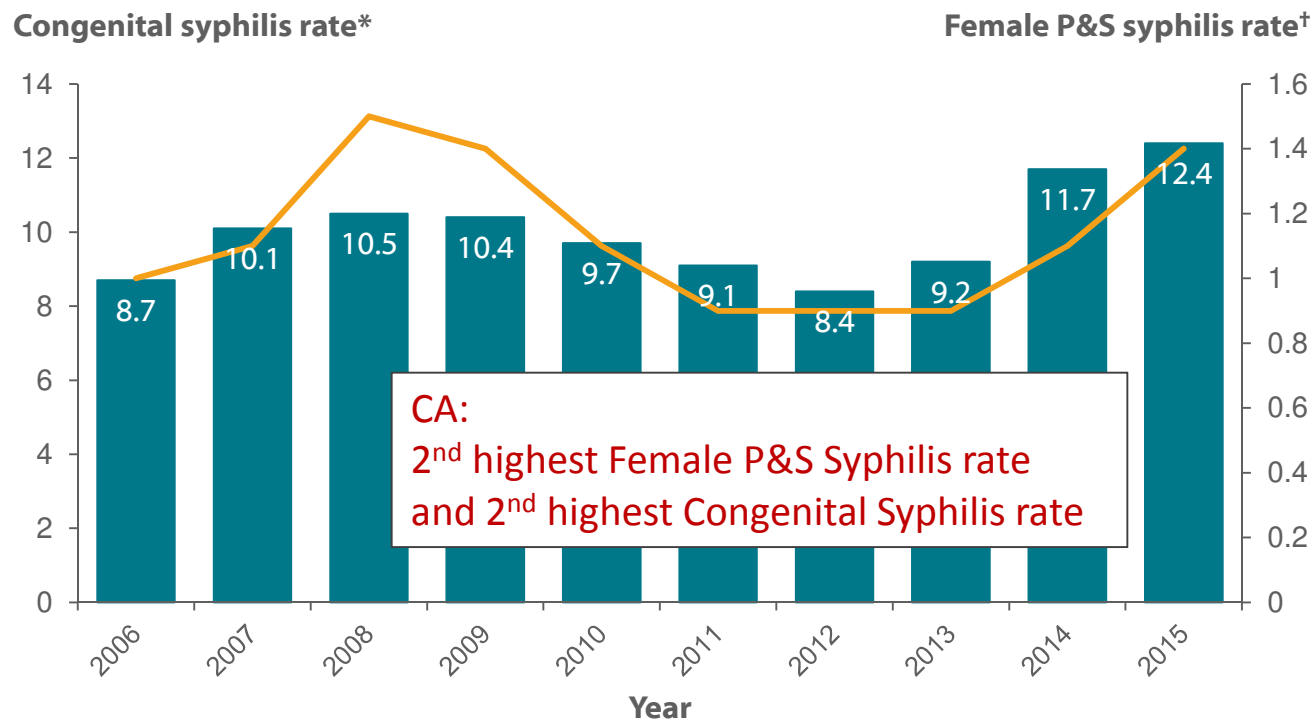
Rank	State	2015 Cases
<b>1</b>	<b>California</b>	<b>141</b>
2	Louisiana	53
3	Texas	49
4	Florida	38
5	Illinois	30
6	Georgia	21
7	Maryland	18
8	Ohio	17
9	Arizona	14
10	New York	12

### States with Highest Rates:

Rank	State	2015 Rate
1	Louisiana	83.9
<b>2</b>	<b>California</b>	<b>28.5</b>
3	Maryland	25.0
4	Nevada	22.8
5	Illinois	19.1
6	Florida	16.4
7	Arizona	16.4
8	Georgia	16.3
9	Oregon	13.3
10	Arkansas	13.2



## Congenital Syphilis and Female Primary and Secondary (P&S) Syphilis — Rates of Reported Cases, United States, 2000–2015



\*Congenital syphilis rate per 100,000 live births

† Female primary and secondary syphilis rate per 100,000 female population

## Prenatal Care Status of Congenital Syphilis Cases —United States and California, 2015

Mother received prenatal care	US cases
Yes, and initiated $\geq 30$ days PTD*	52%
Yes, but initiated $< 30$ days PTD	6%
Yes, but unknown timing	6%
No	25%
Unknown	11%

\*PTD = prior to delivery



## Prenatal Care Status of Congenital Syphilis Cases —United States and California, 2015

Mother received prenatal care	US cases	CA cases
Yes, and initiated $\geq 30$ days PTD*	52%	39%
Yes, but initiated $< 30$ days PTD	6%	8%
Yes, but unknown timing	6%	11%
No	25%	39%
Unknown	11%	3%

\*PTD = prior to delivery





## Maternal Testing and Treatment During Pregnancy —Congenital Syphilis Cases, United States, 2015

	US cases
Not tested in time	42%
Infected with syphilis during pregnancy, after initial screening test	16%
Tested in time (and positive), but not treated in time	14%
Received inadequate regimen	3%
Other/Can't classify based on data provided	26%



## Maternal Testing and Treatment During Pregnancy —Congenital Syphilis Cases, United States, 2015

	US cases	CA cases
Not tested in time	42%	52%
Infected with syphilis during pregnancy, after initial screening test	16%	12%
Tested in time (and positive), but not treated in time	14%	14%
Received inadequate regimen	3%	0%
Other/Can't classify based on data provided	26%	22%



## Summary of National Surveillance Data

- After low in 2000–2001, P&S syphilis rates increased almost every year
  - Increase largely attributable to increases among men, MSM
  - Majority of cases among MSM
  - High rates (~50%) of HIV co-infection among MSM with syphilis
  - Rate increased among both men and women 2013–2015 (and 2016)
  
- Congenital syphilis rate increased 48% during 2012–2015
  - Increase mirrored 56% increase in female P&S rate
  - Delayed or lack of prenatal care significant barrier to prevention
  - Missed opportunities among women in prenatal care



## California and the National Picture

- Similar trends as US
  - Increases in male and female syphilis
  - Majority of cases are among MSM
  - Similar male-to-female rate ratio
  - High prevalence of HIV co-infection among MSM with syphilis
- Overall higher rates, burden of disease compared with national average
- Rate of increase among females higher than national average
- Rate of increase in congenital syphilis higher than national average
  - Lack of prenatal care/late prenatal care more common?



## Public Health Implications

- Two epidemics
  - MSM networks
  - Heterosexual networks
- Different approaches may be needed for different epidemics
  
- Historic success in addressing localized, heterosexual epidemics
  - Intensive partner services, contact tracing
  - Targeted community outreach, screening, treatment to reach at-risk individuals in non-clinical settings
  - Treatment in the field
  
- Less success addressing large, MSM epidemics, need for new approaches



## Importance of Collecting and Using Local Data

- Monitoring disease trends
- Identifying populations at increased risk
  
- Effectiveness of prevention activities in different populations
  - E.g., partner services, yield of screening at various settings
  
- Targeting specific steps in prevention cascade/care continuum, e.g.:
  - 14% of CS cases were tested in time but not treated in time → prioritize females of child-bearing age for investigation, partner services
  - 42% of CS cases were not tested in time → promote early prenatal care and syphilis screening at the first prenatal visit



## Selected CDC Activities

- MSM syphilis
  - FY2017 Research FOA to understand MSM syphilis networks and interactions with health care services
  - Working with partners to increase screening among MSM
  - Evaluating the impact of syphilis partner services among MSM
- Congenital syphilis
  - Working with high morbidity jurisdictions to implement case reviews, identify best practices, and develop toolkits for local assessment and intervention
- Facilitating lab reporting of pregnancy status
- General
  - Laboratory support for new test development
  - Improving surveillance for serious sequelae



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TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.





