



# Measles Update

Nevada County Board of Supervisors

Tuesday, April 23, 2019

Presenter: Dr. Ken Cutler, Health Officer

# Today's Presentation

- Measles 101
- Measles-Mumps-Rubella Vaccine (MMR)
- Some history
- Current international, national, state, and local data
- Why Nevada County is particularly vulnerable to an outbreak
- What an outbreak could mean
- Current NCPHD/partner efforts

# Measles

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- Highly contagious viral illness
- First described in 7th century
- Near universal infection of childhood in prevaccination era
- Common and often fatal in developing areas

# Annual Measles Disease Burden US, 1950s (prevaccine era)

- 3-4 million cases
  - ~ 500,000 reported cases
- Severe complications
  - 4,000 encephalitis cases
  - 150,000 respiratory complications (pneumonia)
- 48,000 hospitalizations
- 450 deaths

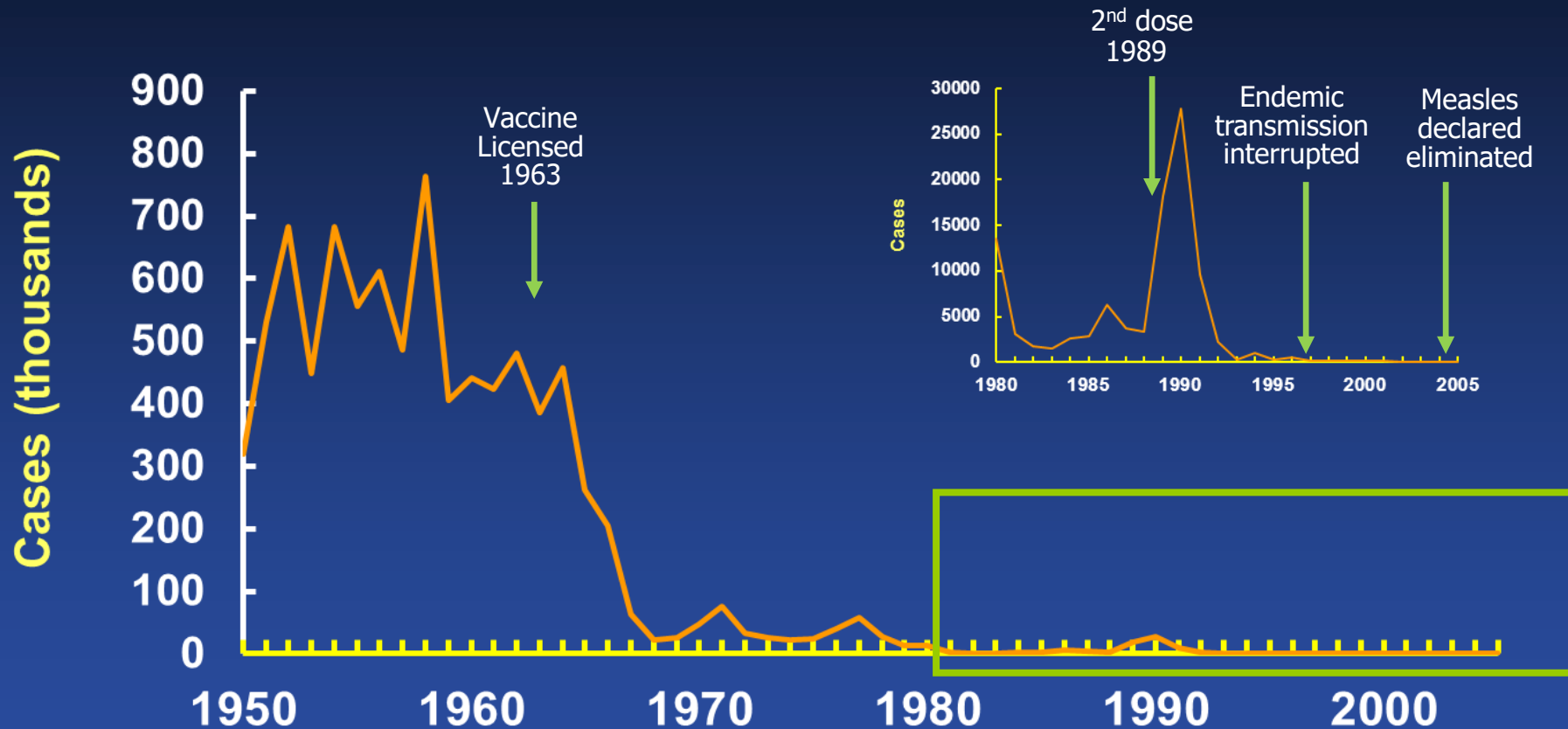


# Measles Vaccine

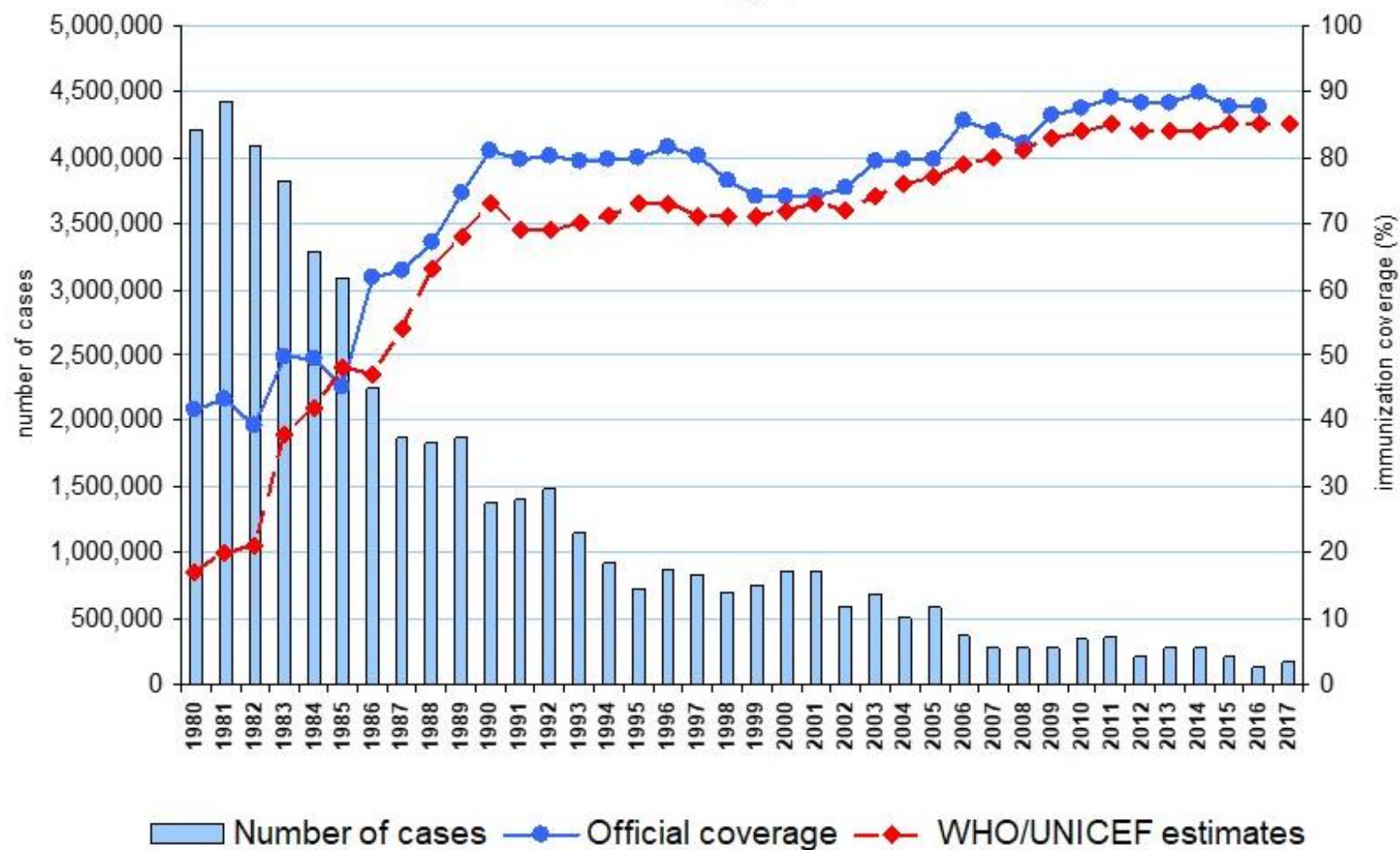
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- Composition      Live virus
- Efficacy            95% (range, 90%-98%)
- Duration of immunity      Lifelong
- Schedule            2 doses
- In the U.S. is only available as part of MMR or MMRV

# Measles—United States, 1950-2005



## Measles global annual reported cases and MCV1 coverage, 1980-2017



Source: WHO/IVB database, 2018  
 194 WHO Member States.  
 Data as of September 2018



# Then...

## 2018

**Alarming global surge of measles cases a growing threat to children – UNICEF**

- Ten countries accounted for approximately three-quarters of the total increase in measles in 2018, including significant outbreaks in Brazil, Madagascar, the Philippines, Ukraine, and Yemen.

## 2019

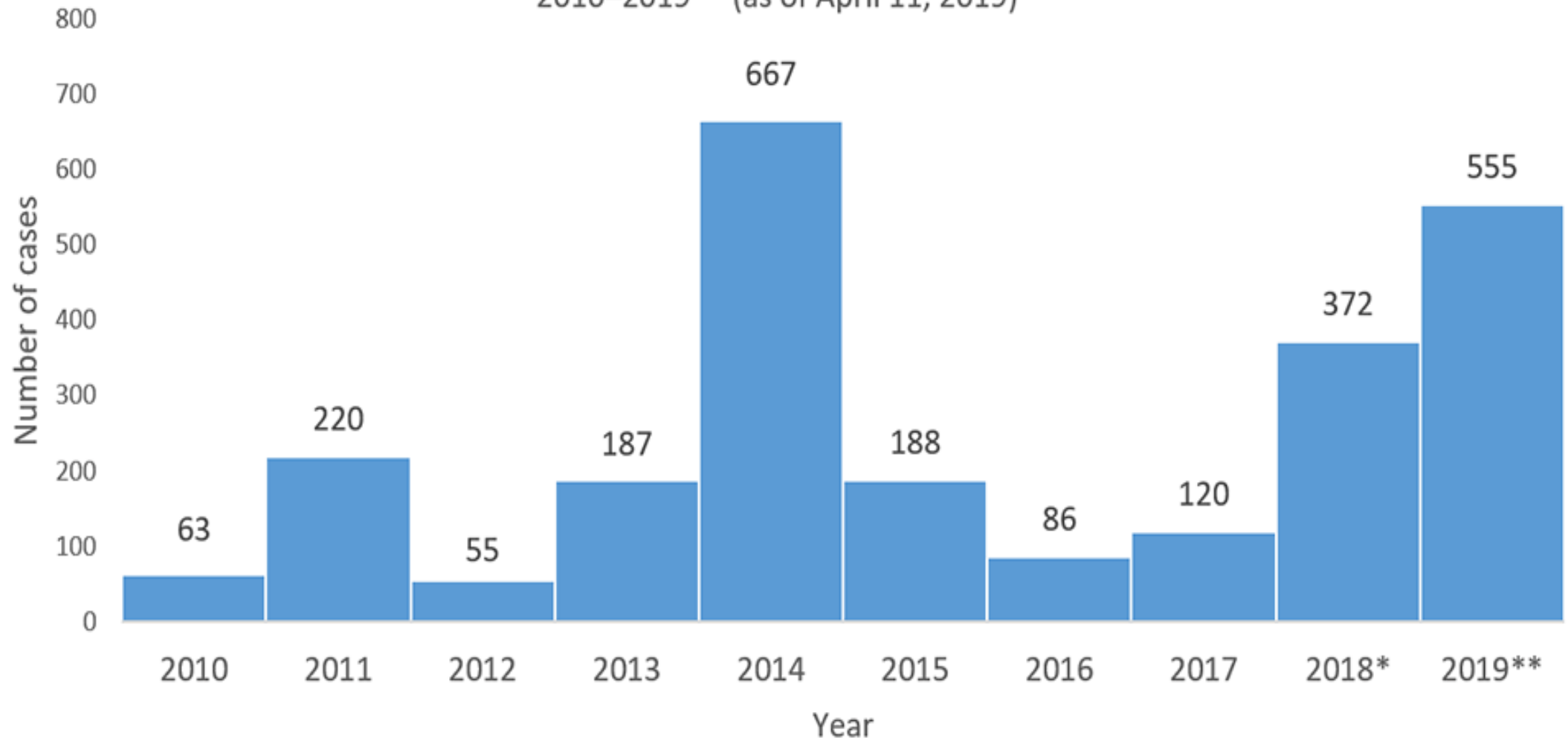
**Staggering number of measles cases in US just part of 300% global uptick**

- The World Health Organization (WHO) reports that preliminary global data shows that reported cases of measles are up by 300% in the first three months of 2019 as compared to the same timeframe in 2018.



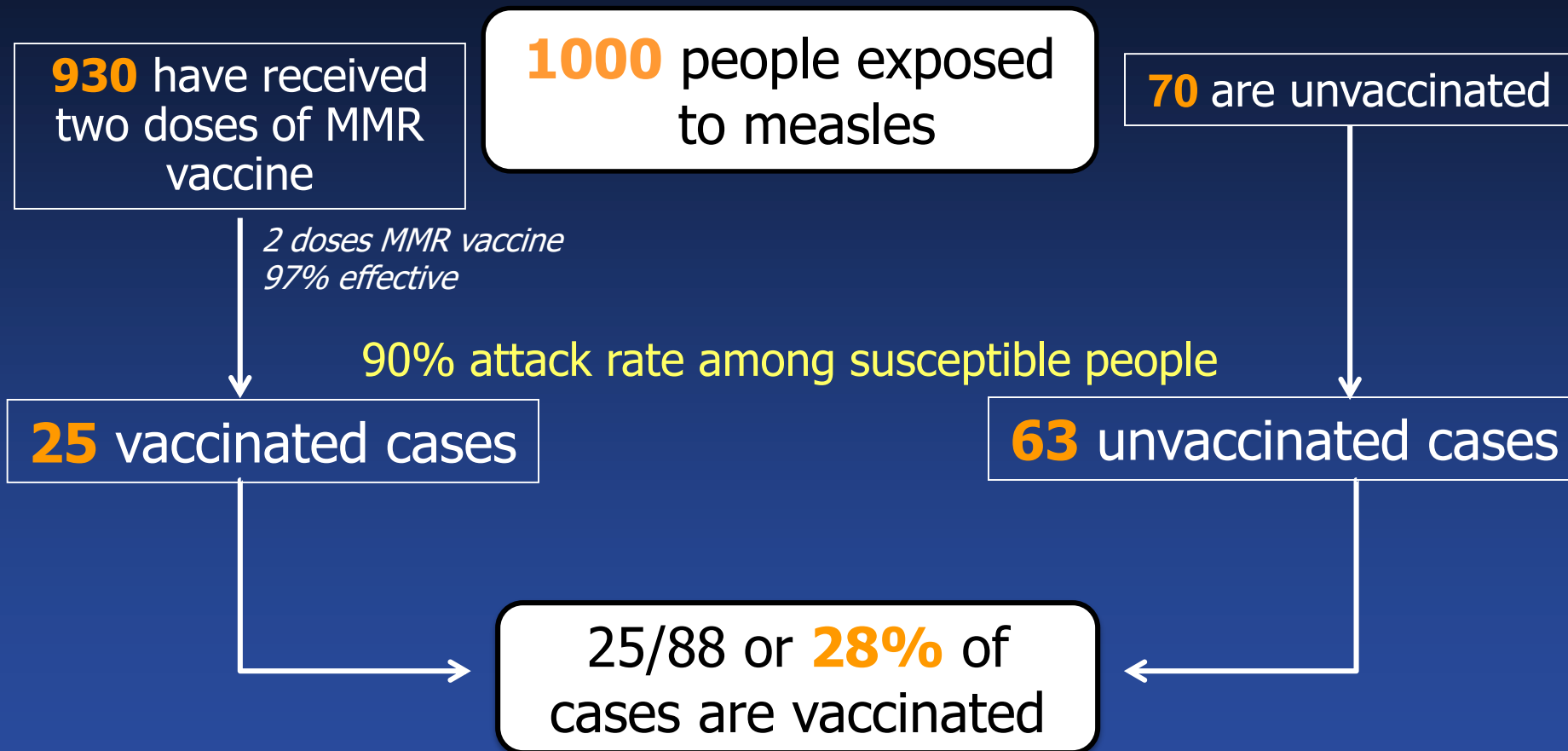
# NUMBER OF MEASLES CASES REPORTED BY YEAR

2010–2019\*\* (as of April 11, 2019)



Source: <https://www.cdc.gov/measles/cases-outbreaks.html> uploaded 4/16/19

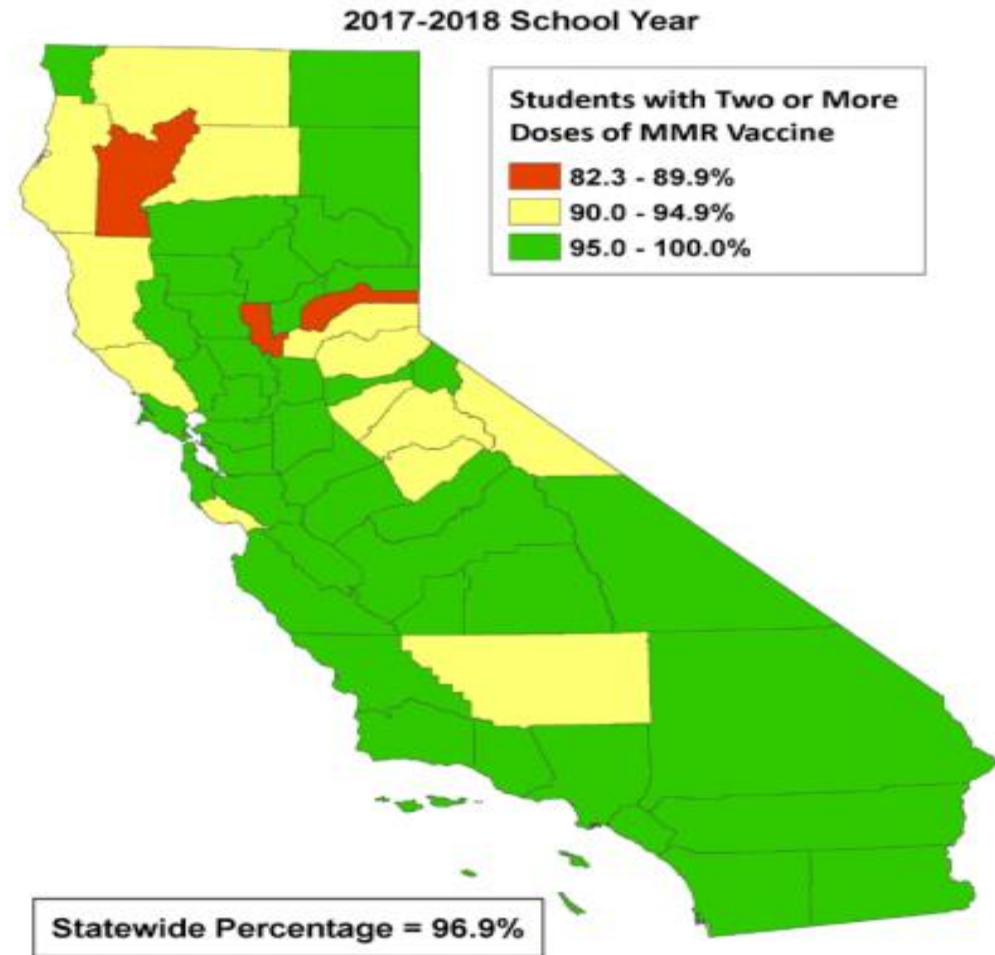
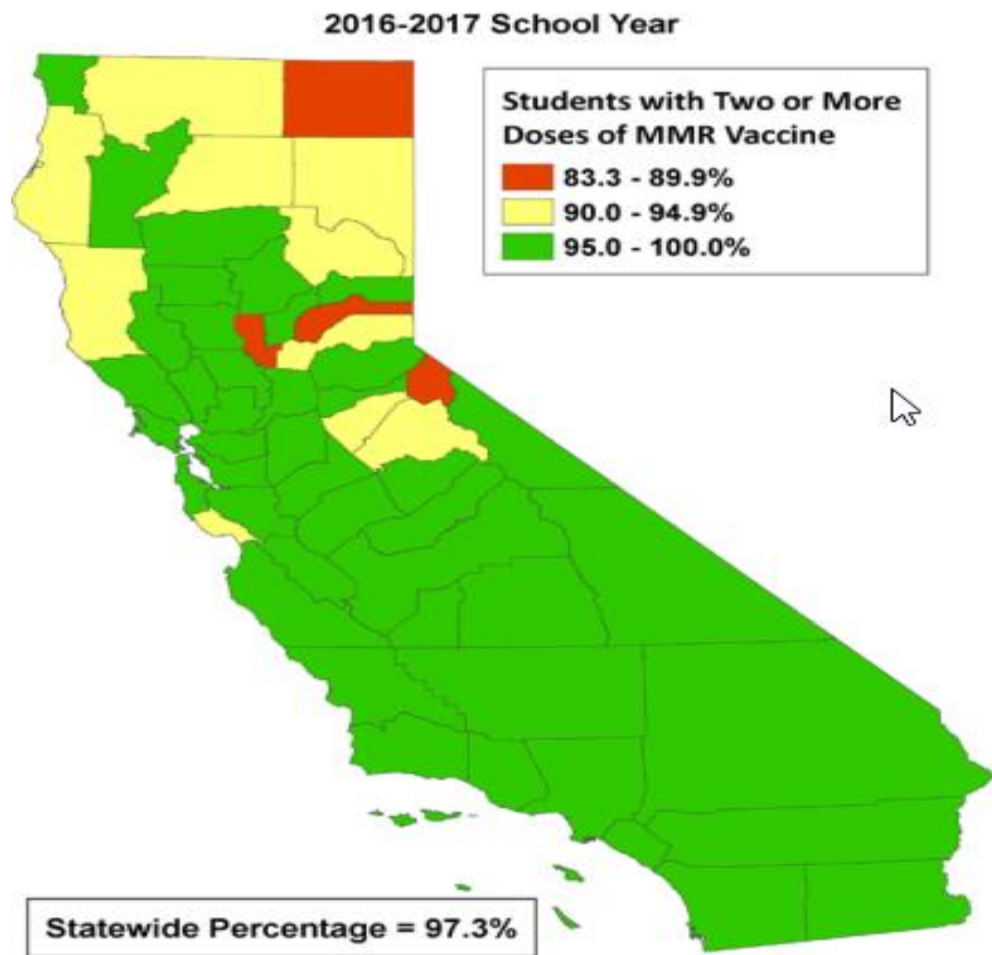
# Why do vaccinated people become infected with measles?



# 2017-2018 Kindergarten IZ Assessment


	All Required IZs	Conditional	PME	Other*
<b>California</b>	95.1%	1.8%	0.7%	1.1%
<b>Nevada County</b>	81.7%	4.3%	7.7%	6.0%

\*Others lacking required immunizations includes students in independent study who do not receive classroom-based instruction or home-based private schools or received IEP services.



**Figure 10. Kindergarten Students with Two or More Doses of MMR Vaccine, by County, 2016-2017 and 2017-2018 School Years**

# Top 10 CA Schools For PMEs In 2017-18

	<b>City</b>	<b>School Name</b>	<b>%PME</b>
1	Sebastopol	Sebastopol Independent Charter	58
	2 <b>Nevada City</b>	<b>Yuba River Charter</b>	<b>52</b>
3	Sebastopol	SunRidge Charter	51
4	Petaluma	Live Oak Charter	43
5	Sausalito	The New Village School	38
6	Berkeley	Berkeley Rose Waldorf School	38
7	Arcata	Coastal Grove Charter	37
8	Calpella	The Waldorf School of Mendocino County	37
9	Santa Rosa	Summerfield Waldorf School and Farm	35
10	Santa Cruz	Santa Cruz Waldorf School	33

# Costs of Measles Investigations\*

- 2008 – San Diego CA outbreak with 12 cases, including one hospitalization, and 839 exposed persons
  - Public health cost of each case each was \$10,376, including 1,745 person hours on investigation and containment efforts
  - Direct medical costs for cases and exposed infants were \$16,163 (\$14,458 for hospitalized child)
  - Family expenses for quarantine of 48 children were \$775/child
- 2008 – Tucson AZ outbreak with 14 cases
  - 2 hospitals spent \$799,136 responding to 7 healthcare-associated cases; 56% of the cost was due to furloughs of HCP due to lack of evidence of immunity
- 2011 – 16 measles outbreaks in the U.S. with 107 total cases
  - Estimated public health costs ranged from \$2.7-\$5.3 million
  - Estimated total contacts ranged from 8,936-17,450
  - Estimated total public health hours ranged from 42,635-83,133 – equivalent to full time work for 20-39 staff for a year
  - Each public health department incurred costs of \$11,933-\$29,833/case
  - Does not include costs to hospitals, clinics, schools, etc.
- 2013 – 1 measles case in ambulatory care clinic
  - Exposure to 53 patients, 60 parents, and 10 employees
  - Overall clinic costs were \$5655

\*Sugerman et al. Pediatrics. 2010;125(4), Chen et al. J Infect Dis. 2011 Jun 1;203(11), Ortega-Sanchez, et al. Vaccine. 2014;32, Wendorf et al. Pediatr Infect Dis J. 2015;34(6).

# Nevada County Public Health Actions

- Communicate with local providers and hospitals
- Continue immunization outreach efforts
- Public messaging: evidence-based
- Work with school nurses on recognition and reporting
- Provide consultation on diagnosis, laboratory testing, post-exposure prophylaxis and contact investigations
- Monitor the state and regional situation through CDPH and CCLHO

# Questions

