

# Epidemiology of Rubella and Congenital Rubella Syndrome (CRS) in the United States

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## Rubella, United States, <1967

- ❑ Peak incidence among children aged 5-9 years
- ❑ Seasonal pattern (highest incidence during spring)
- ❑ Epidemics every 6-9 years

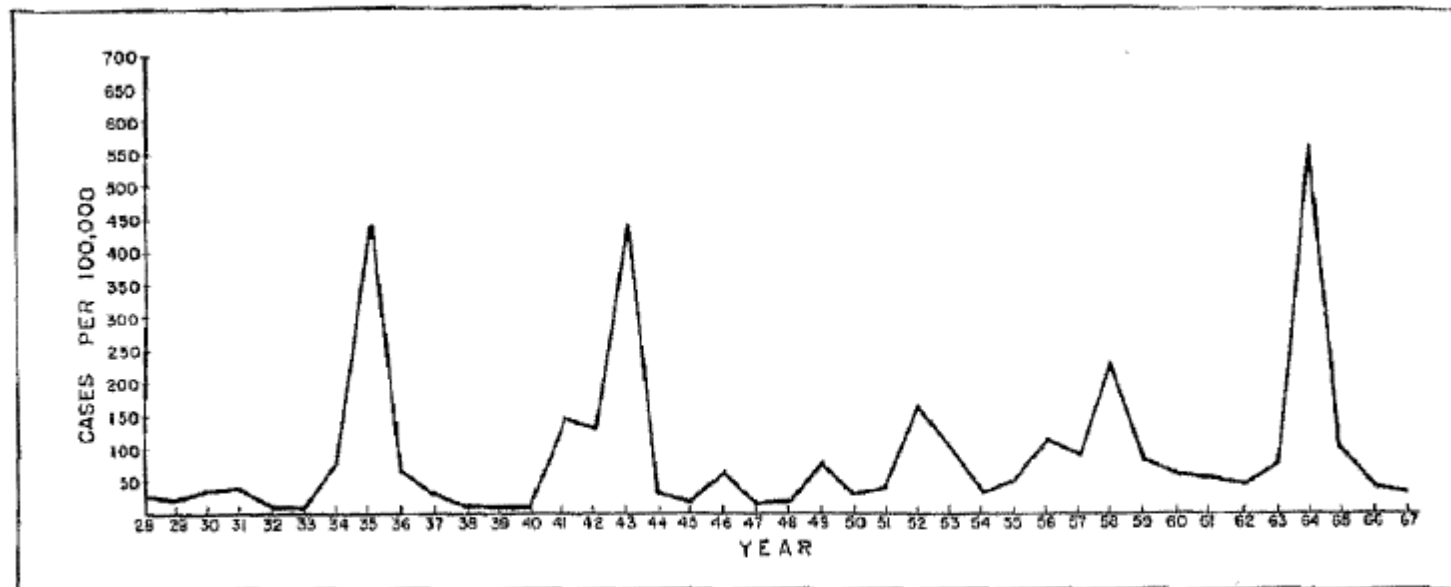


Fig 1.—Incidence of rubella from 1928 to 1967, in ten selected areas: Maine, Rhode Island, Connecticut, New York city, Ohio, Illinois, Wisconsin, Maryland, Washington, and Massachusetts.

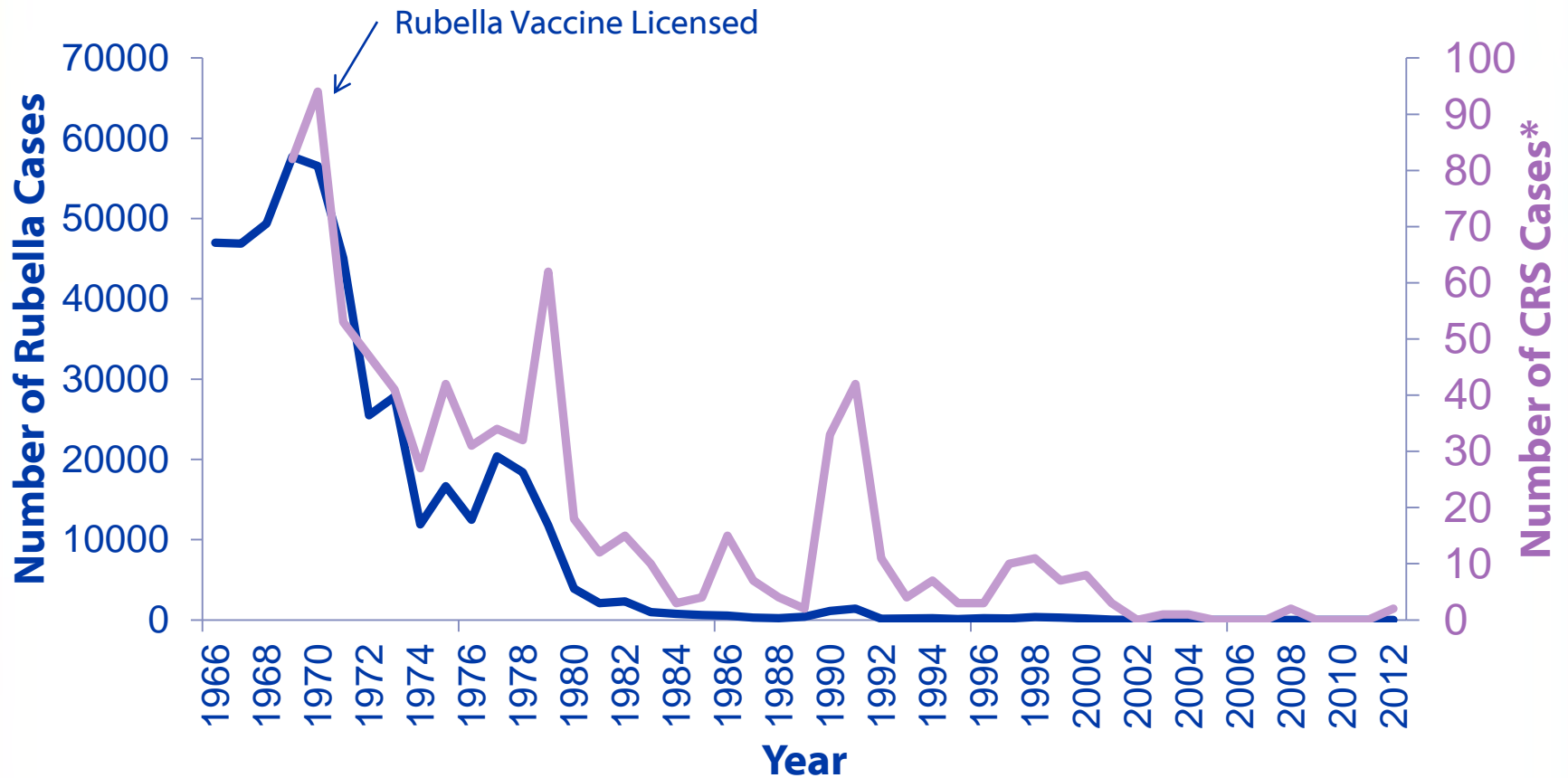
Source: Witte JJ, et al. *Am J Dis Child*. Jul 1969;118(1):107-111.

# **US Rubella Epidemic and Congenital Rubella Syndrome, 1964-1965**

- ❑ 12.5 million rubella cases**
- ❑ 2,000 encephalitis cases**
- ❑ 11,250 abortions (surgical/spontaneous)**
- ❑ 2,100 neonatal deaths**
- ❑ 20,000 CRS cases**
  - Deaf – 11,600**
  - Blind – 3,580**
  - Mentally Retarded – 1,800**
- ❑ Cost - \$1.5 billion**

Source: National Communicable Disease Center. Rubella Surveillance Bethesda, MD: U.S. Department of Health, Education, and Welfare; 1969.

# Rubella and CRS, United States, 1966-2012†

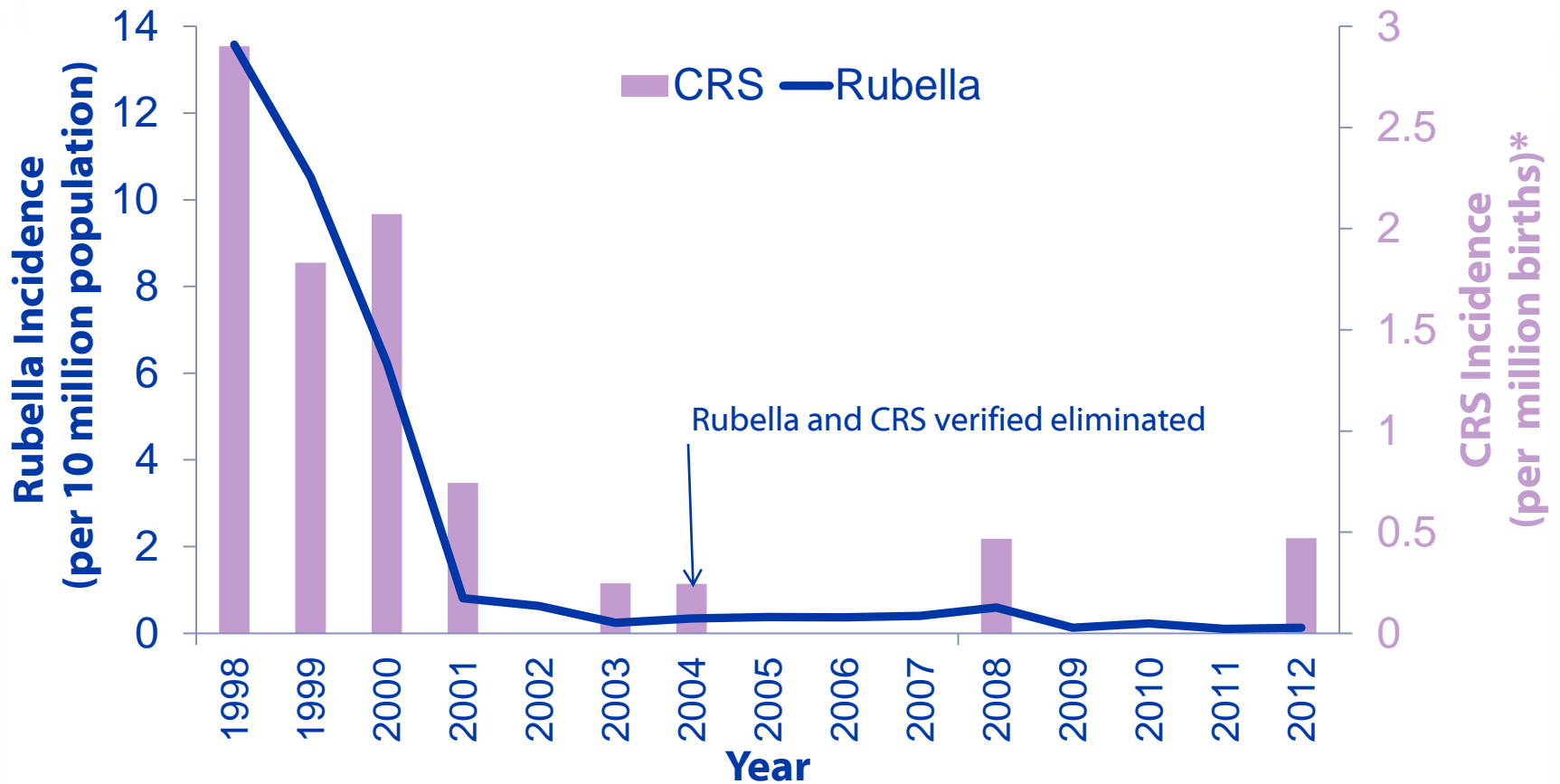


\*By year of birth

†Preliminary data as of June 2012

# Rubella and CRS, United States, 1998-2012<sup>†</sup>

## Pre Elimination and Elimination Era



\*By year of birth

<sup>†</sup>Preliminary data as of June 2012

# Rubella, United States, 2001-2012<sup>†</sup>

## Summary

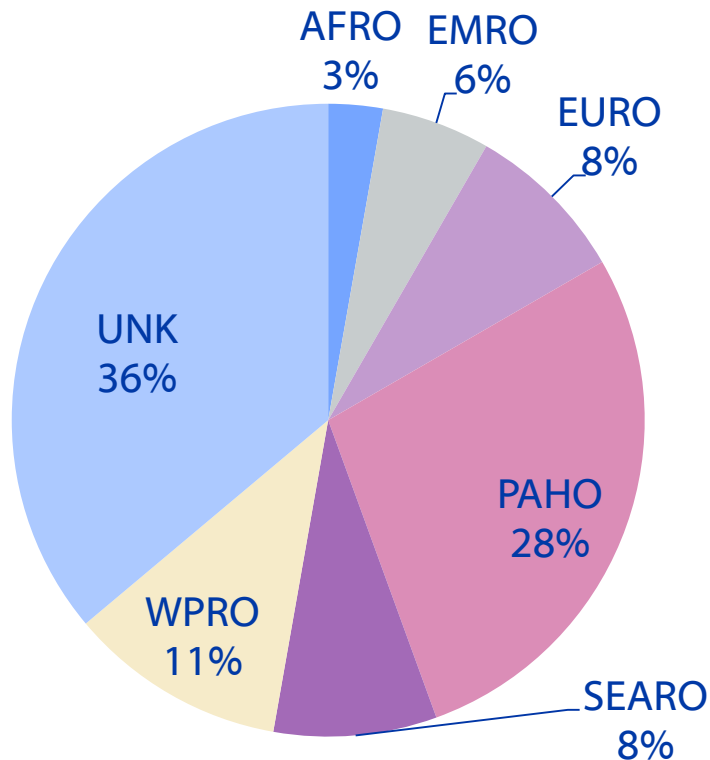
	2001-2004	2005-2012 <sup>†</sup>
Median annual number of rubella cases (range)	14 (7-23)	9 (3-18)
% aged ≥15 years	76	86
% vaccinated (reported)	22	11
% US born	38	29
Number of rubella outbreaks (max size)	1 (5)	2 (3)
Number of states reporting rubella cases	22	24
Median number reported per state (range)	2 (1-10)	2 (1-8)

<sup>†</sup>Preliminary data as of June 2012

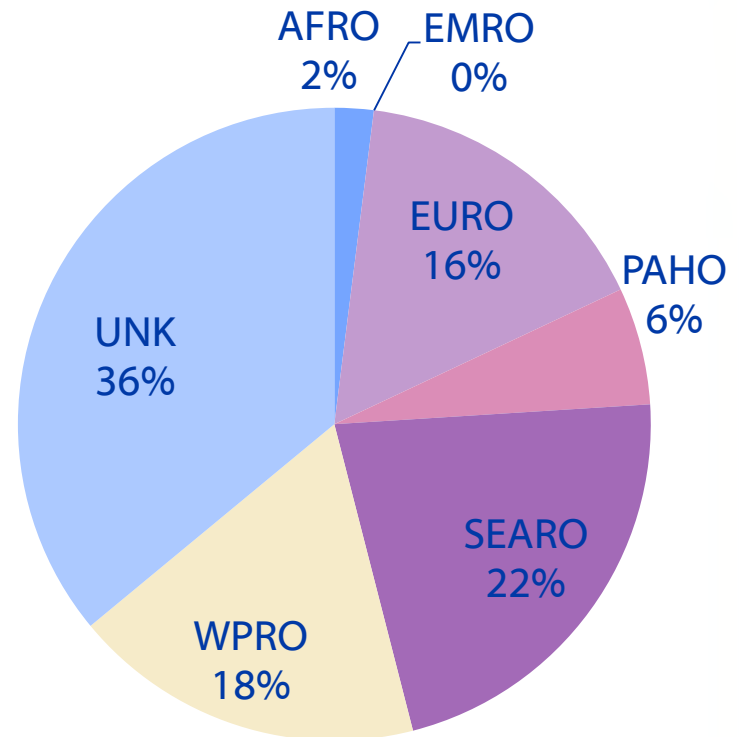
# Rubella, United States, 2001-2012<sup>†</sup>

## Country of Birth other than the US

2001-2004 (N=36)



2005-2012 (N=50)



<sup>†</sup>Preliminary data as of January 2012

# CRS, United States, 2005-2012<sup>†</sup>

## Reported Cases

Year of Report	State	Birth Year	Age at Diagnosis	Exposure setting during pregnancy	Mother's country of birth	Import source	Genotype
2005	NH	2004	10 weeks	Mother in Ivory Coast	Liberia	Ivory Coast	1G
2006	CA	2003	21 months	Mother in Nigeria	Nigeria	Nigeria	
2009	CA	2008	6 months	Mother in India, Singapore, China	Unknown, US Resident	Most likely India	2B
2009	NJ	2008	7 months	Unknown	US	Unknown	
2012	MD	2012	<1 month	Tanzania	Tanzania	Tanzania	1G
2012	AL	2012	<1 month	Nigeria	Nigeria	Nigeria	1G

<sup>†</sup>Preliminary data as of June 2012



## Updated Estimates of the Burden of CRS, Globally<sup>\*†</sup> in 1996 and 2008

Regions	1996		2008	
	Number	Range	Number	Range
<b>Africa</b>	<b>31, 133</b>	<b>6127- 71017</b>	<b>42,440</b>	<b>9,130- 97,228</b>
Americas	9,701	2605- 19274	24	0- 301
East Mediterranean	9,265	3054- 22287	5,895	69- 20,384
European	9,509	5742-13240	243	12-1,949
<b>Southeast Asia</b>	<b>50,637</b>	<b>3644-141432</b>	<b>52,643</b>	<b>3,418-149,274</b>
Western Pacific	10,098	3495-17839	10,641	3,741-18,618
GLOBAL	120,342	25245-285089	111,888	16,369-287,754

Slide courtesy of Susan Reef, Global Immunization Division, Center for Global Health

\*unpublished, Adams E, Vynnycky E

†All member states

# WHO Position Paper\* and GAVI

## □ WHO position paper

- SAGE recommends that countries should take the opportunity of the two dose measles vaccine strategy to use MR or MMR vaccine.
- The *preferred approach* is to begin with MR vaccine or MMR vaccine in a wide-age range campaign followed immediately with introduction of MR, or MMR vaccine in the routine programme

## □ GAVI

- Opened a funding window for rubella-containing vaccine in November 2011
- Will support countries to use the rubella vaccine, in combination with a measles vaccine, as part of catch-up campaigns targeting children 9 months to 15 years

\*Rubella vaccines: WHO position paper. Wkly Epidemiol Rec. 2011;86(29):301-16

Slide courtesy of Susan Reef, Global Immunization Division, Center for Global Health

# Summary

## United States

- ❑ Elimination of endemic transmission of rubella was documented and verified in 2004
- ❑ Maintenance of elimination from 2005-2011 was documented in December 2011 (PAHO verification pending)

## Globally

- ❑ 2/3 of member countries have introduced rubella containing vaccine
- ❑ Significant burden of CRS
- ❑ WHO and GAVI support introduction of rubella vaccines