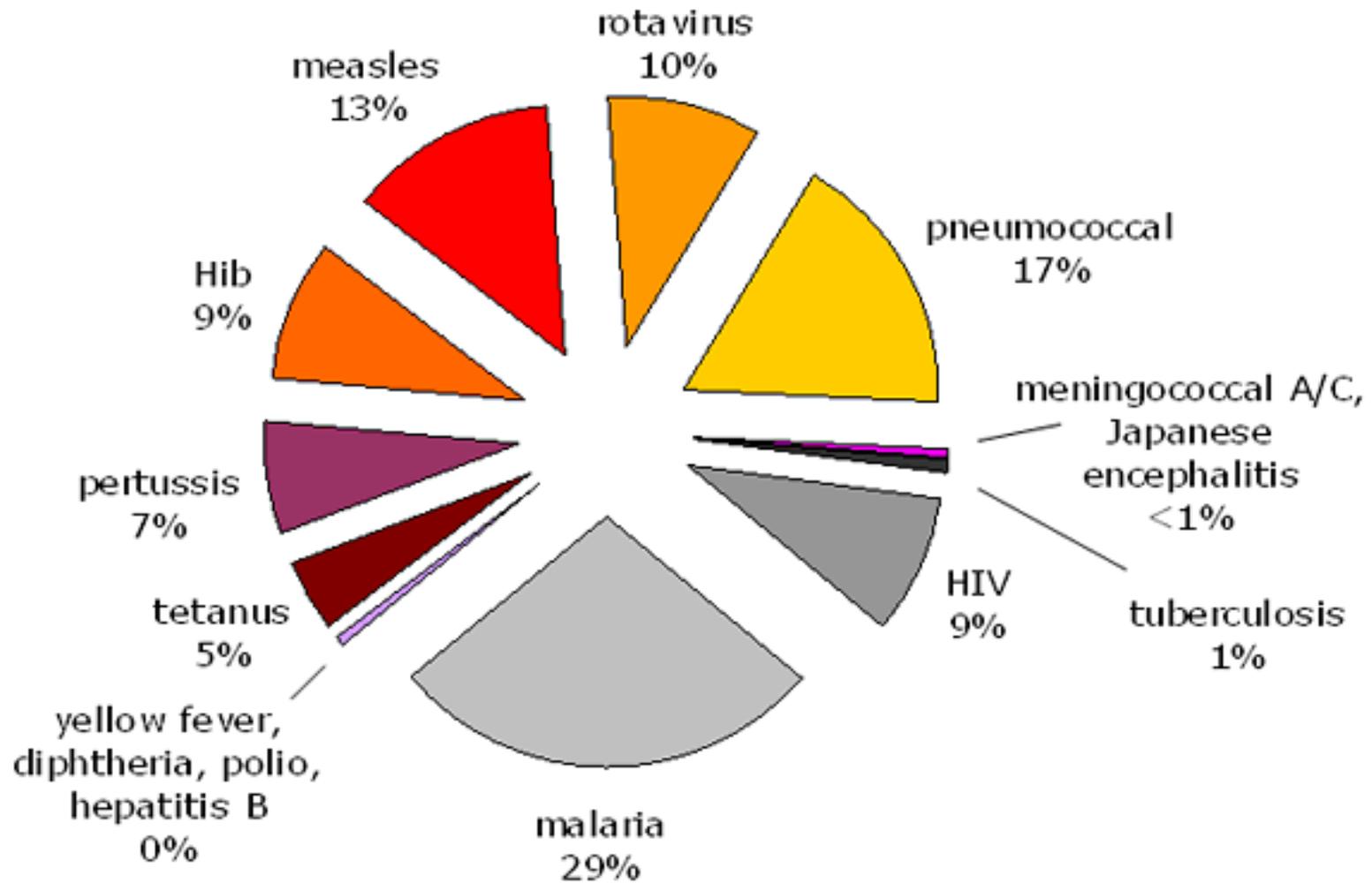


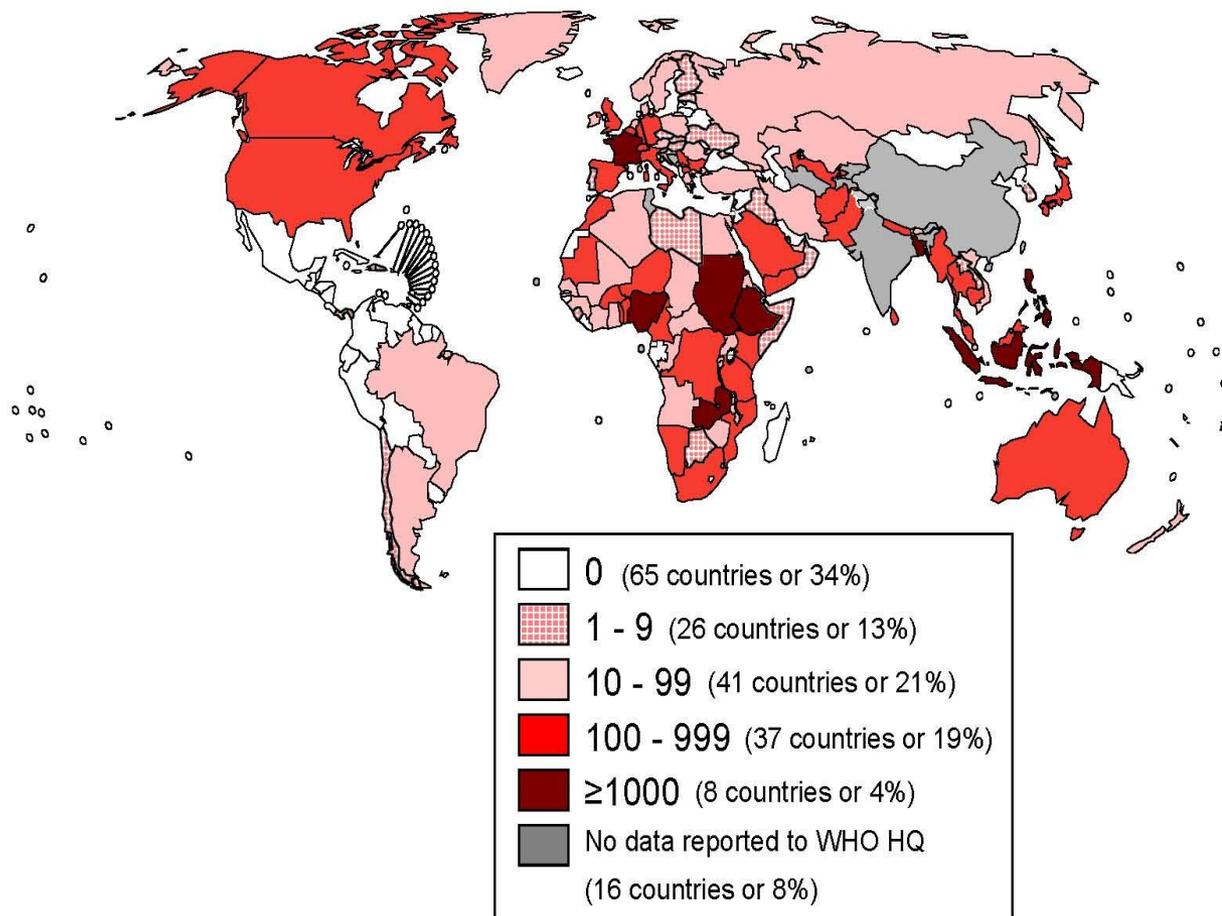
Challenges 2012: Diseases, vaccines, exemptions

Joseph Domachowski MD
Professor of Pediatrics, Microbiology and Immunology
Golisano Children's Hospital
SUNY Upstate Medical University

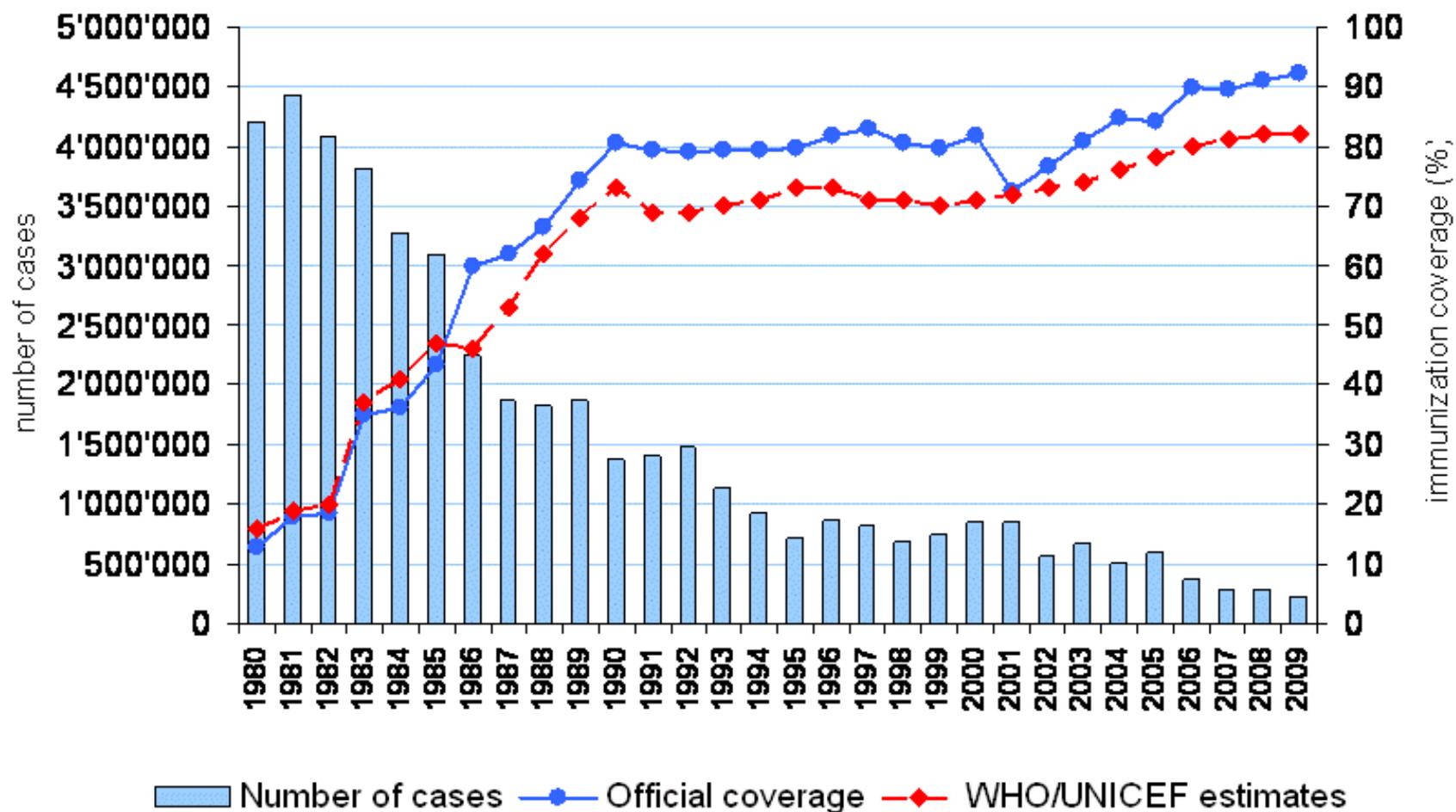
More than 10 million children under age 5 yrs die each year from infection



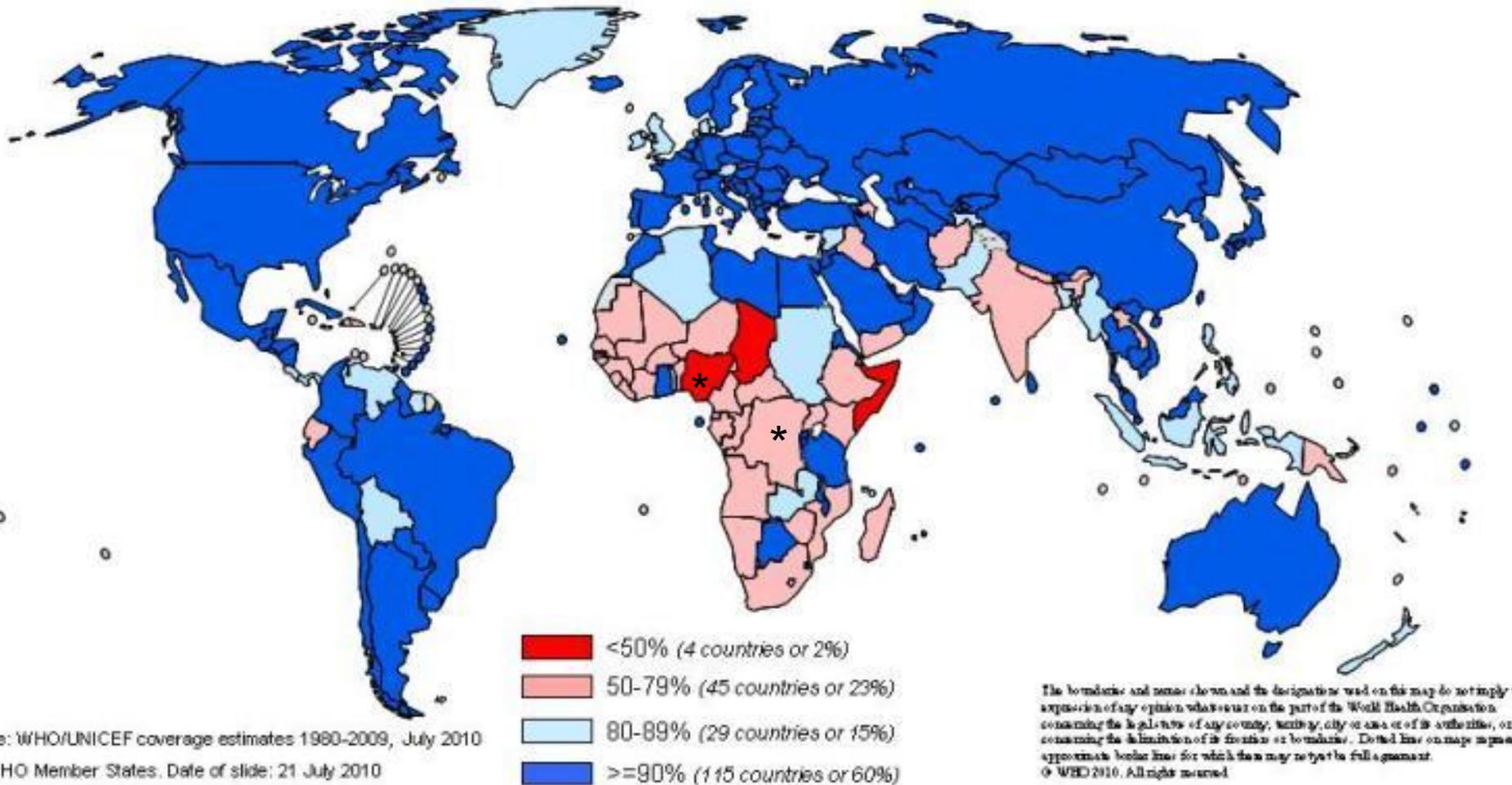
Number of Reported Measles Cases with onset date from Dec 2010 to Jun 2011



Measles global annual reported cases and MCV coverage, 1980-2009



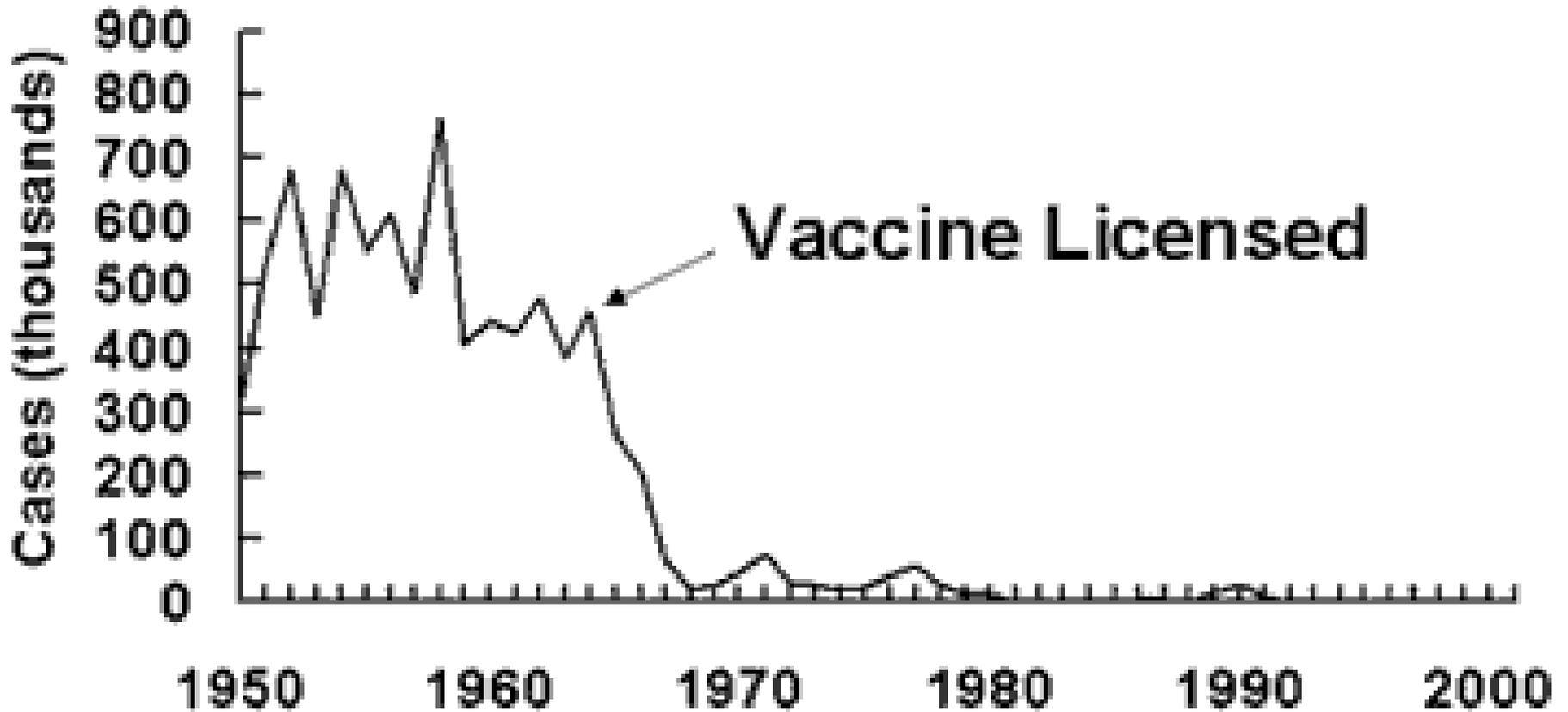
Immunization coverage with measles containing vaccines in infants, 2009



*30,000 cases in Nigeria in the first part of 2011

*Dem Rep of Congo had 17,000 cases in 2 months

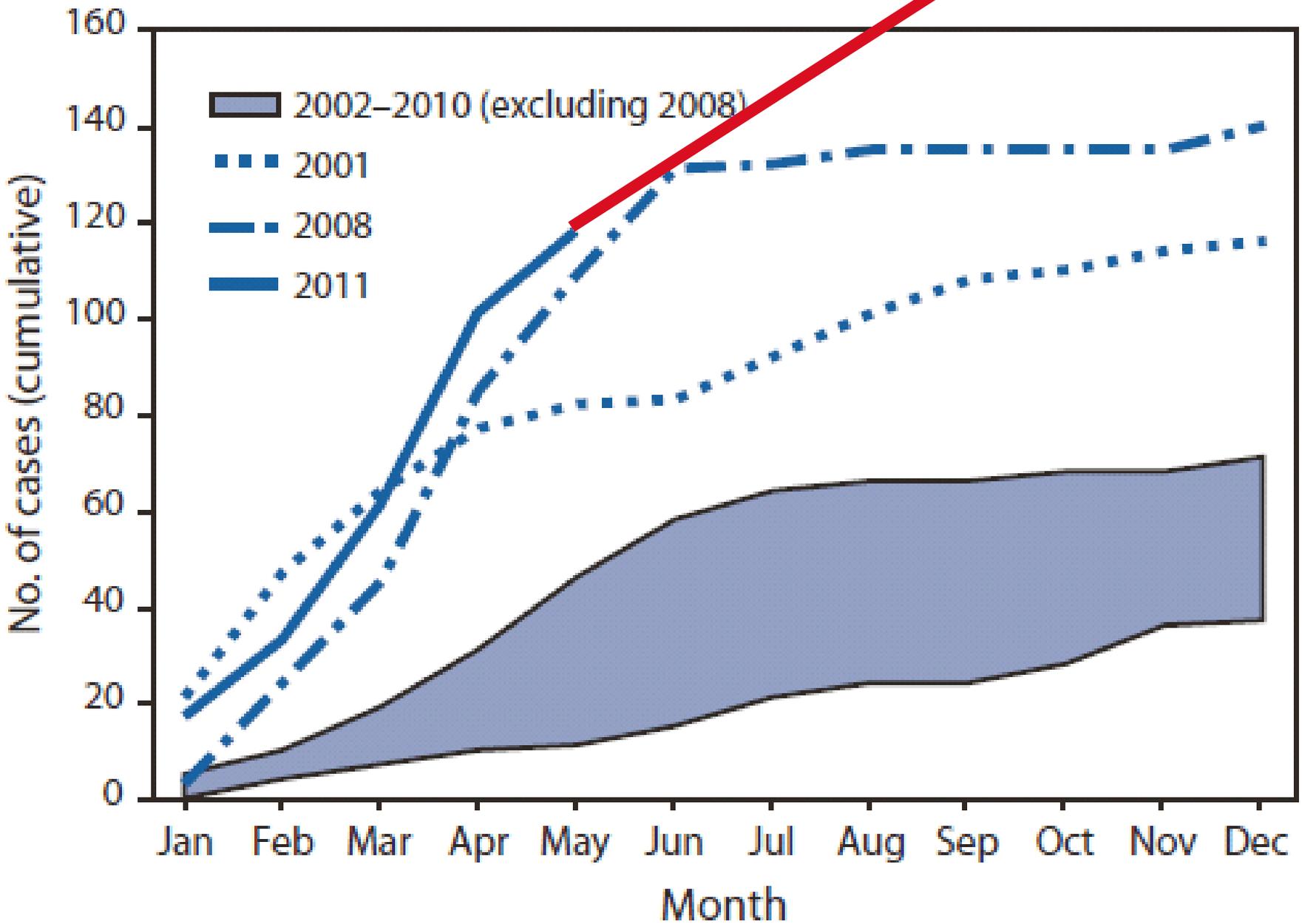
Measles—United States, 1950-2001



Measles–United States, 2011

- More than 200 cases
- Of 224 cases:
 - 57% unvaccinated
 - 16% had undocumented vaccine history
 - 87% imported
 - From where?
 - 71% of these cases were in U.S. residents
 - 85% of the U.S. residents were NOT vaccinated
- National teen coverage with measles containing vaccine approaches 90%
- There continues to be pockets of unimmunized children

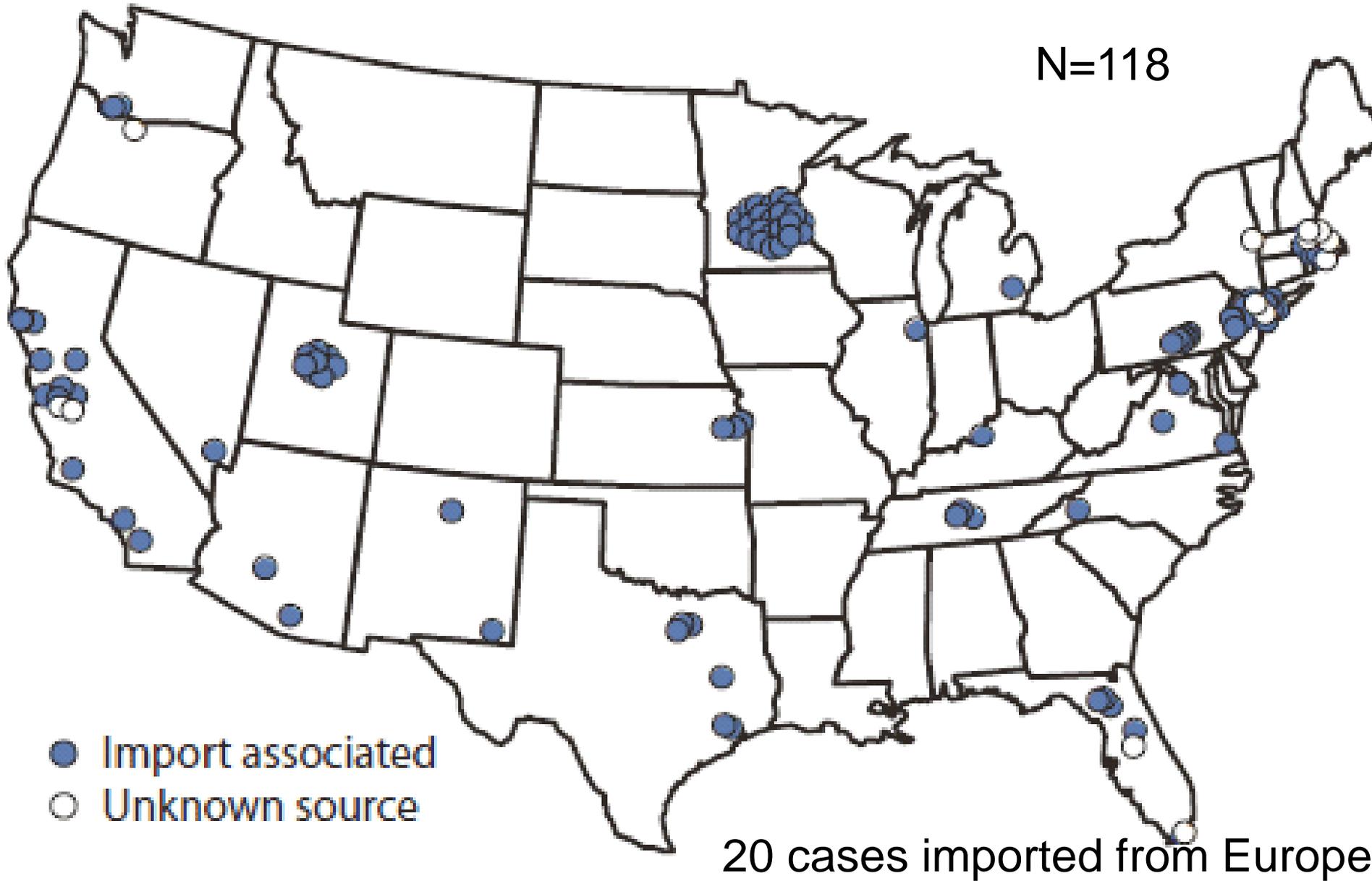
Recent History with measles in the U.S.



October 2011

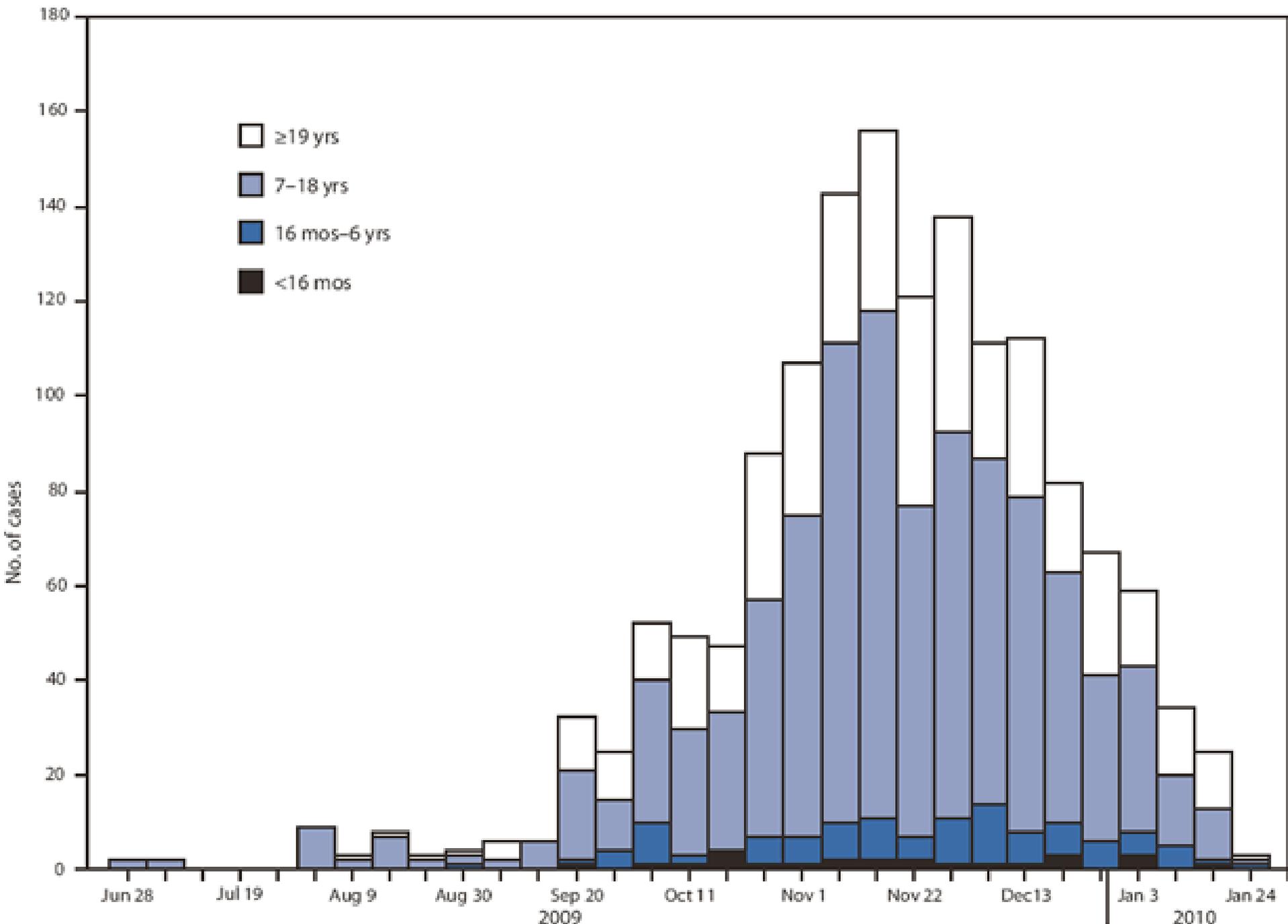
- Borough Park, NY
 - Orthodox community
 - Historically vaccine hesitant population
- 3 cases in children under 2 yrs
 - No MMRs
- 3 secondary cases
 - One exposure occurred in a provider office waiting room

Measles in the U.S. Jan-May 2011



Mumps Resurgence

- 2005: 31 campers downstate NY
- 2006: 6,584 cases, hub in Midwest
- 2009-10: NYC, NJ, Quebec
 - More than 1600 cases
 - 95%+ in Hasidic Jewish communities
 - 70% males (5% incidence of orchitis)
 - Insular population, dense living conditions, and dense educational conditions



Bottom line

- Measles and mumps still circulate
- Pockets of unimmunized individuals will result in outbreaks
- Sizable outbreaks also occurring in France, U.K., Switzerland, Italy, Austria among vaccine refusers
- Regional and local pockets of sagging immunization rates no longer escape disease outbreaks

Vaccine exemptions by state

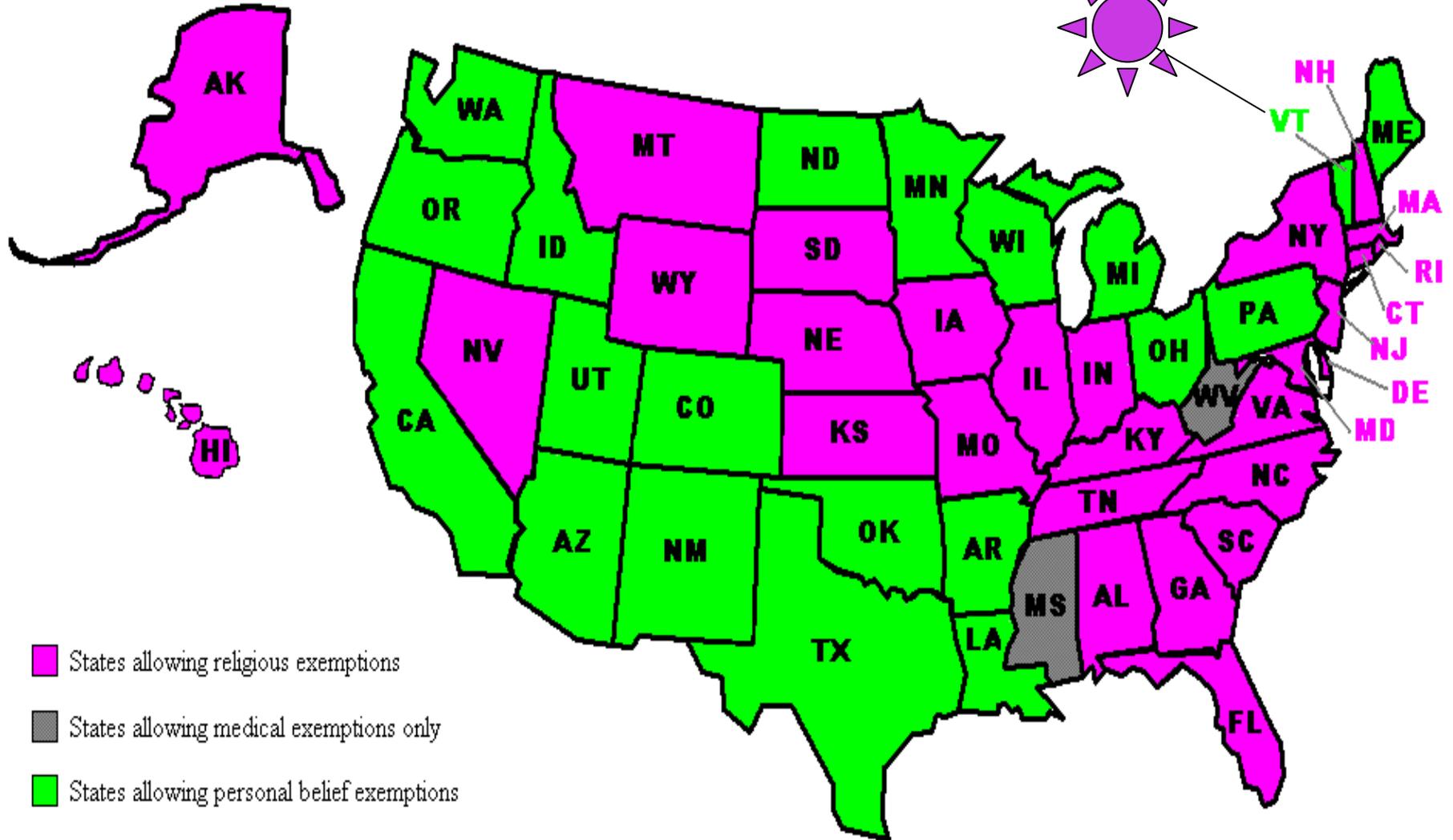
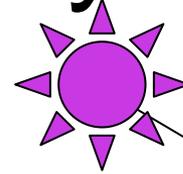


Figure 1. Pertussis cases and hospitalizations by month of onset, 2010-2011*

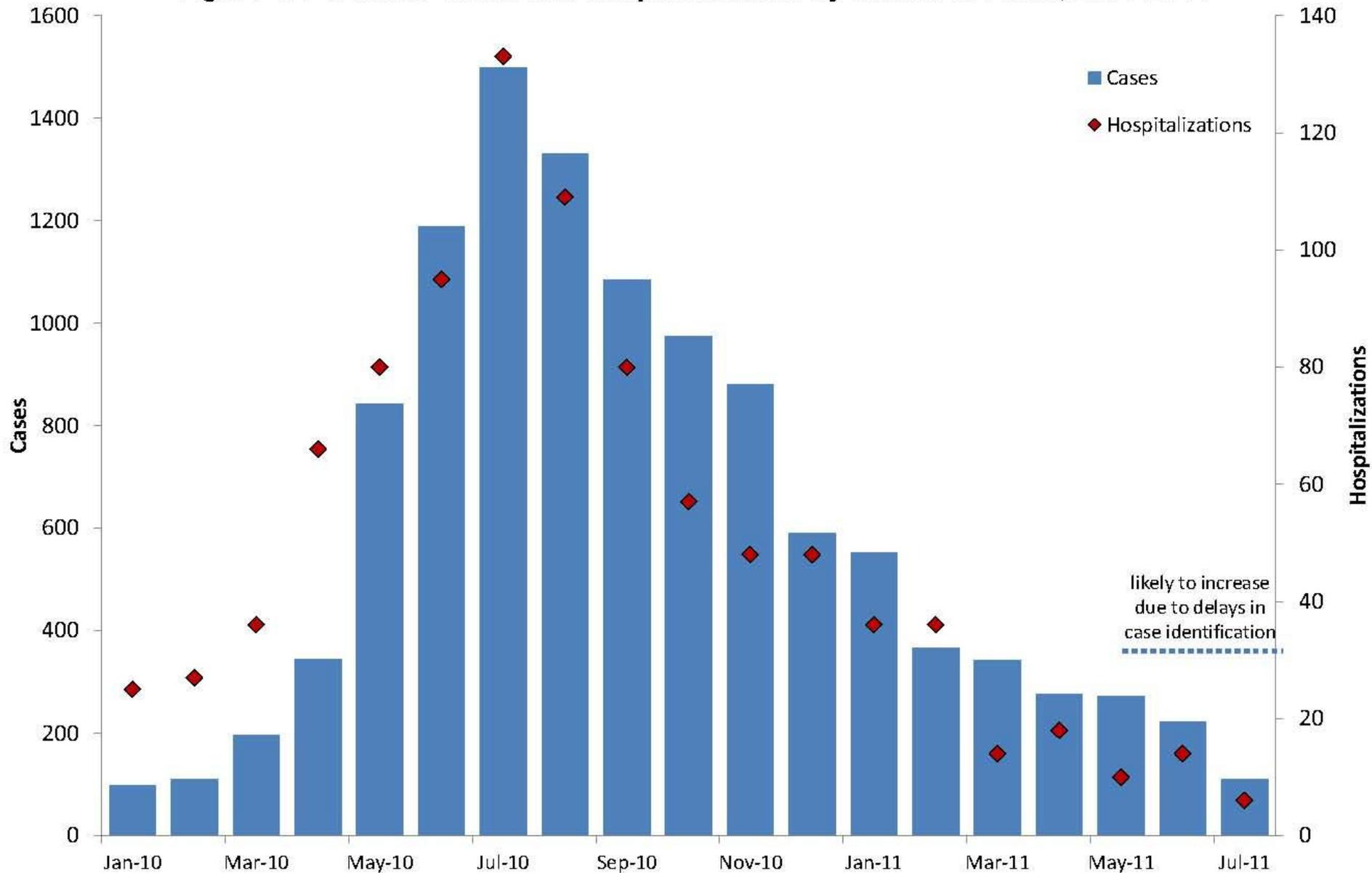
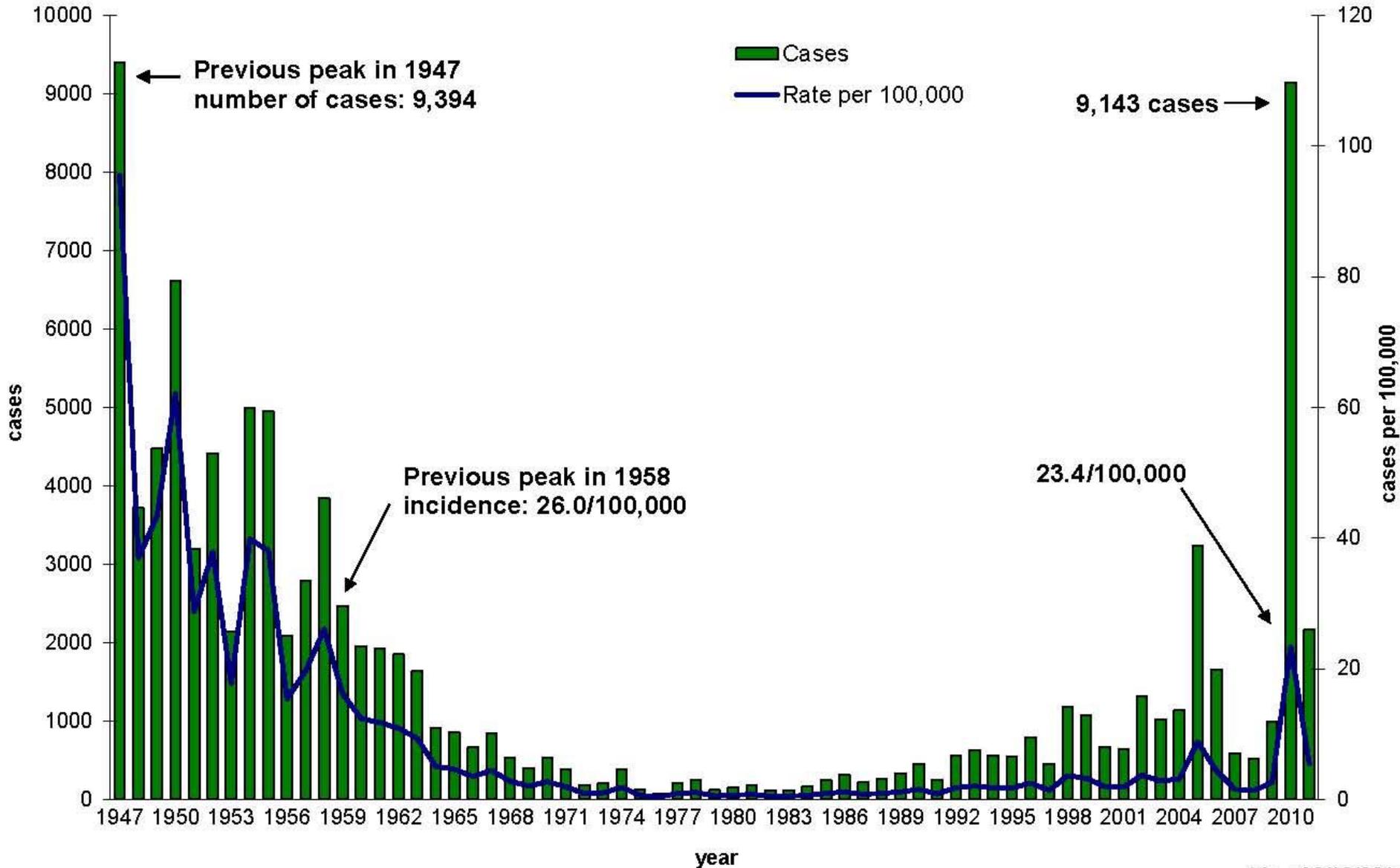


Figure 3. Number of reported pertussis cases by year of onset -- California, 1947-2011*

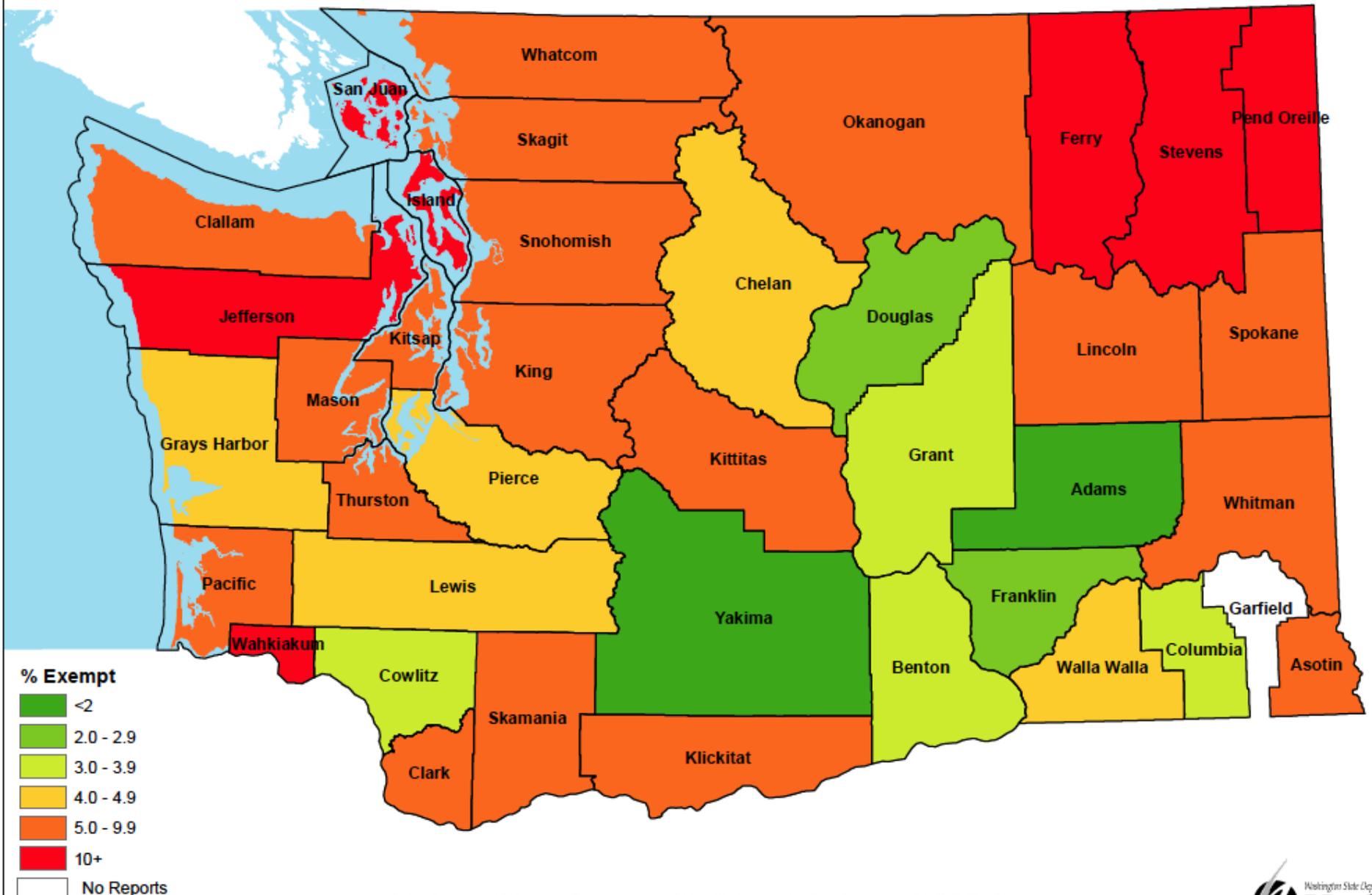


*As of 8/10/2011

California pertussis outbreak

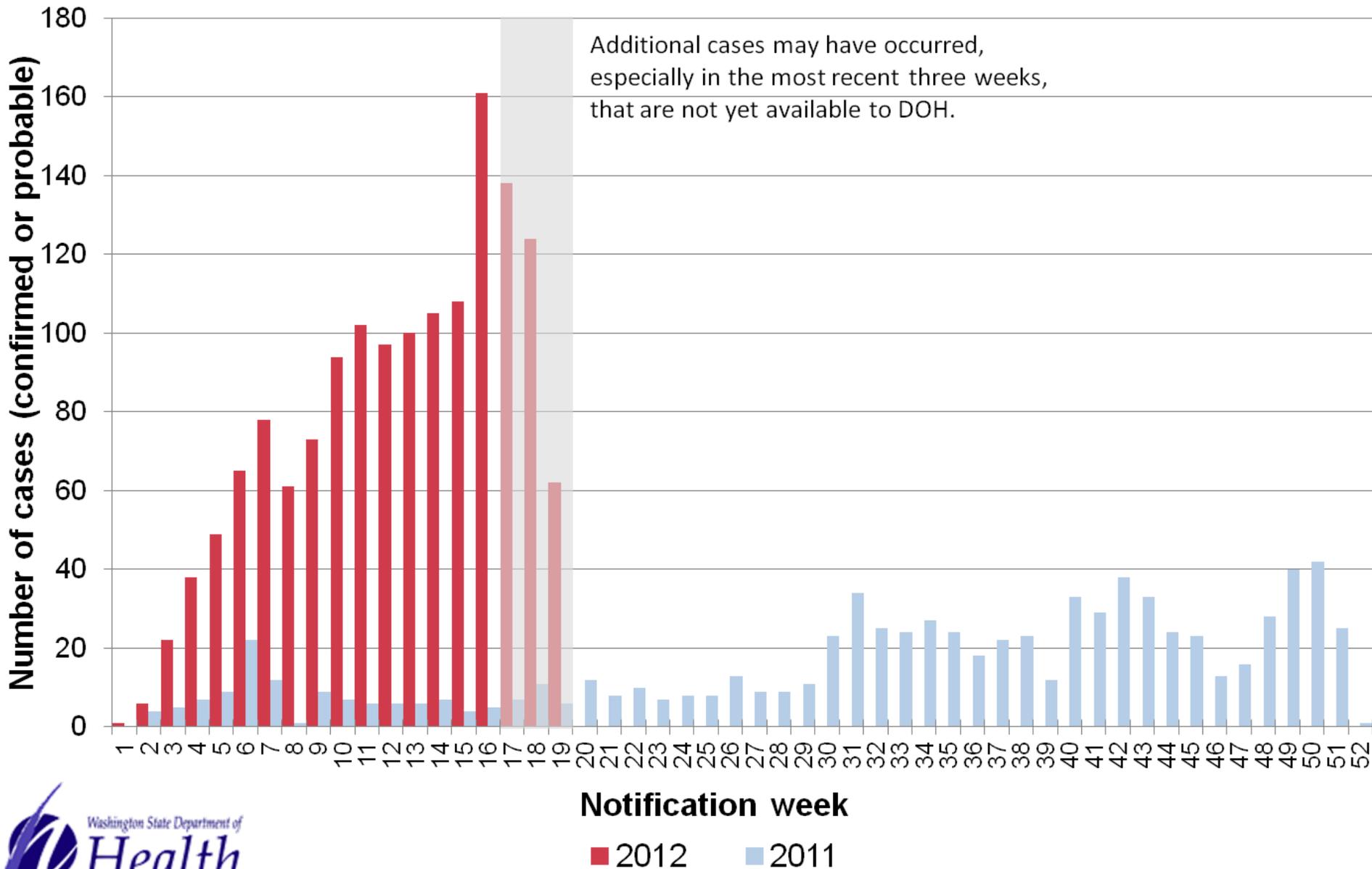
- **2010: 9143 cases, highest since 1947 (9394)**
 - 805 hospitalizations (9%), half in infants under 3 mos and 72% less than 6 mos
 - 10 deaths, all ≤ 2 mos
- **2011: 2164 cases**
 - 134 hospitalized (9%): 68% under 3 mos of age
 - No deaths
- **Ongoing problems in Washington, Wisconsin, Texas, Ohio, PA, NJ and elsewhere**

WA State K-12 Immunization Exemption Rates by County for SY 2009-10

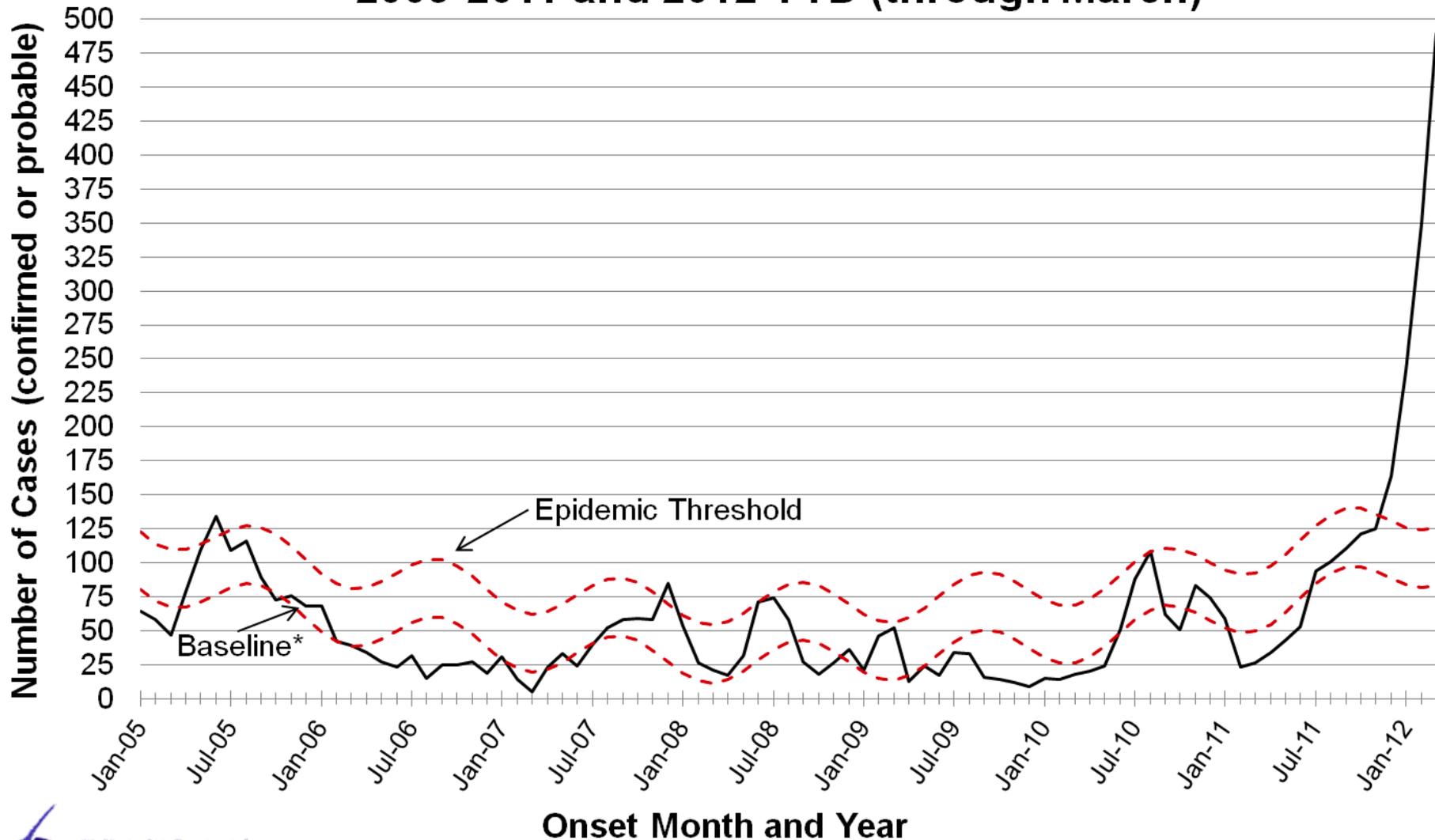


Data Source: WA State Department of Health Immunization Program CHILD Profile
May, 2010 Created with ArcGIS 9.2

Number of Pertussis Cases Reported in WA State by Notification Week 2011 vs. 2012 YTD (5/12/12)



WA State Pertussis Cases Reported by Month and Year with Projected Baseline and Epidemic Thresholds 2005-2011 and 2012 YTD (through March)

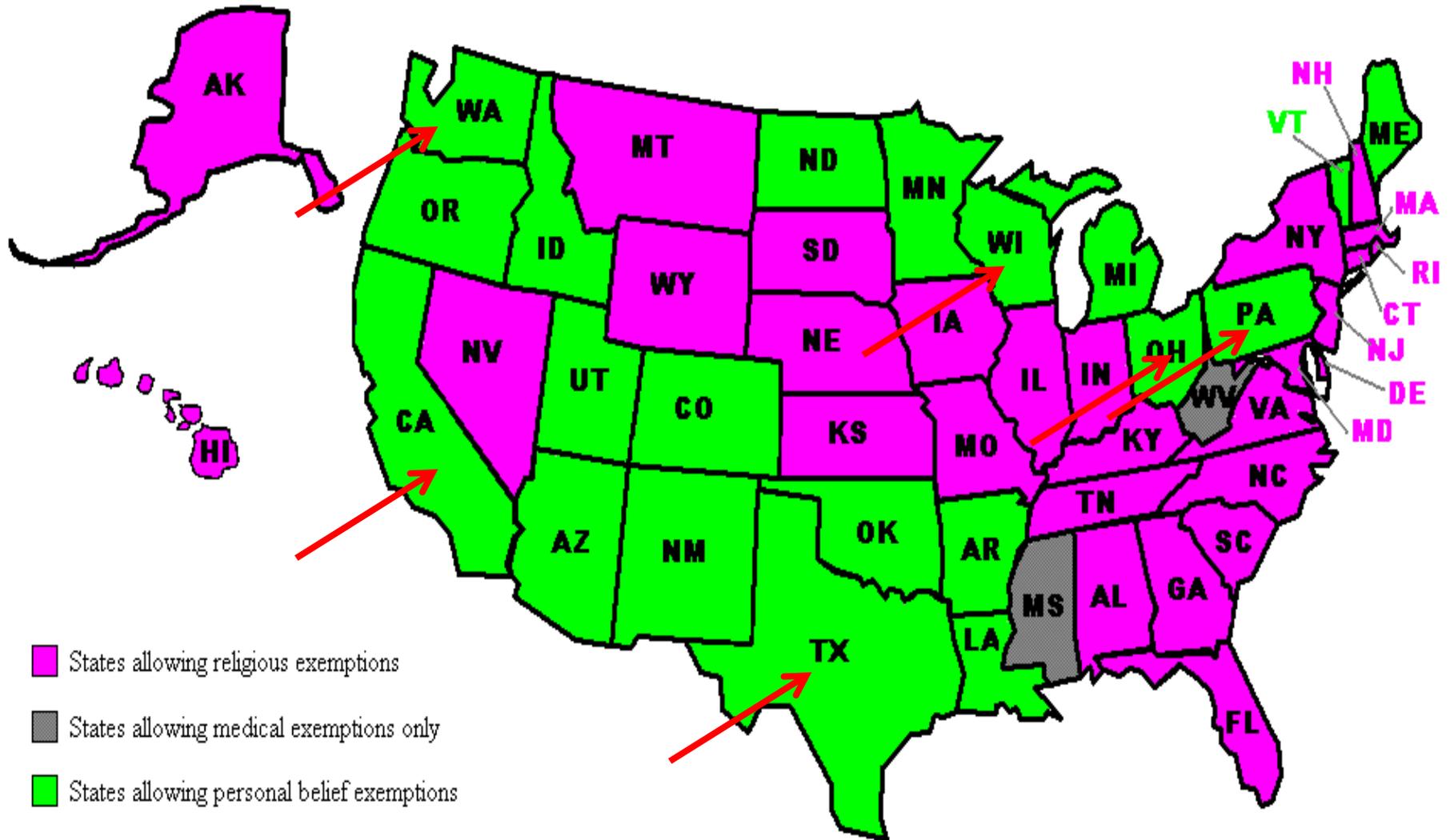


*The highest 5% of monthly data values were excluded when projecting the baseline.

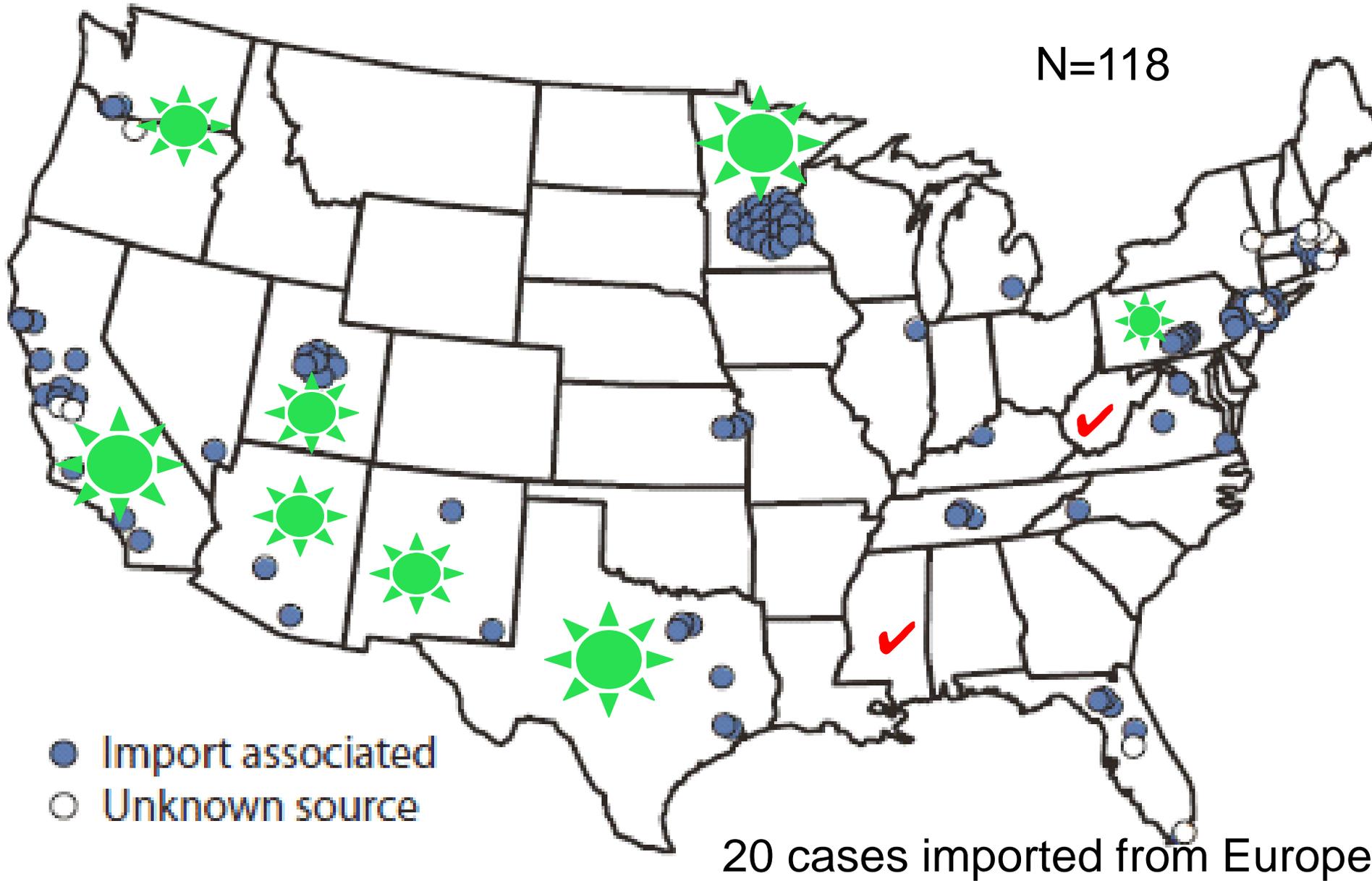
Current States

- Washington: Emergency
 - 1484 cases in 2012 so far
 - 134 cases in 2011
 - 22/100,000
- Wisconsin: Widespread outbreaks
 - 1900 cases in 2012
 - 158 cases in 2011

Vaccine exemptions by state



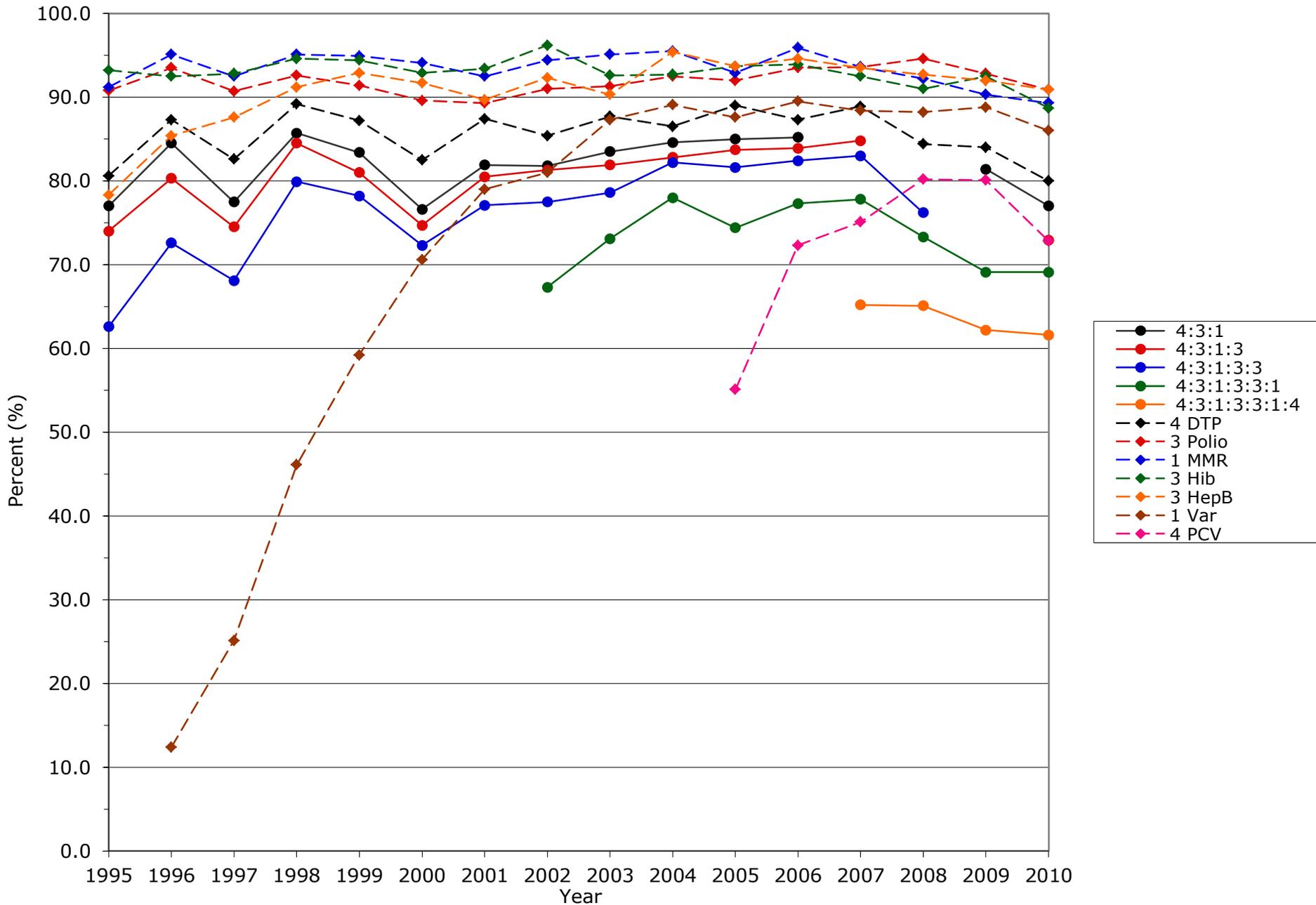
Measles in the U.S. Jan-May 2011



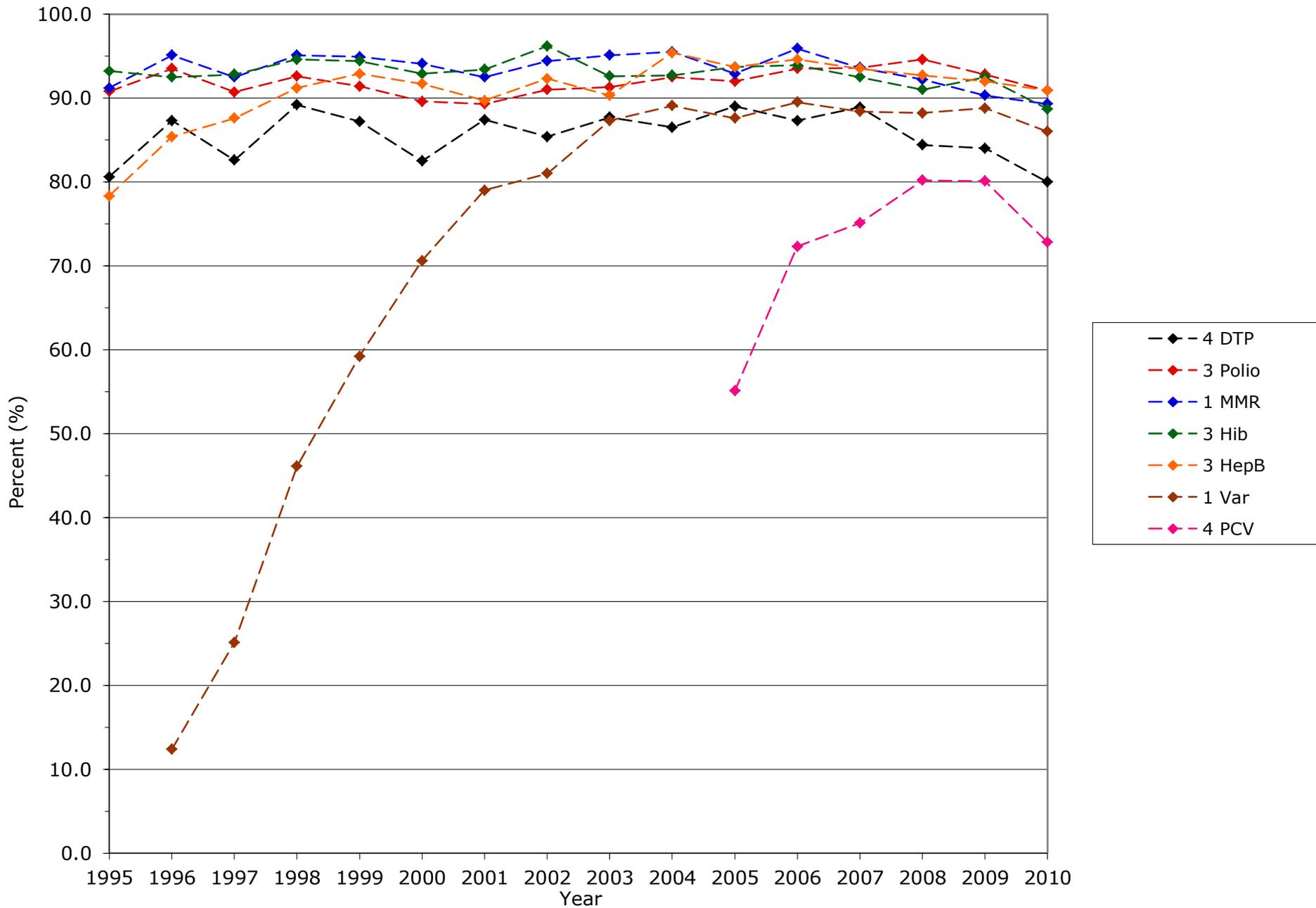
New York State

- **Recent impact from measles, mumps, and pertussis**
- **Yet no PBE is allowed**
- **How is NY doing with vaccine coverage?**

Vaccination Rates for New York



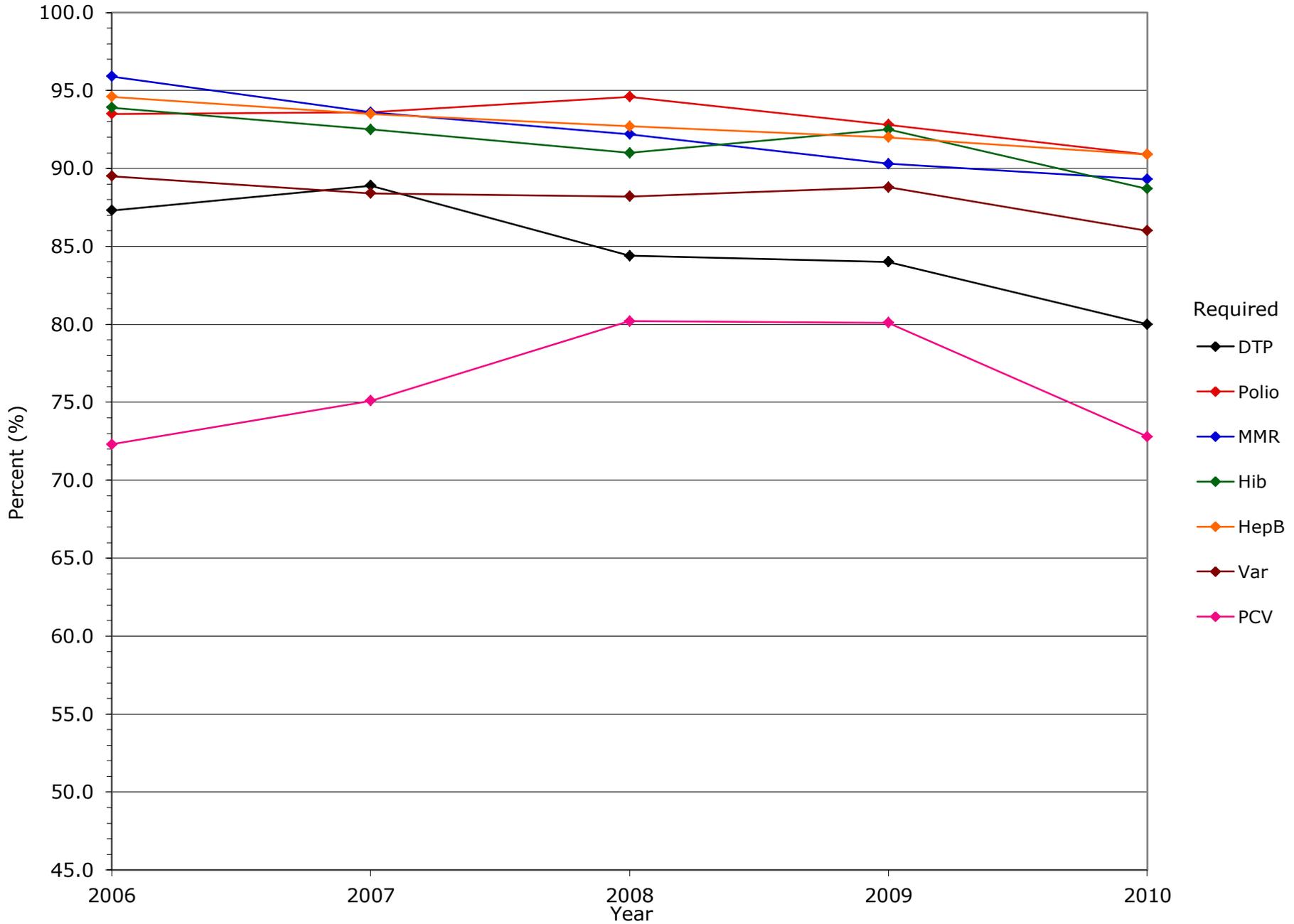
Vaccination Rates for New York



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
4 DTP	80.6	87.3	82.6	89.2	87.2	82.5	87.4	85.4	87.7	86.5	89.0	87.3	88.9	84.4	84.0	80.0
3 Polio	90.8	93.5	90.7	92.6	91.4	89.6	89.3	91.0	91.3	92.5	92.0	93.5	93.6	94.6	92.8	90.9
1 MMR	91.2	95.1	92.5	95.1	94.9	94.1	92.5	94.4	95.1	95.5	92.9	95.9	93.6	92.2	90.3	89.3
3 Hib	93.2	92.5	92.8	94.6	94.4	92.9	93.4	96.2	92.6	92.7	93.7	93.9	92.5	91.0	92.5	88.7
3 HepB	78.3	85.4	87.6	91.2	92.9	91.7	89.7	92.3	90.3	95.4	93.7	94.6	93.5	92.7	92.0	90.9
1 Var		12.4	25.1	46.1	59.2	70.6	79.0	81.0	87.3	89.1	87.6	89.5	88.4	88.2	88.8	86.0
4 PCV											55.1	72.3	75.1	80.2	80.1	72.8

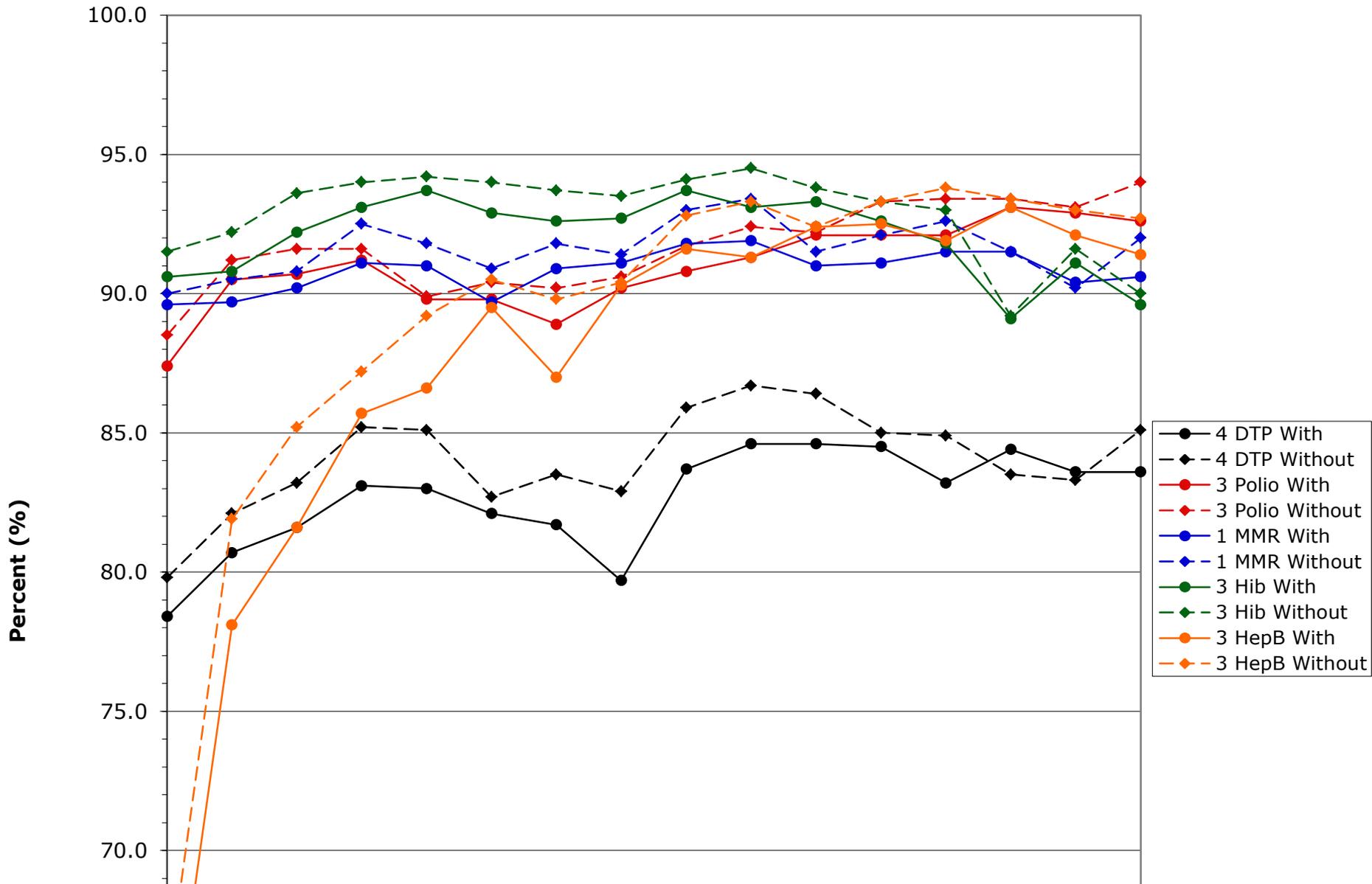
	Peak %	2010 %	Change
DTaP	89.2	80.0	-9.2%
polio	94.6	90.9	-3.7%
MMR	95.9	89.3	-6.6%
HIB	96.2	88.7	-7.5%
HepB	95.4	90.9	-4.5%
Varicella	89.5	86.0	-3.5%
PCV	80.2	72.8	-7.4%

Vaccination Coverage in School-Aged Children in New York



Is a NY Public Health Law
allowing personal belief
exemptions for school
attendance in the best interest
of public health?

Vaccination Rates Between States With and Without a Philosophical Exemption Law



PBE in NYS?

- A PBE bill was put to vote and PASSED in the Assembly in 2011
- Members of the NYS Immunization Advisory Council met with Assemblyman Gottfried, head of the Health Committee to discuss his rationale
- We then met with Senator Hannan, head of the Senate Health Committee
 - The bill did not leave his committee
 - No Senate vote

Public confidence in vaccines
is low...

Take Charge and don't be Duped!
You have rights to protect your child's health!

Vaccine Exemptions FOR DUMMIES

Know Your Rights Under the Law

A Reference for the Rest of Us!

Exploring Vaccine Mandate As Federal Decision



www.vaccinechoices.org



Vaccines are NOT mandatory.
Idaho Code 39-4804

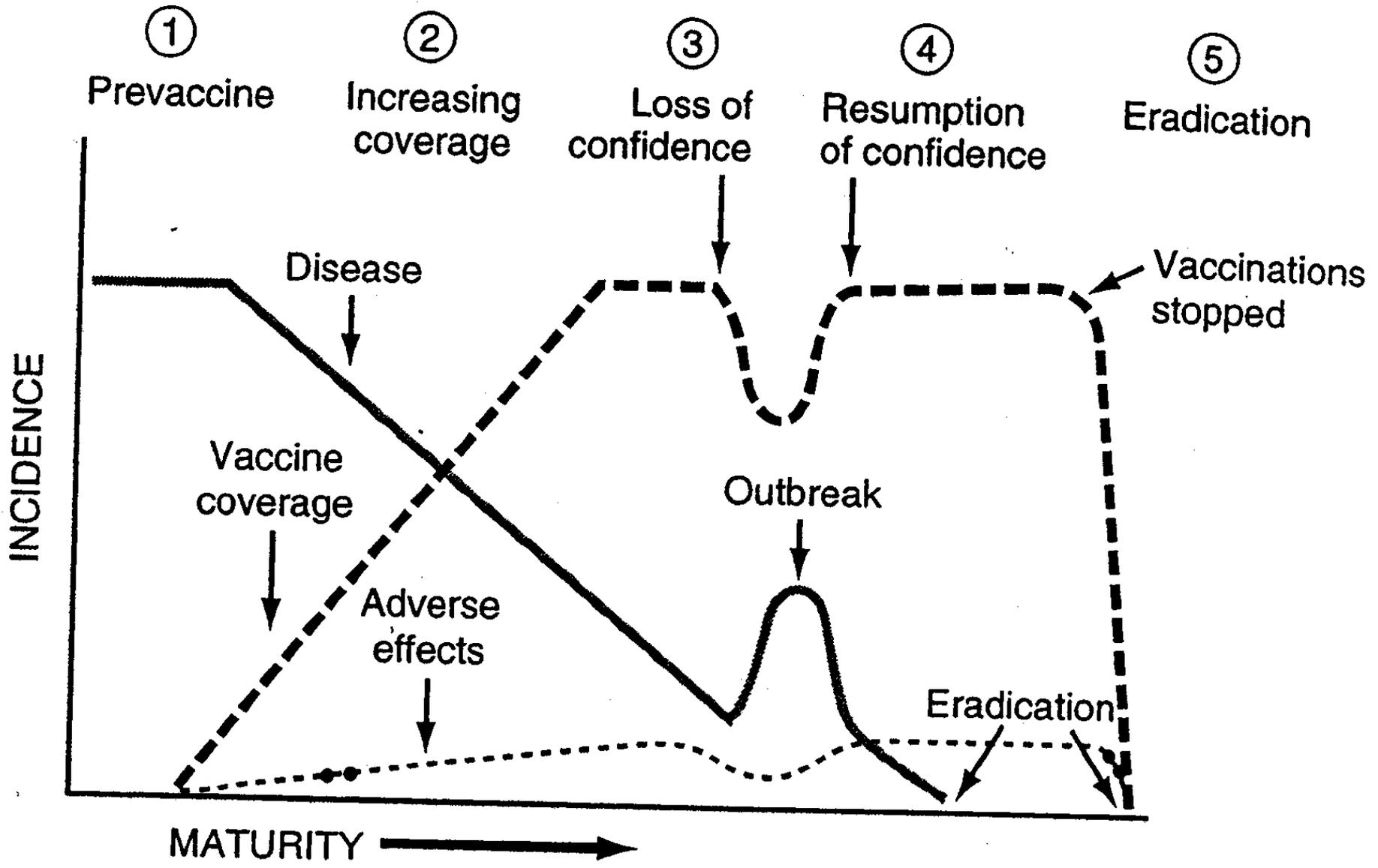


VaccineTruth.com

Austin Today.com

NO SHOTS. NO SCHOOL - NOT TRUE!
YOU CAN OPT OUT IN TEXAS
INFO AT VAXTRUTH.BLOGSPOT.COM

advertised by the day



Waning public confidence in vaccines has consequences

What can we do about it?

Suggestions

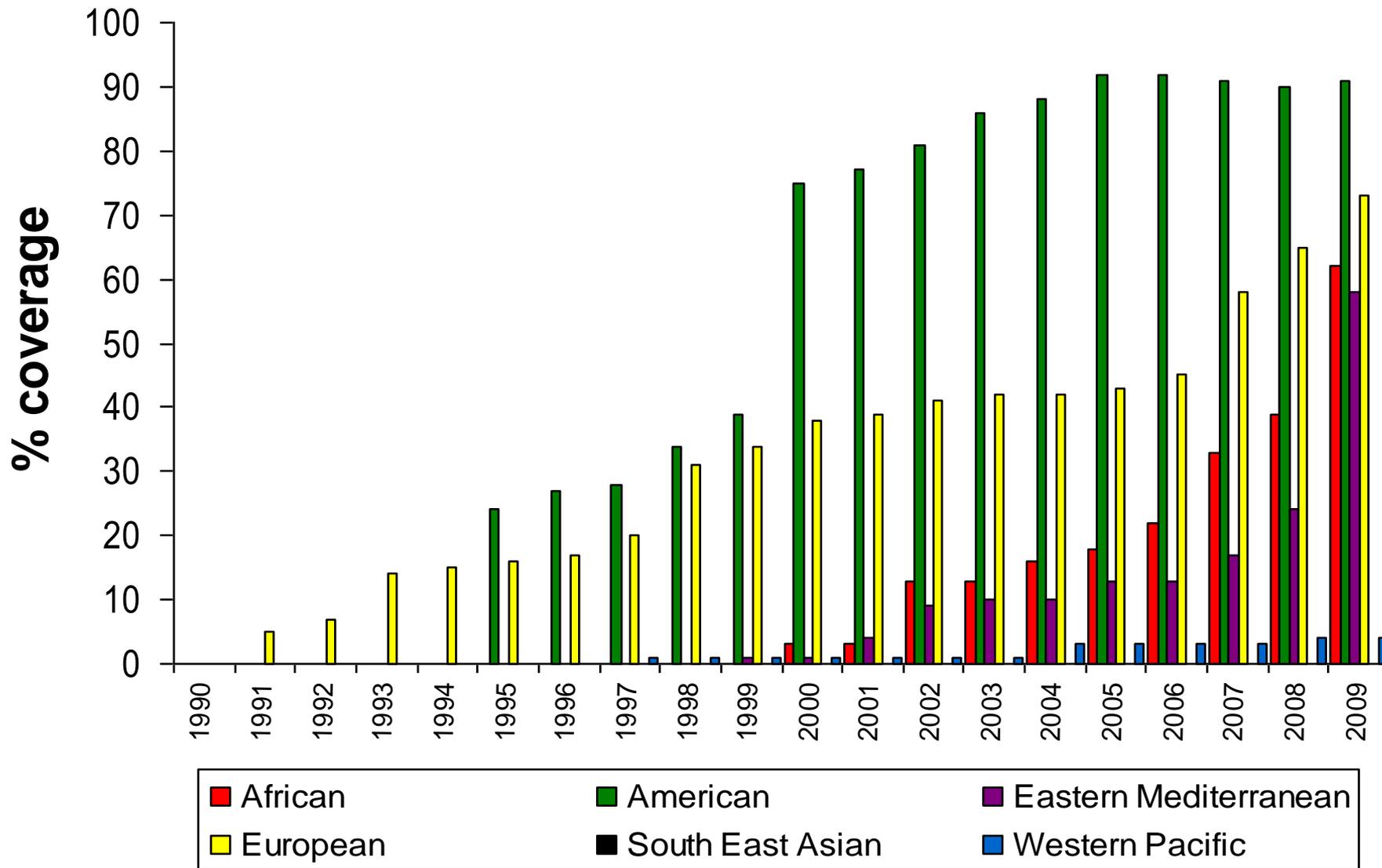
- Invest more in public awareness
- Educate the public on the composition of the advisory bodies
- Engage parent groups as advocates
- Avoid hyperbolic marketing practices
- Improve communication skills of our leaders
 - Be available and candid
- Stay current and accurate
- Provide a clear, consistent message to our colleagues, our students, our families, and our patients
- Engage religious leaders
 - None of the major organized religions advise against vaccines
- Start vaccinating in the newborn nursery
- Engage combination vaccines

Discussion

Haemophilus influenzae B

1st: the global look at vaccine uptake

Regional Hib3 Coverage, 1990-2009

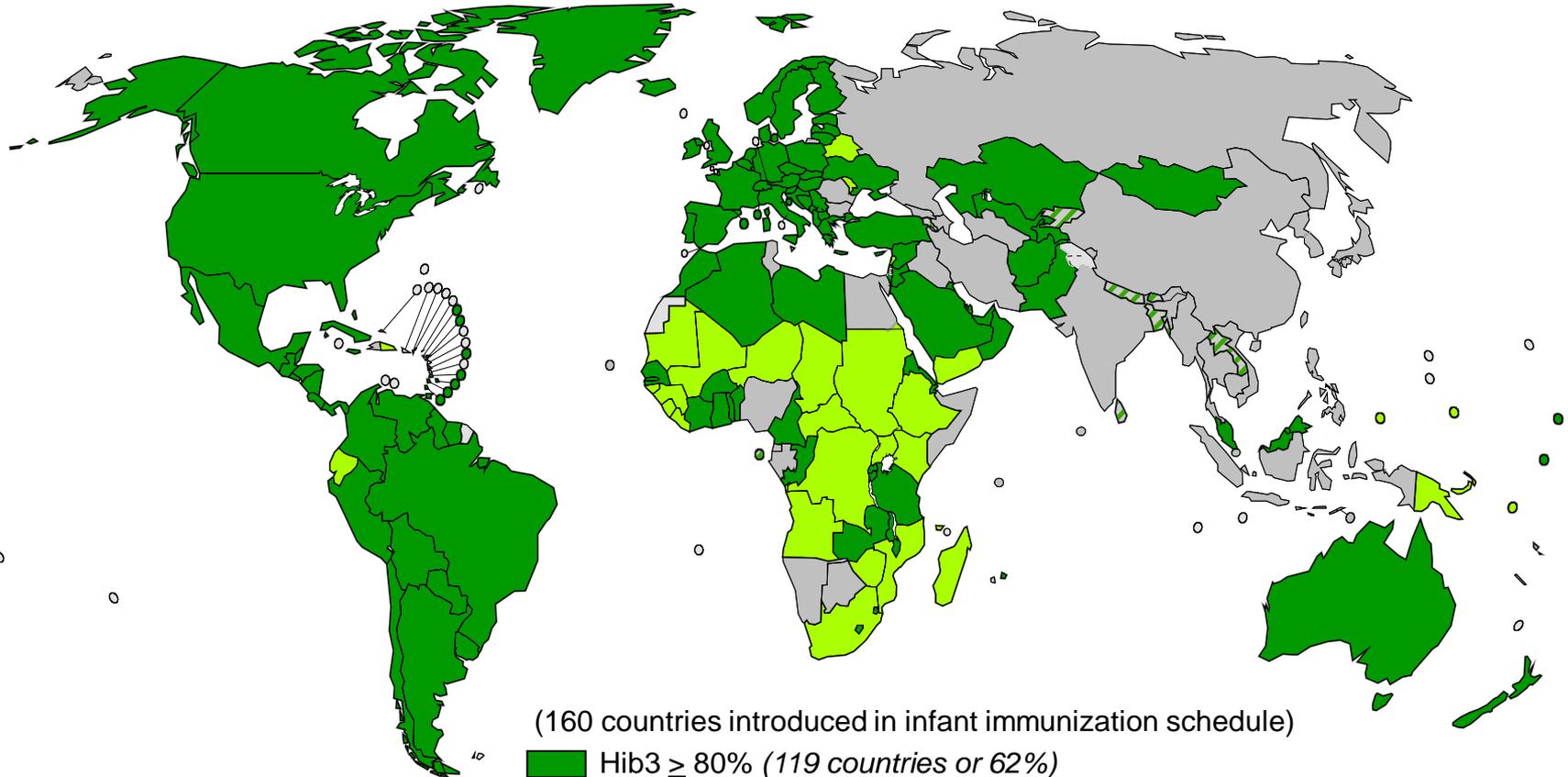


Source: WHO/UNICEF coverage estimates 1980-2009, July 2010.

193 WHO Member States. Date of slide: 20 October 2010

160 countries Introduced Hib vaccine

Countries having introduced Hib vaccine and infant Hib coverage, 2009



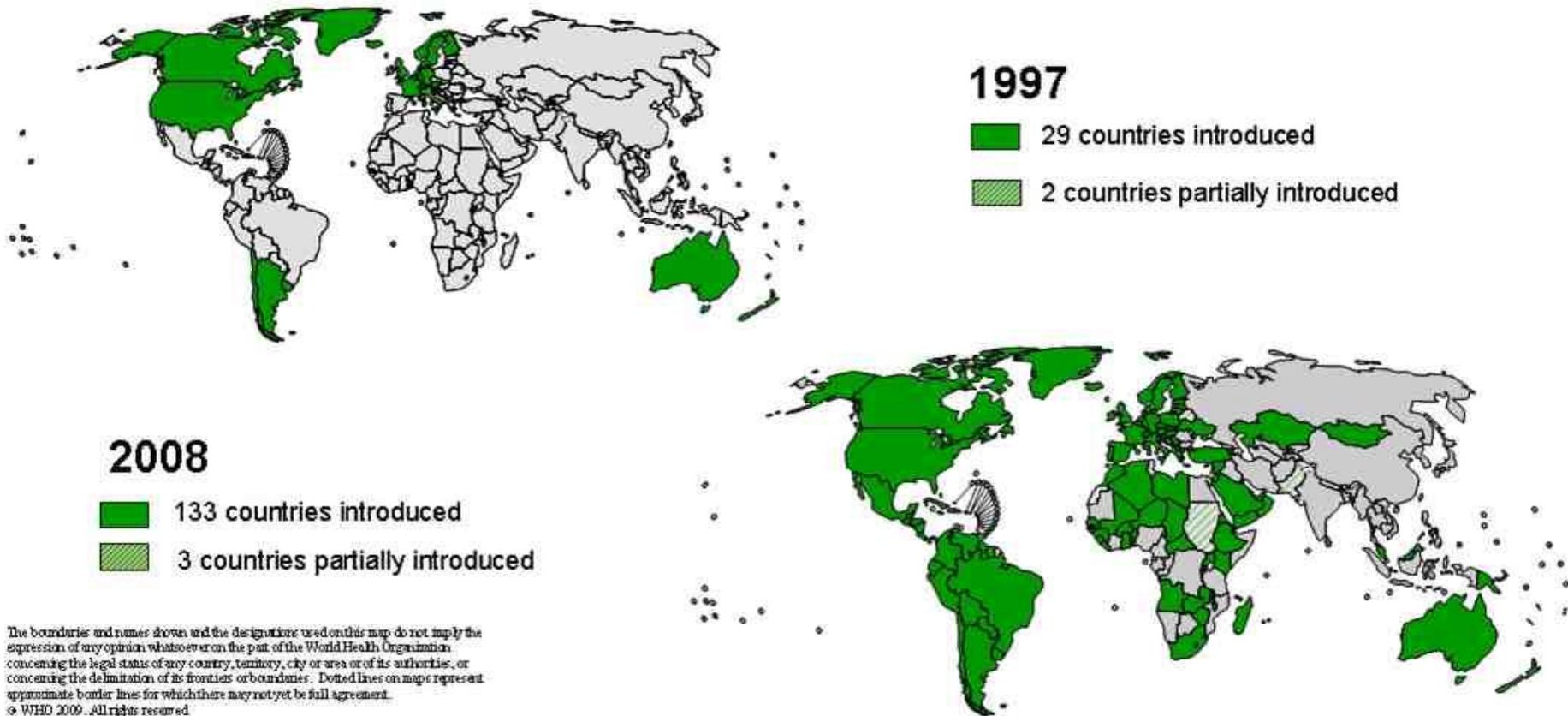
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.
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Source: WHO/UNICEF coverage estimates 1980-2009, July 2010

Date of slide: 27 July 2010



Countries having introduced Hib vaccine in 1997 and 2008

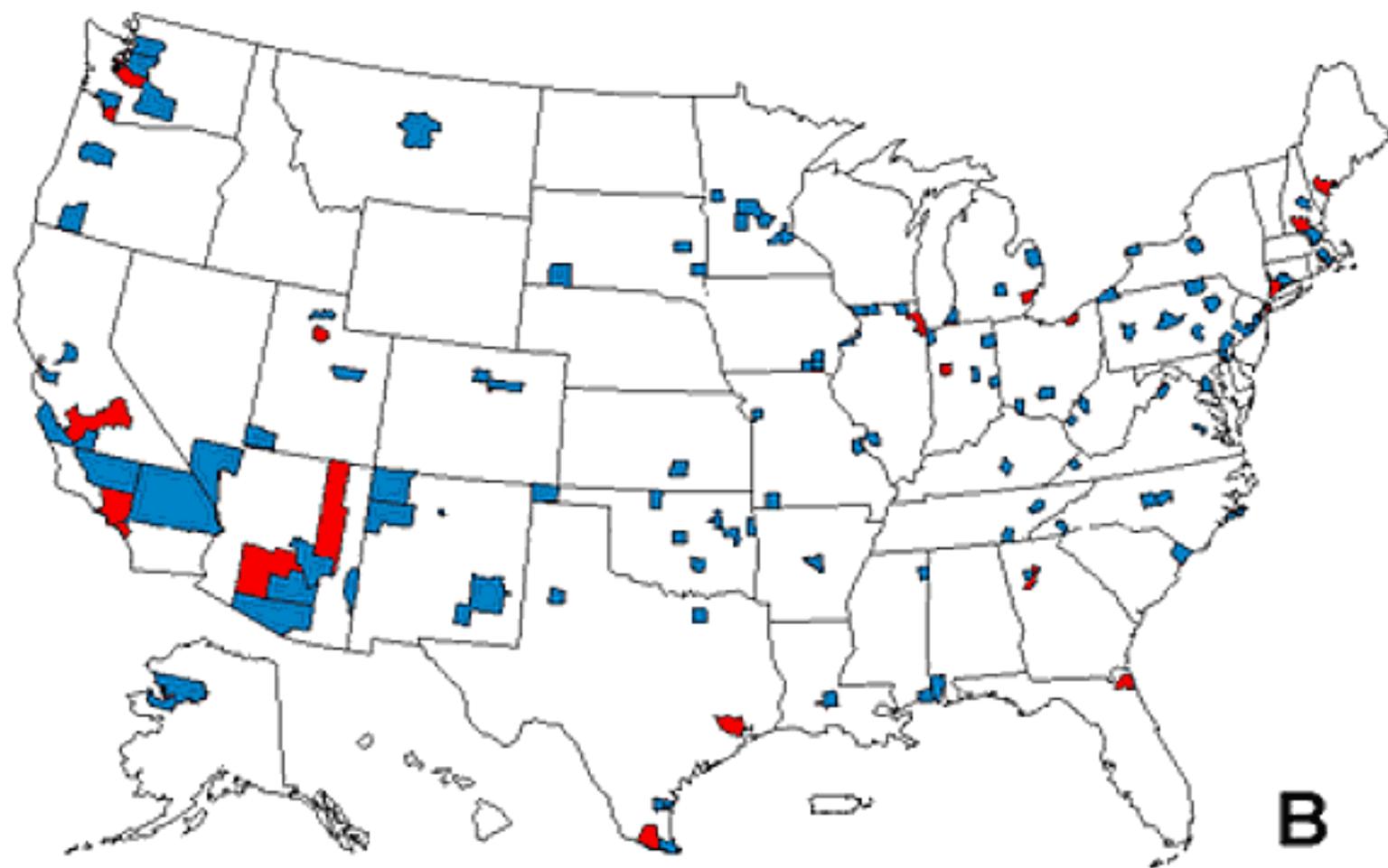


Source: WHO/UNICEF coverage estimates 1980-2008, July 2009

Date of slide: 27 July 2009

So Globally...

- This is rather substantial progress
- Should we be concerned that the infection could



■ 1 case

■ ≥ 2 cases

B

Recent vaccine shortage

- Serious Hib vaccine shortage continued from late 2007 to late 2009
- Most infants still received their primary series of vaccine
- Formal CDC recommendations were to defer the booster dose

2009

- Feb 2009: 5 cases of invasive Hib disease reported from Minnesota
 - 3 were in children whose parents refused vaccines, one died
 - 2 cases in Oklahoma
- March 2009: Philadelphia Dept of Health reports 7 cases. All were un (or under) immunized. Three died.
- April 2009: Hib death in NJ.

HIB disease in NYS

- 4 cases in 2008 (Erie, Allegheny and Cattaraugus Counties)
- 2 died
- In every case, the parents declined vaccines
- We have only had one case a year since 2003.

Bad combination, serious consequences

- We were not boosting from 2007-2009 so while invasive infection rates did not increase substantially, nasopharyngeal carriage of Hib probably did
- Unimmunized infants (age, parental refusal) were more likely to come in to contact with a NP carrier

Unsung benefits of conjugate vaccines

- Herd immunity via a decrease in carriage among the population
- Leads to decrease in frequency of exposure
- Everyone benefits, immunized or not
- An inability to boost immunity for more than a year likely resulted in increased nasopharyngeal carriage
- And...more opportunities for the unimmunized to get exposed and infected
- The shortage is over, vaccine is plentiful