

CDC Update on Achieving Healthy People 2020 Objectives for Immunization and Vaccine- Preventable Diseases

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NVAC Meeting, September 10, 2014
Washington, DC

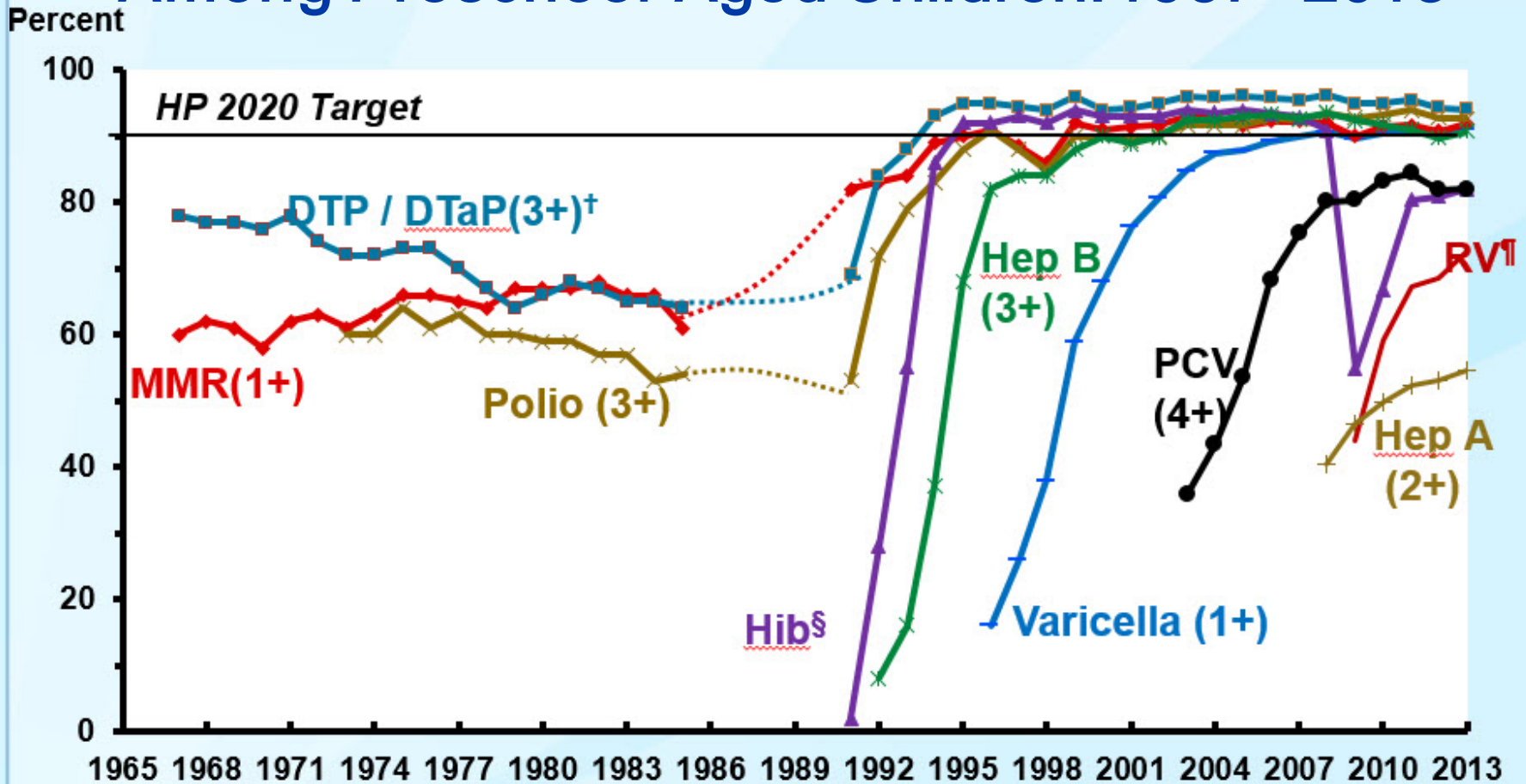
National Center for Immunization and Respiratory Diseases



Outline

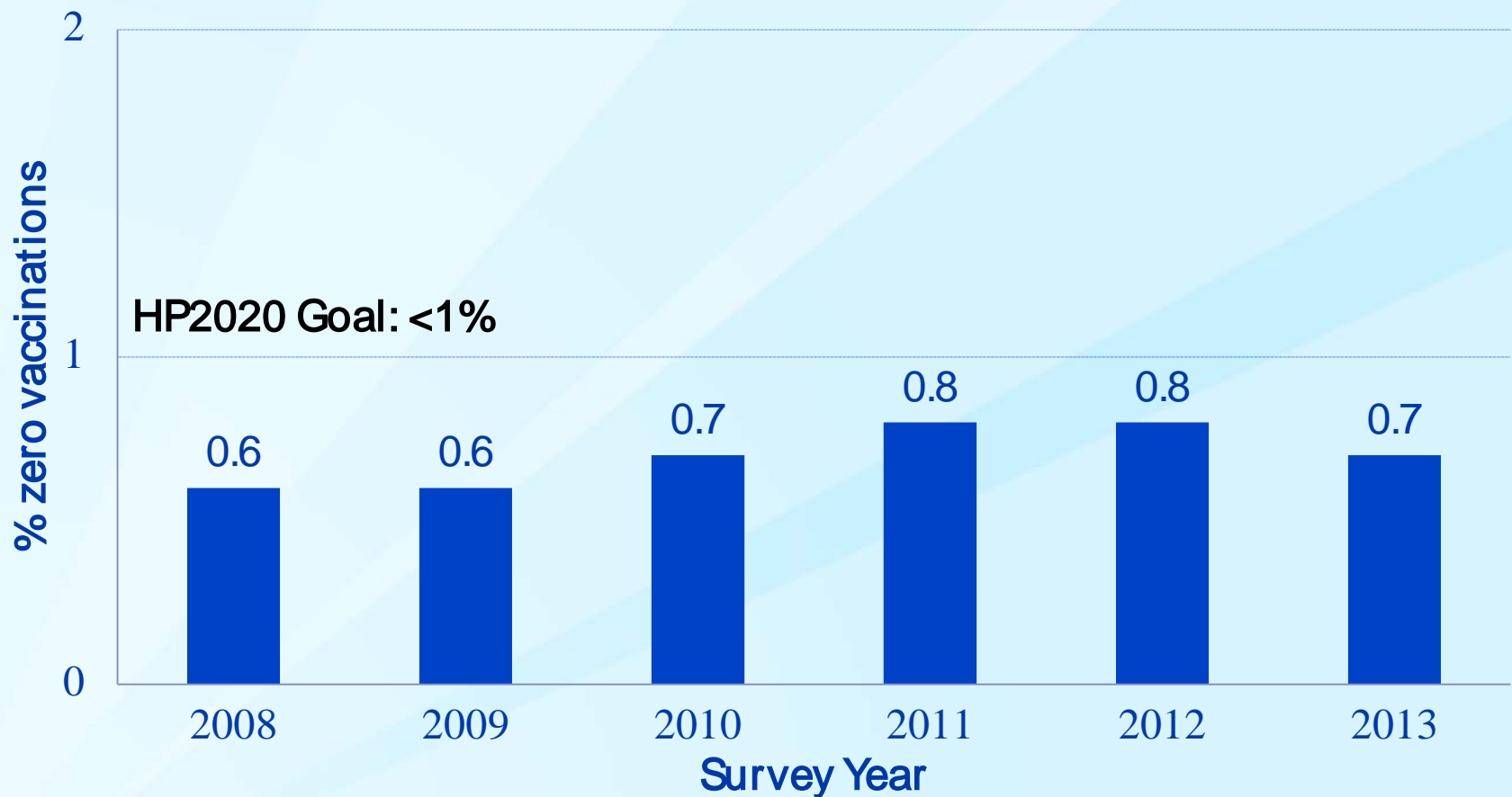
- ❑ **Update on immunization & vaccine-preventable disease objective progress**
- ❑ **Selected barriers**
 - Product issues
 - Consumer and patient issues
 - Provider and system issues
- ❑ **Summary and discussion**

Increasing Vaccine-Specific Coverage Rates Among Preschool-Aged Children: 1967 - 2013

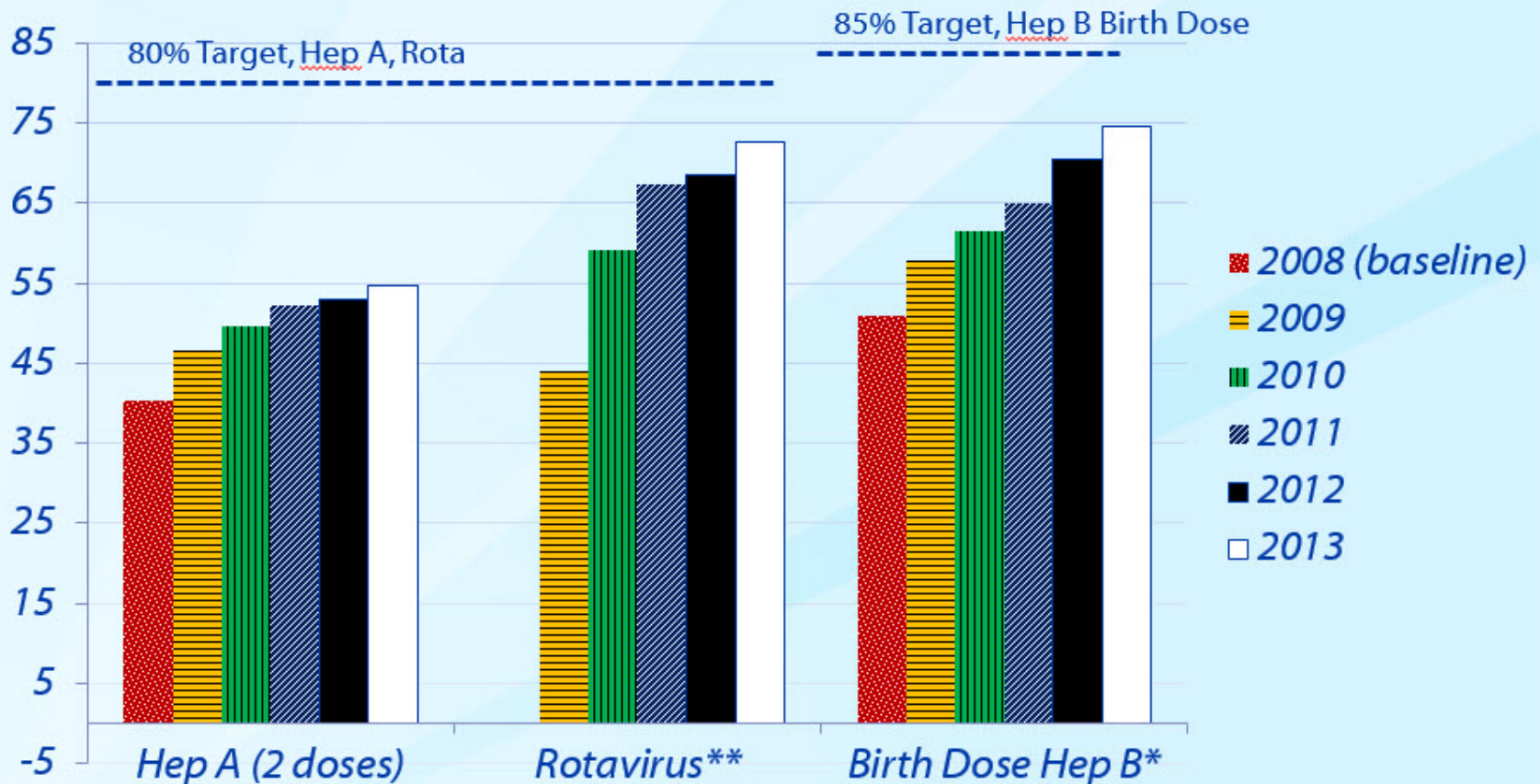


Children 19-35 Months Who Received No Vaccinations, 2008-2013, U.S.

HP2020 objective IID-9 (tracking measure)



Estimated Vaccination Coverage, Children 19-35 Months, New Healthy People 2020 Objectives



* HP2020 target for birth dose of HepB is measured by birth cohort. Data shown are estimates from the 2005-2010 birth cohorts.

** 2 or 3 doses, depending on the type of rotavirus vaccine received

Source: CDC, NIS

Comparison of 20th Century Annual Morbidity and Current Morbidity: Vaccine-Preventable Diseases

Disease	20th Century Annual Morbidity [†]	2013 Reported Cases ^{††}	Percent Decrease
Smallpox	29,005	0	100%
Diphtheria	21,053	0	100%
Measles	530,217	187	> 99%
Mumps	162,344	584	> 99%
Pertussis	200,752	28,639	86%
Polio (paralytic)	16,316	1	> 99%
Rubella	47,745	9	> 99%
Congenital Rubella Syndrome	152	1	99%
Tetanus	580	26	96%
<i>Haemophilus influenzae</i>	20,000	31*	> 99%

[†] JAMA. 2007;298(18):2155-2163

^{††} CDC. MMWR August 15, 2014;63(32):702-715. (MMWR 2013 final data)

* *Haemophilus influenzae* type b (Hib) < 5 years of age. An additional 10 cases of Hib are estimated to have occurred among the 185 reports of Hi (< 5 years of age) with unknown serotype.

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Historical Comparisons of Vaccine-Preventable Disease Morbidity in the U.S.



Comparison of Pre-Vaccine Era Estimated Annual Morbidity with Current Estimate: Vaccine-Preventable Diseases

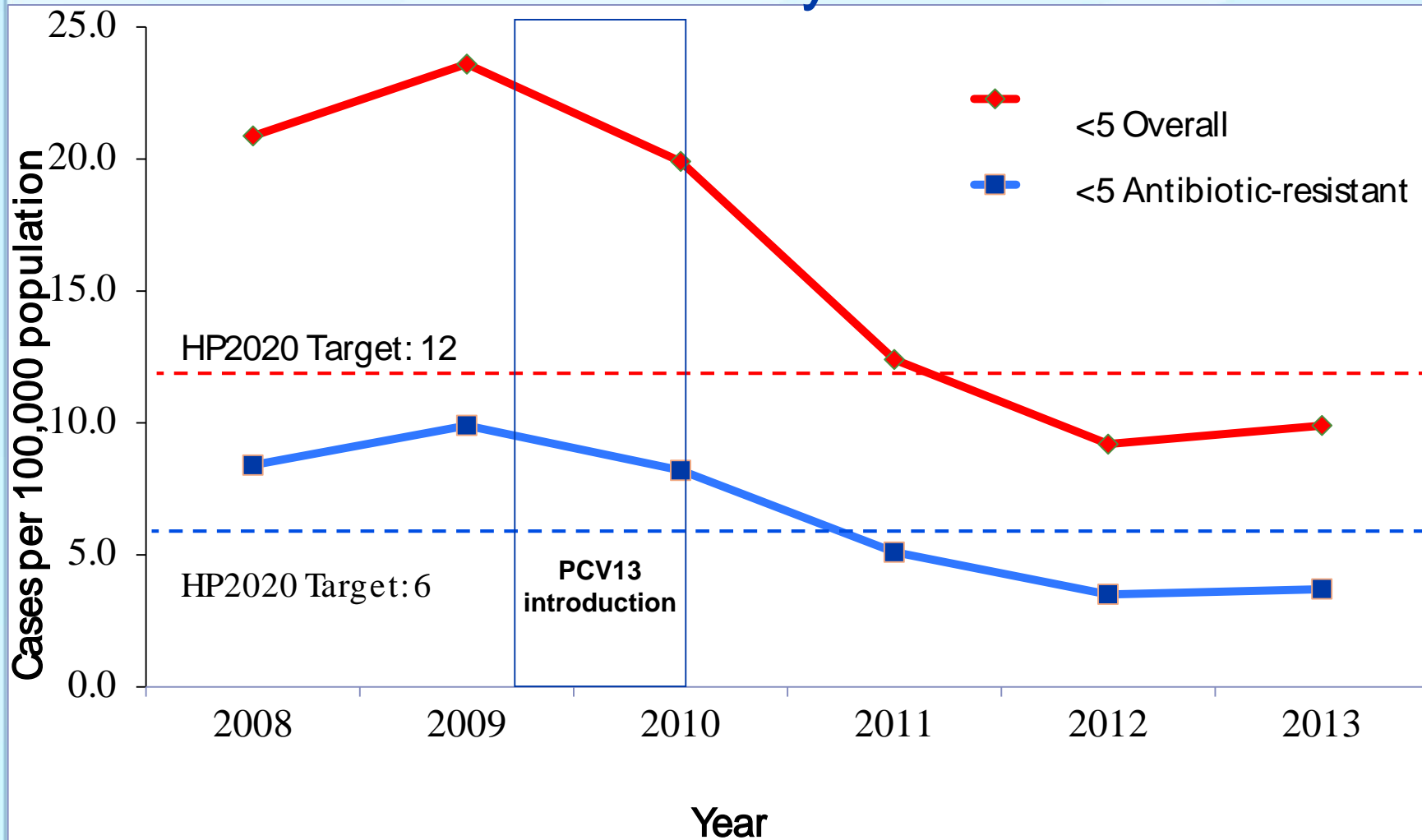
Disease	Pre-Vaccine Era Annual Estimate [†]	2013 Estimate [*]	Percent Decrease
Hepatitis A	117,333	2,890	98%
Hepatitis B (acute)	66,232	18,800	72%
Pneumococcus (invasive)			
all ages	63,067	33,500	47%
< 5 years of age	16,069	1,900	88%
Rotavirus (hospitalizations, < 3 years of age)	62,500 [*]	12,500	80%
Varicella	4,085,120	167,490	96%

[†] JAMA. 2007;298(18):2155-2163

^{*} CDC (NNDSS, ABCs/EIP Network, NVSN)

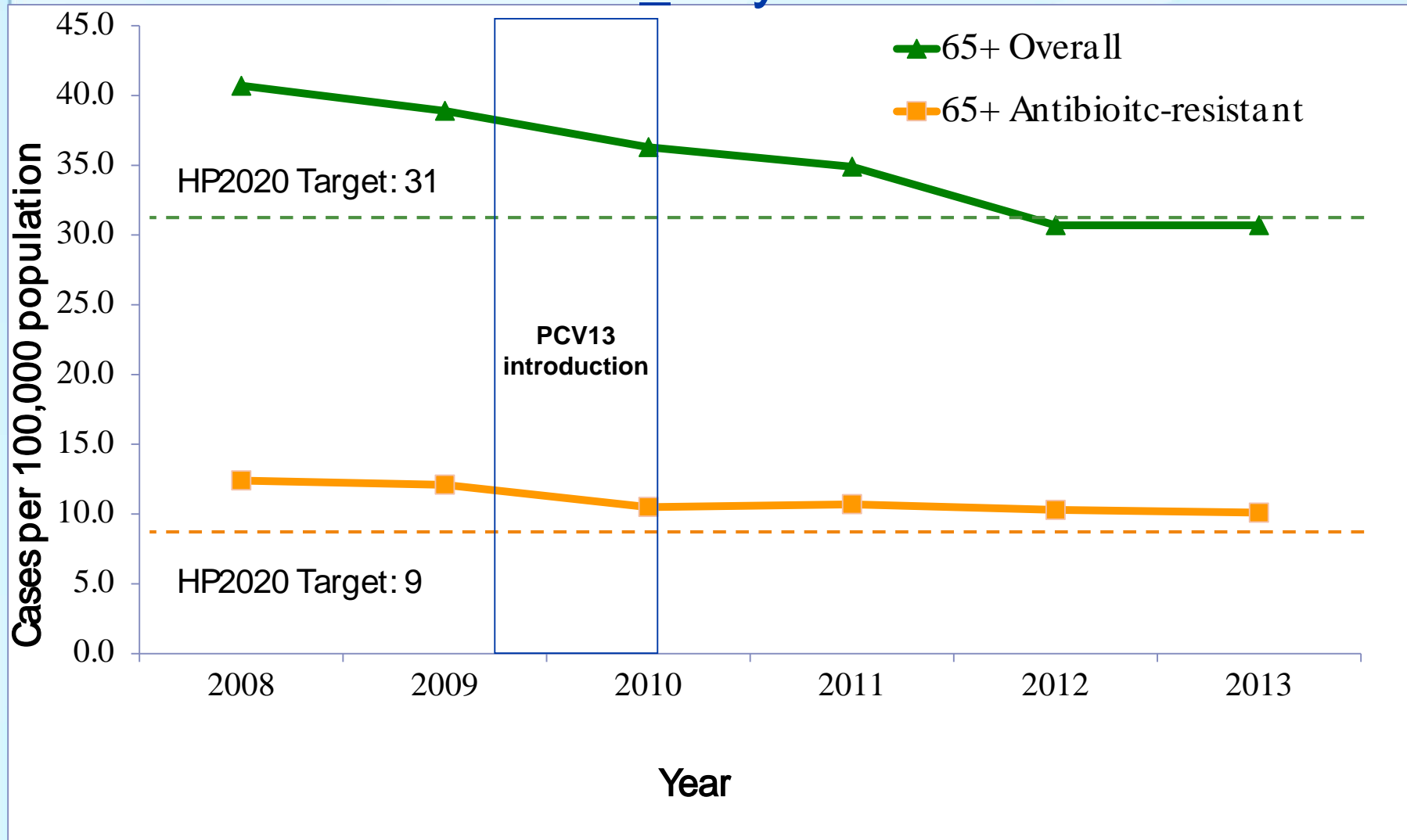


Incidence of Invasive Pneumococcal Disease (IPD) in Children <5 yearsold



Source: CDC (Active Bacterial Core Surveillance, EIP Network)

Incidence of Invasive Pneumococcal Disease (IPD) in Adults \geq 65 years old



Source: CDC (Active Bacterial Core Surveillance, EIP Network)



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ACIP Presentation Slides: August 2014 Meeting

August 13, 2014

August 13, 2014

Use of Pneumococcal Vaccines in Adults

- [Routine PCV13 use among adults >65 years old: summary of evidence, cost-effectiveness, and GRADE conclusions](#) [11 pages]
Dr Nancy Bennett
Dr Tamara Pilishvili
- [Considerations for PCV13 use among adults and policy options](#) [32 pages]
Dr Tamara Pilishvili

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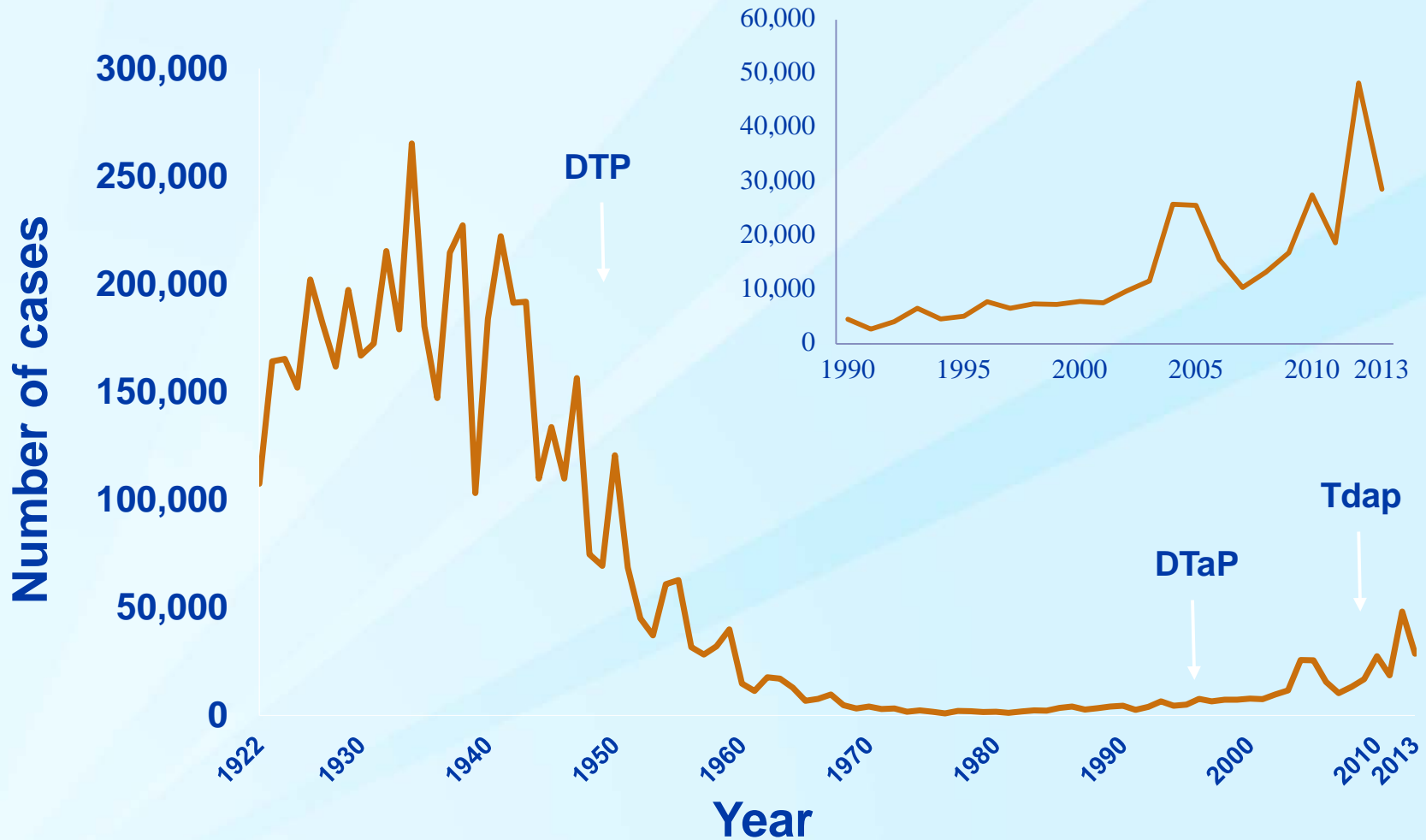
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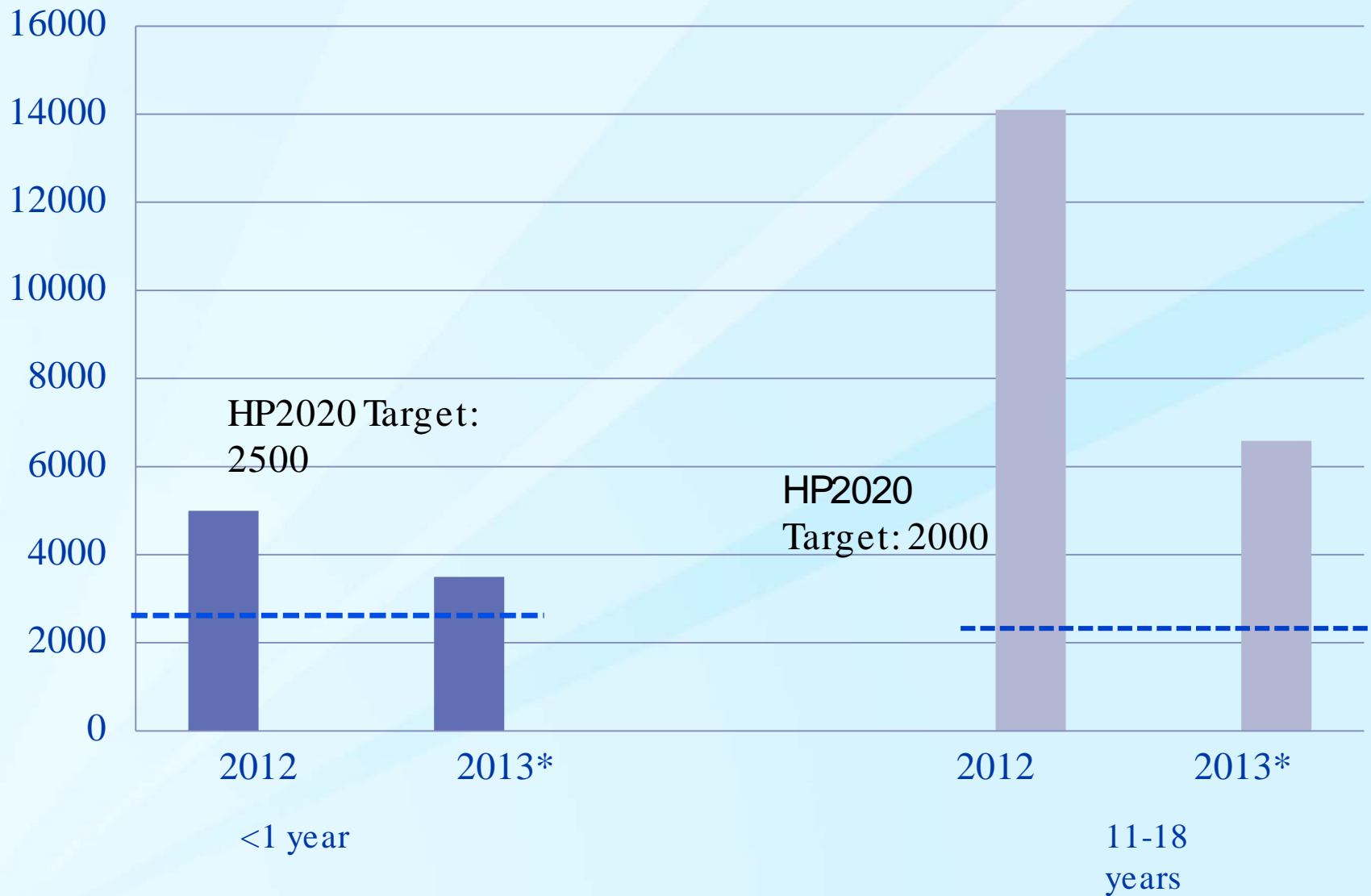
Product-related issues

Reported NNDSS Pertussis Cases: 1922-2013



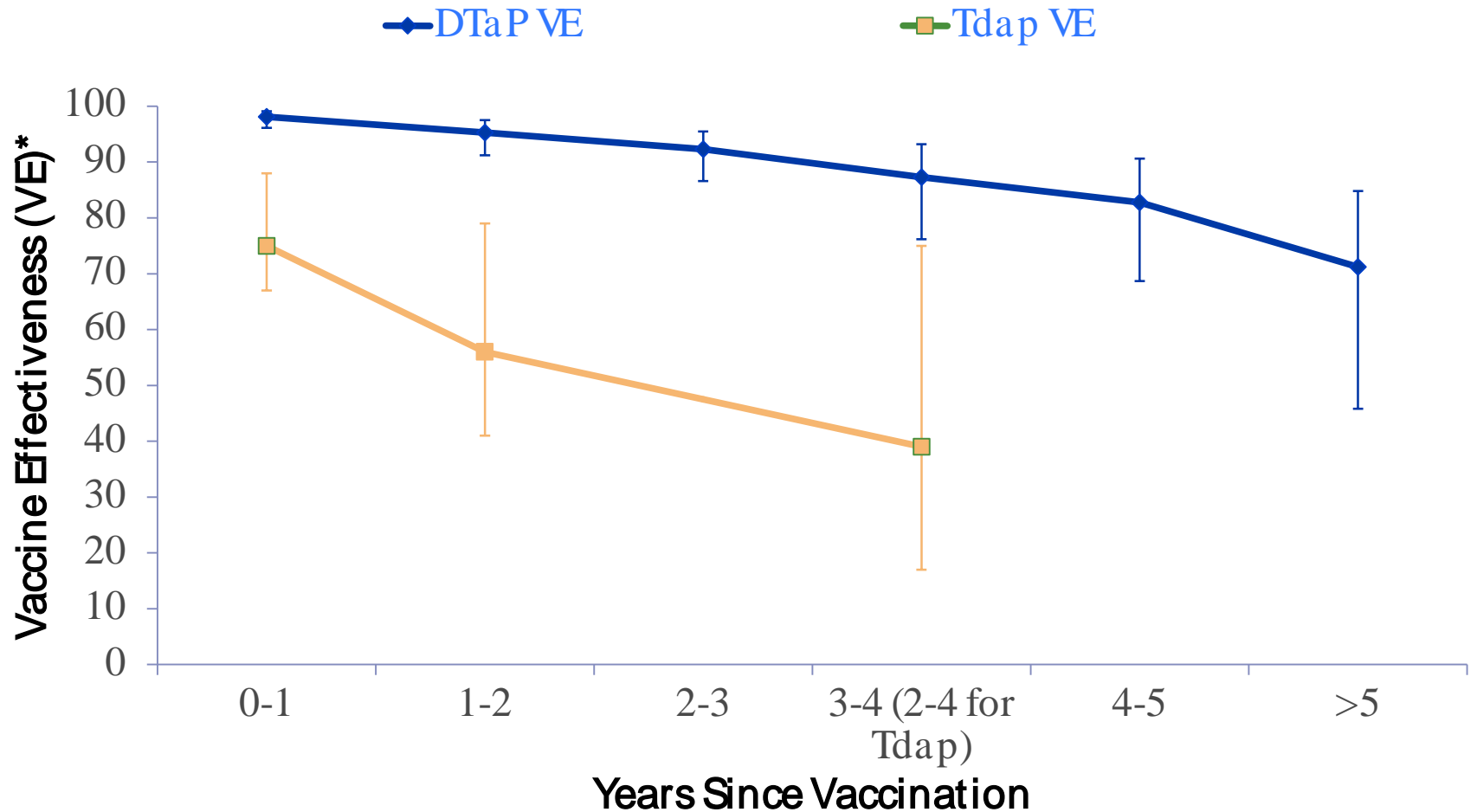
SOURCE: CDC, National Notifiable Diseases Surveillance System and Supplemental Pertussis Surveillance System and 1922-1949, passive reports to the Public Health Service

Trends in Pertussis by Age Group



*MMWR 62(52); ND-719-ND-732 (provisional, week 52
2013 NNDSS data) 9-5-14

DTaP Effectiveness (California, 2010¹) and Tdap Effectiveness (Washington, 2012²) by Time Since Last Dose*



¹JAMA. 2012;308:2126-2132.

*Accounting for clustering by county and provider

²CDC, unpublished data.

Effectiveness of maternal pertussis vaccination in England: an observational study



Gayatri Amirthalingam, Nick Andrews, Helen Campbell, Sonia Ribeiro, Edna Kara, Katherine Donegan, Norman K Fry, Elizabeth Miller, Mary Ramsay

Summary

Background In October, 2012, a pertussis vaccination programme for pregnant women was introduced in response to an outbreak across England. We aimed to assess the vaccine effectiveness and the overall effect of the vaccine programme in preventing pertussis in infants.

Methods We undertook an analysis of laboratory-confirmed cases and hospital admissions for pertussis in infants between Jan 1, 2008, and Sept 30, 2013, using data submitted to Public Health England as part of its enhanced surveillance of pertussis in England, to investigate the effect of the vaccination programme. We calculated vaccine effectiveness by comparing vaccination status for mothers in confirmed cases with estimates of vaccine coverage for the national population of pregnant women, based on data from the Clinical Practice Research Datalink.

Findings The monthly total of confirmed cases peaked in October, 2012 (1565 cases), and subsequently fell across all age groups. For the first 9 months of 2013 compared with the same period in 2012, the greatest proportionate fall in confirmed cases (328 cases in 2012 vs 72 cases in 2013, -78%, 95% CI -72 to -83) and in hospitalisation admissions (440 admissions in 2012 vs 140 admissions in 2013, -68%, -61 to -74) occurred in infants younger than 3 months, although the incidence remained highest in this age group. Infants younger than 3 months were also the only age group in which there were fewer cases in 2013 than in 2011 (118 cases in 2011 vs 72 cases in 2013), before the resurgence. 26 684 women included in the Clinical Practice Research Datalink had a livebirth between Oct 1, 2012 and Sept 3, 2013; the average vaccine coverage before delivery based on this cohort was 64%. Vaccine effectiveness based on 82 confirmed cases in infants born from Oct 1, 2012, and younger than 3 months at onset was 91% (95% CI 84 to 95). Vaccine effectiveness was 90% (95% CI 82 to 95) when the analysis was restricted to cases in children younger than 2 months.

Published Online

July 16, 2014

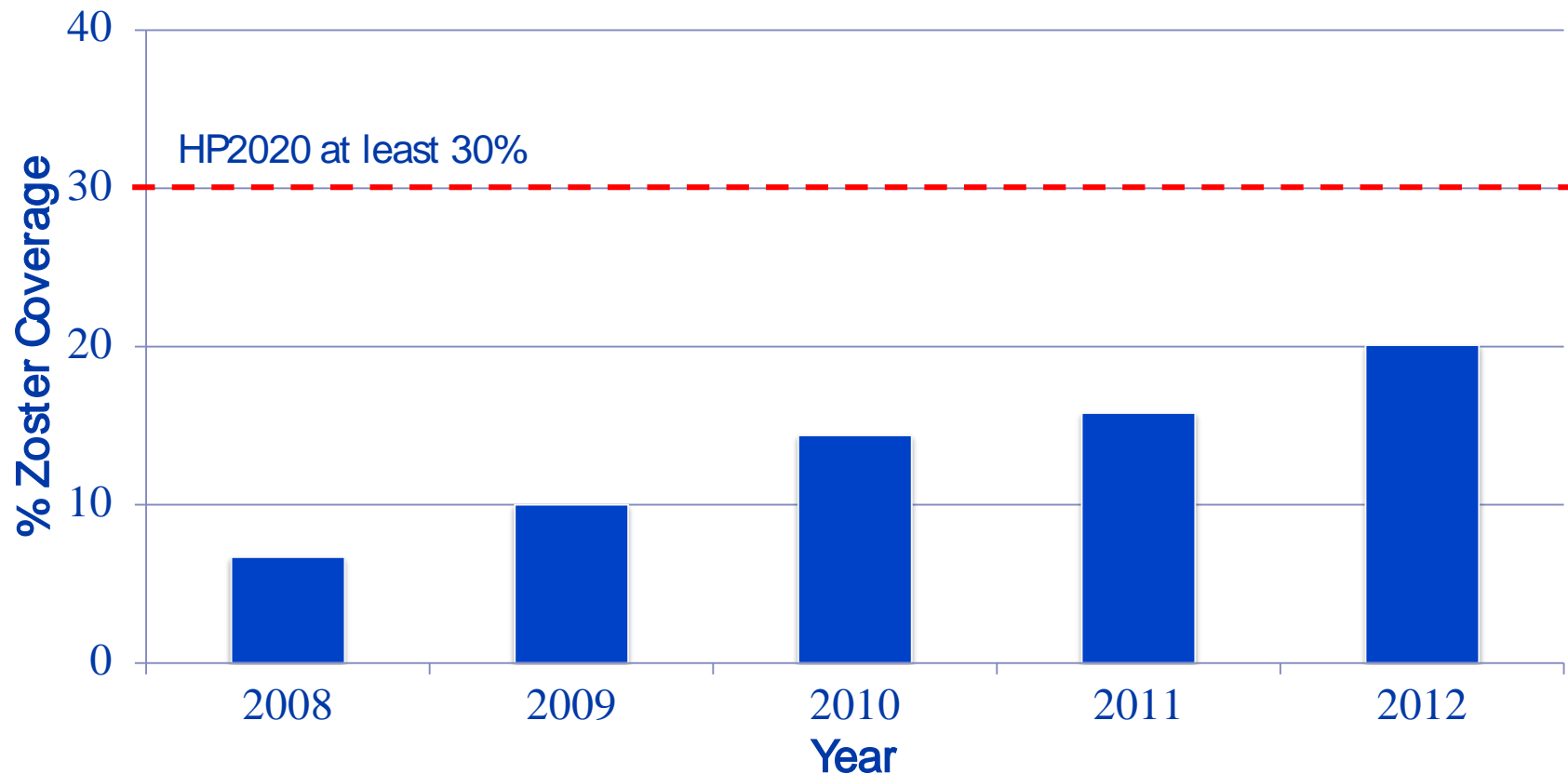
[http://dx.doi.org/10.1016/S0140-6736\(14\)60686-3](http://dx.doi.org/10.1016/S0140-6736(14)60686-3)

See Online/Comment

[http://dx.doi.org/10.1016/S0140-6736\(14\)60977-6](http://dx.doi.org/10.1016/S0140-6736(14)60977-6)

Immunisation, Hepatitis and Blood Safety Department (G Amirthalingam MFPH, H Campbell MSc, S Ribeiro BA, E Kara MBBCh, Prof E Miller FRCPATH, M Ramsay FFPH), Statistics, Modelling and Economics Department (N Andrews PhD), and Respiratory and Vaccine Preventable Bacterial Reference Unit (N K Fry PhD), Public Health England, London, UK; and Vigilance and Risk Management of Medicines, Medicines and Healthcare Products Regulatory Agency, London, UK (K Donegan PhD)

Estimated Herpes Zoster (Shingles) Vaccination Coverage, Adults aged ≥ 60 years

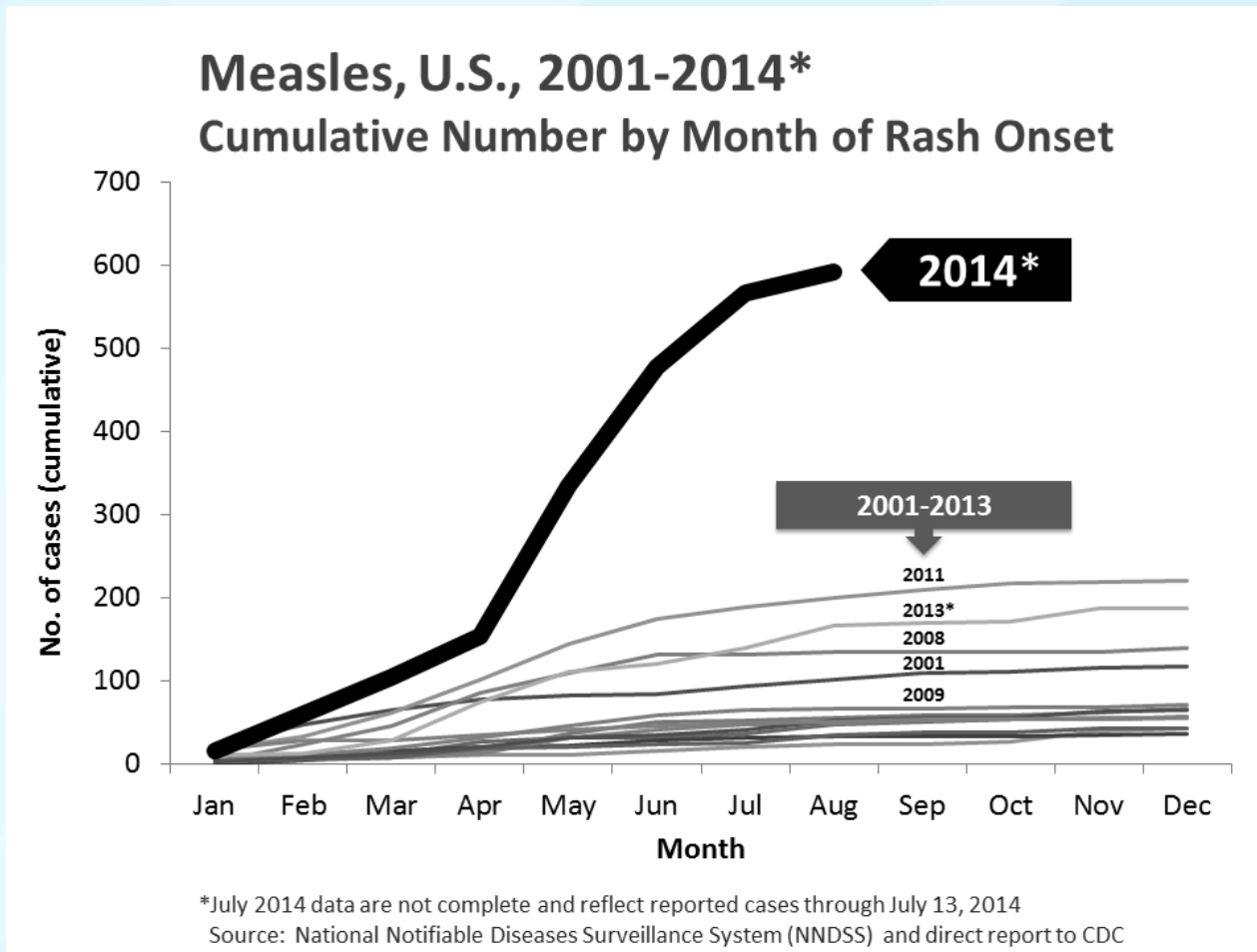


Major Supply Constraints in Past 5 Years

- ❑ Hib vaccine shortage:
Dec. 2007-July 2009
- ❑ Zoster vaccine shortage:
2009-Dec. 2011
- ❑ Pentacel combination vaccine shortage:
Apr. 2012- May/June 2014

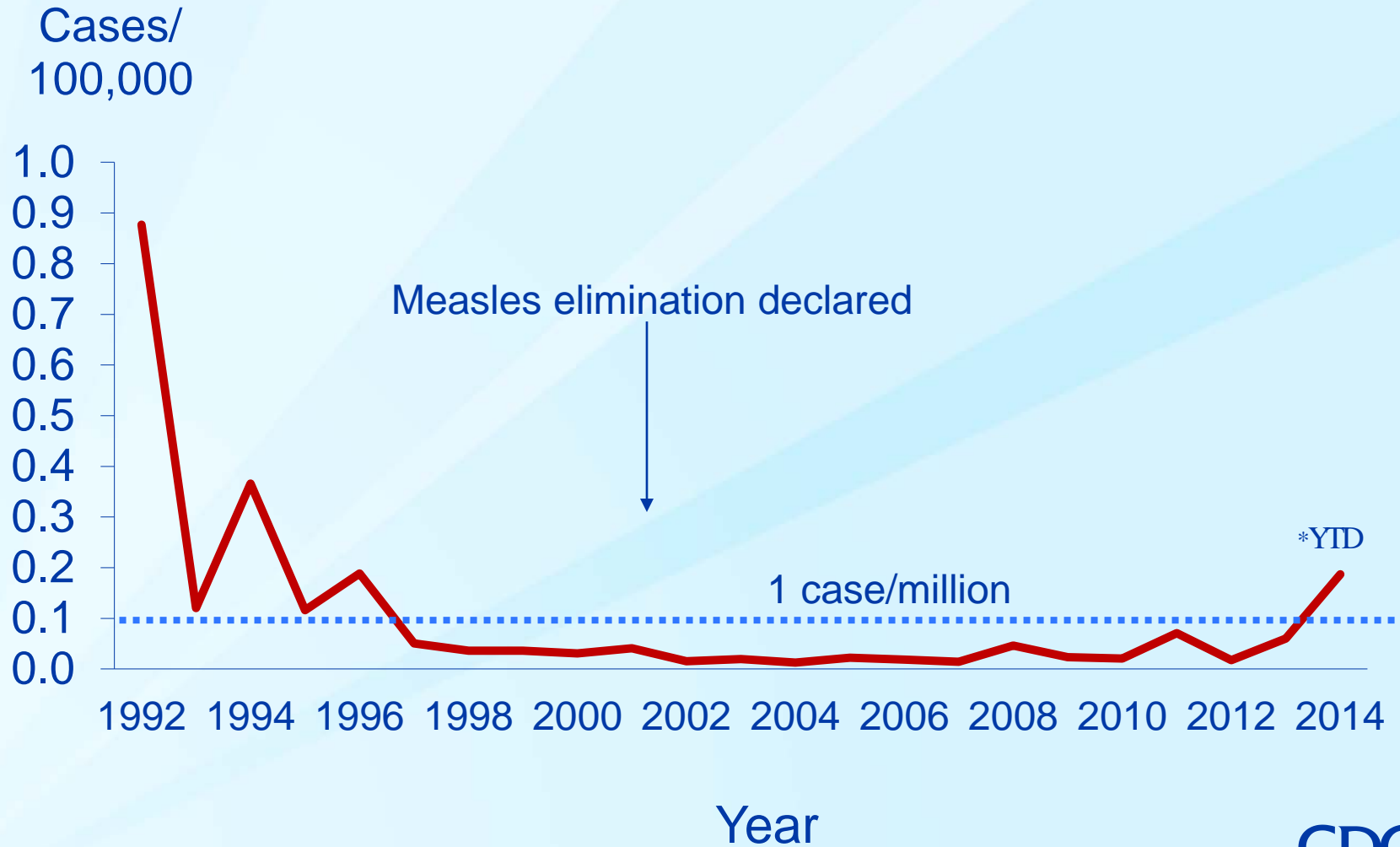
Consumer and Patient-related issues

Measles in the U.S. has reached a 20-year high



*2014 data reported as of August 29, 2014

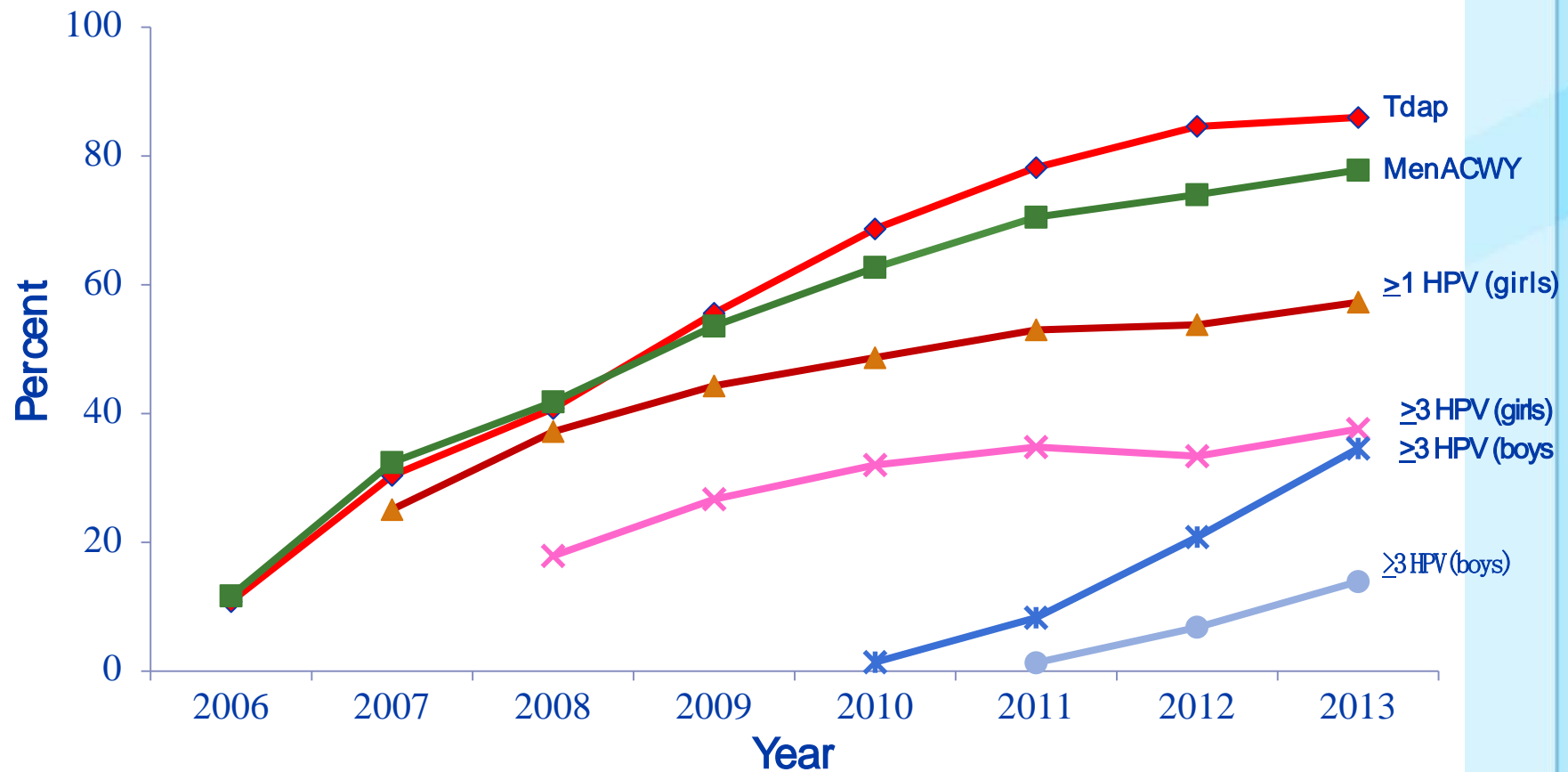
Reported Measles Incidence United States, 1992-2014*



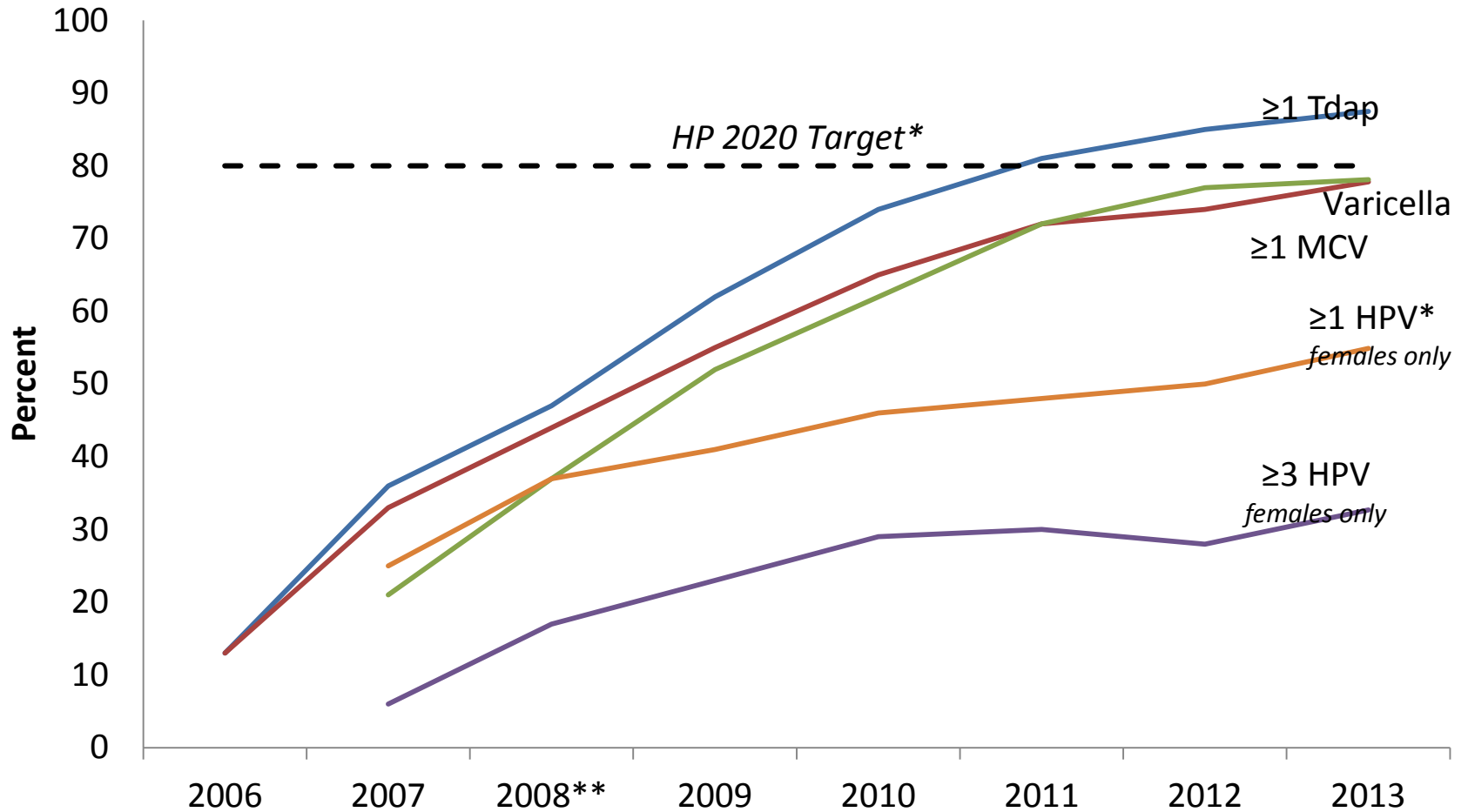
*As of September 2, 2014

Provider and system issues

National Vaccination Coverage Levels Adolescents 13-17 Years, NIS-Teen, 2006-2013



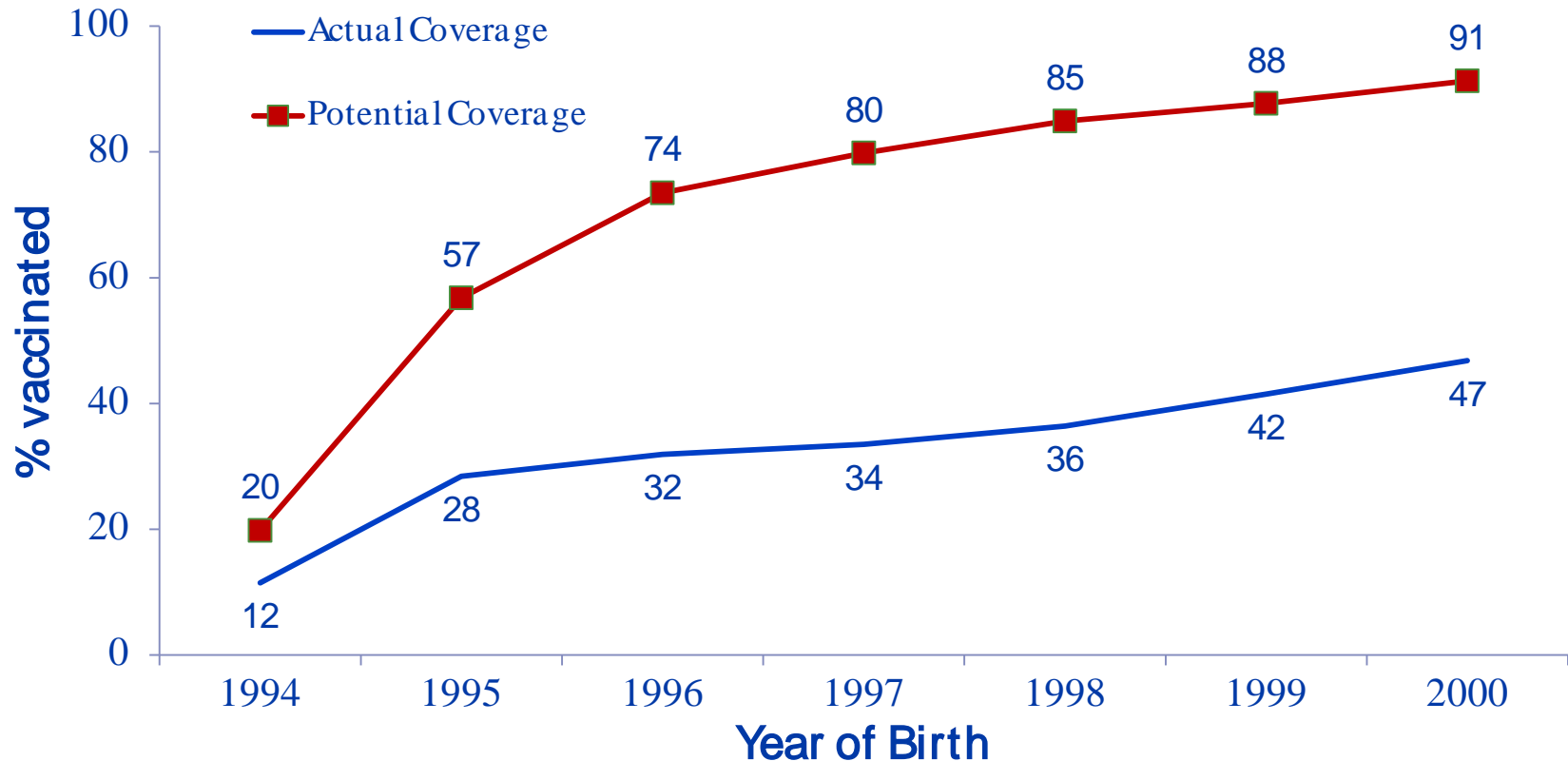
Vaccination Coverage, Adolescents 13-15 years, 2006-2013 NIS-Teen



* Target is 90% for 2 doses of varicella; ≥ 1 HPV is not an HP 2020 objective.

** Baseline for HP 2020.

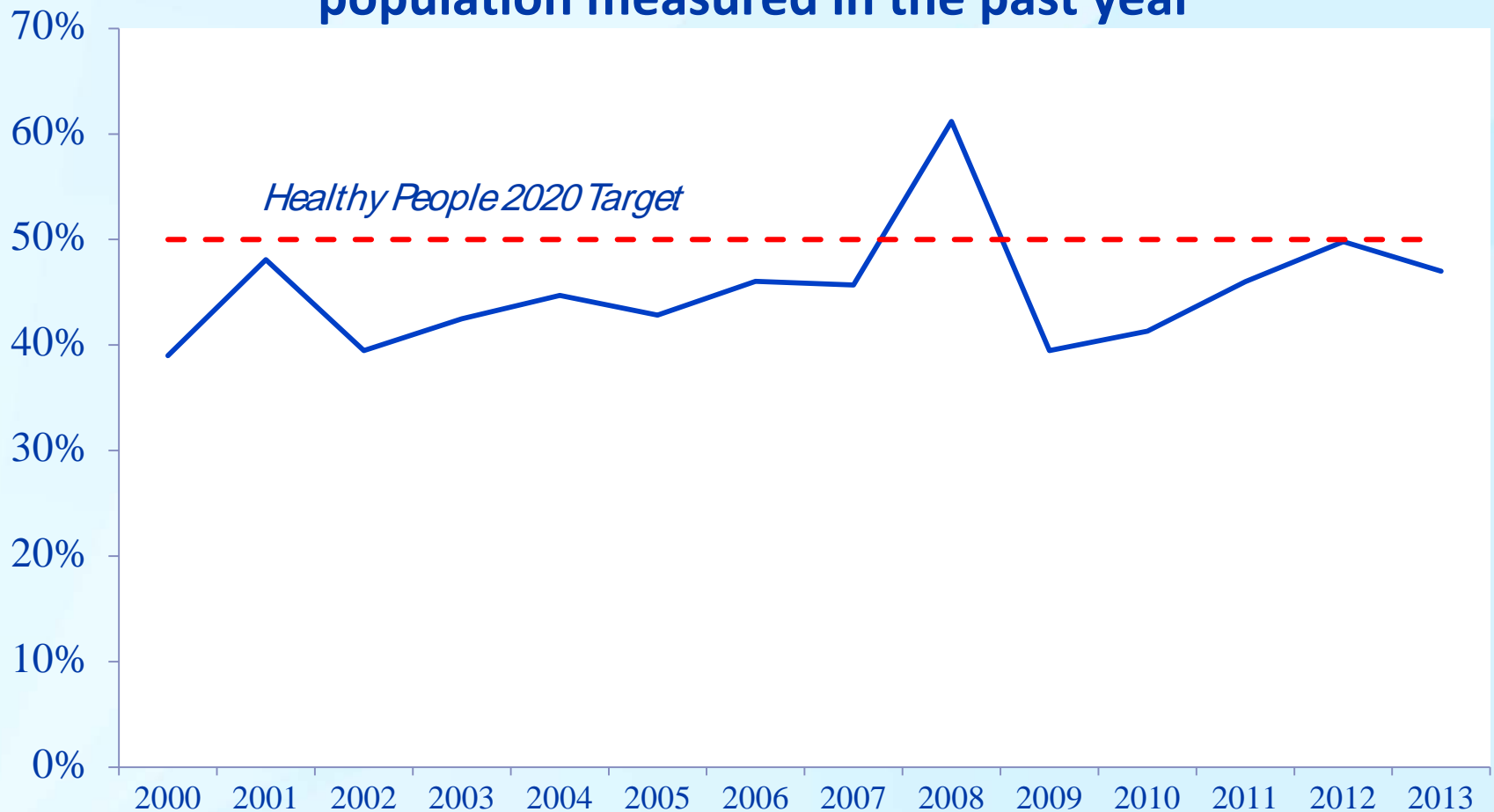
Actual and potentially achievable vaccination coverage of ≥ 1 HPV vaccine by age 13 years among adolescent girls if missed opportunities* were eliminated, NIS-Teen 2007-2013 combined



*Missed opportunity defined as having a healthcare encounter where at least one vaccine was administered but HPV was not
MMWR. 2014;63:620-4

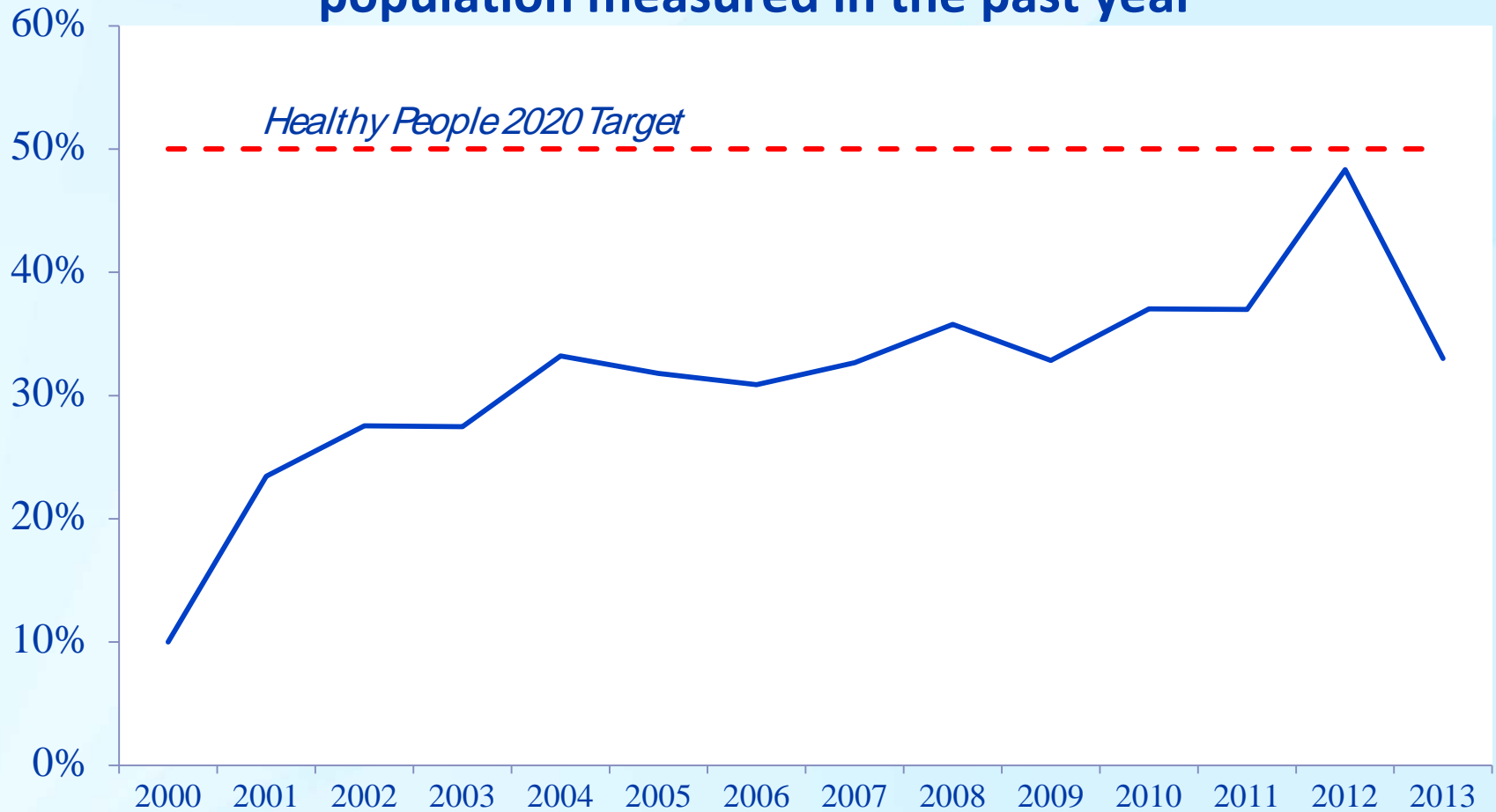
Healthy People 2020 Objective 17.1

Increase percentage of **public health** providers who have had vaccination coverage levels among children in their practice population measured in the past year

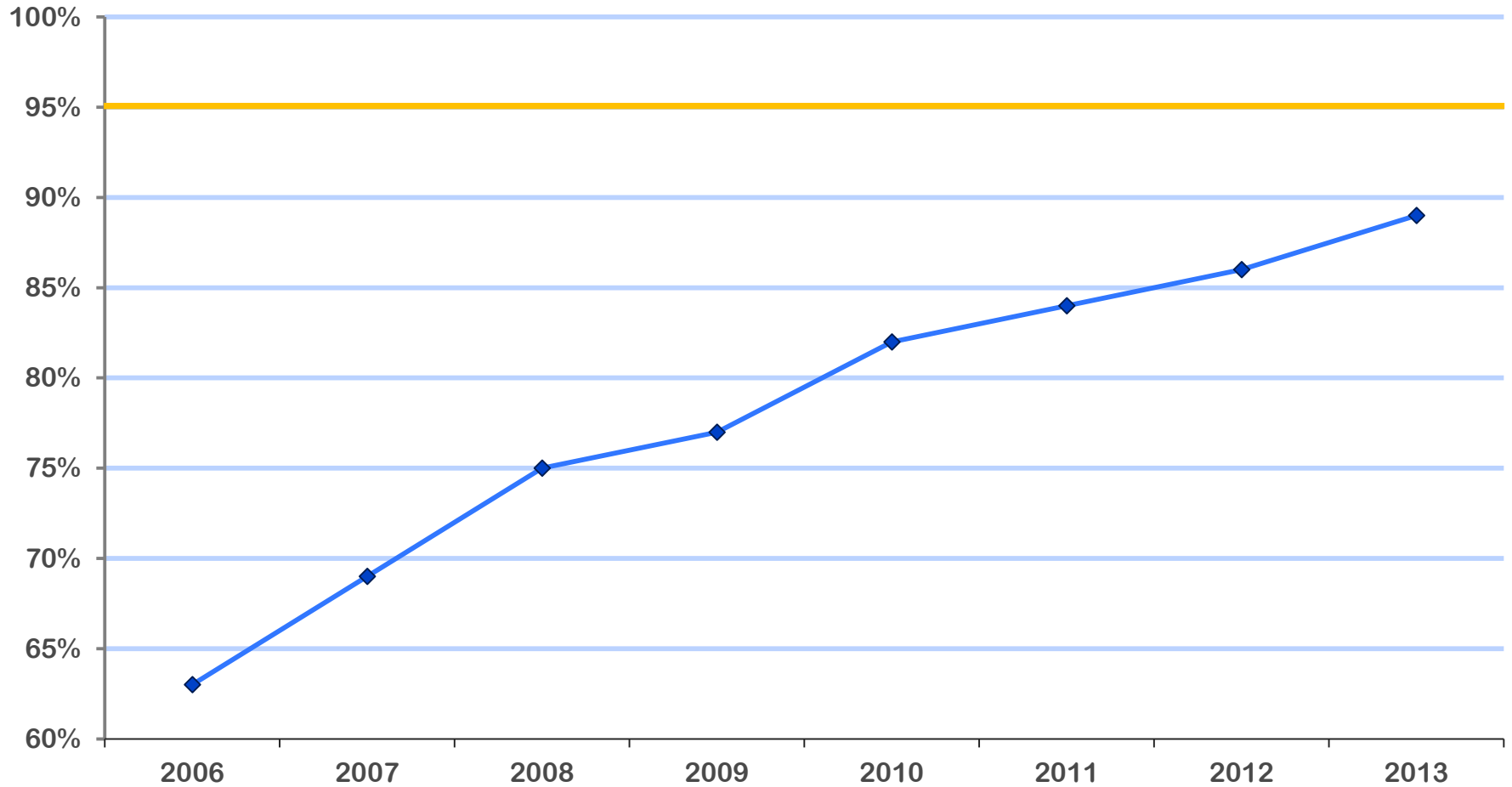


Healthy People 2020 Objective 17.2

Increase percentage of **private** providers who have had vaccination coverage levels among children in their practice population measured in the past year



IID-18 Increase the percentage of children under the age of 6 years of age whose immunization records are in a fully operational, population-based immunization information system (IIS)



Immunization Information System Executive Board

First meeting held Nov 19, 2013

- ❑ Newly chartered inter-governmental board
- ❑ Federal, state, and local governmental members
- ❑ Provides input to CDC to help update IIS strategic plan
- ❑ Helps NCIRD sustain national leadership role in future direction of IIS
- ❑ Assists us with development and alignment of strategic initiatives to support goals
- ❑ Strengthens links with key governmental stakeholders and enablers (Office of the National Coordinator, CMS, Indian Health Service, cancer registries, etc.)

CDC's IIS Strategic Plan Focus Areas

- ❑ **National leadership**
 - Vision, strategy, policy, standards, accountability, shared services
- ❑ **Service Delivery**
 - Provider/patient access & clinical decision support at point of care
- ❑ **Capacity & Infrastructure**
 - Immunization programs, informatics, surveillance, coverage
- ❑ **Interoperability/data management**
 - Data exchange across information ecosystem, including data quality & semantic interoperability considerations
- ❑ **Sustainability**
 - Long-term funding, resources to maintain immunization information management and informatics at a national level

Changes in HP2020 Objectives

- Influenza objectives have been consolidated and data sources updated
 - <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicid=23>
- HPV objective for boys has been approved
 - Eventually, aim for HPV objective for all teens (girls and boys)

Summary for 2013/14 HP2020

- Most VPDs low or decreasing
 - Sustained or improved immunization coverage
 - Measles in 2014 and pertussis cycles
- Current barriers and challenges
 - Reducing pertussis deaths through Tdap in pregnancy
 - Intermittent supply shortages
 - Public and provider barriers
 - Measles among selected groups (e.g. Amish)
 - HPV vaccination issues (missed opportunities)

Acknowledgments

Kafayat Adeniyi

Joseph Alcober

Brooke Barry

Amanda Cohen

Rebecca Gold

Marsha Houston

Helen Kuykendall

Karen Mason

Kristin Pope

Sandra Roush

James Singleton

Shannon Stokley

Candice Swartwood

Natarsha Thompson