



Vision of a Vaccine Hero: The Impact of Vaccines

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Arizona Immunization Conference

April 19, 2017

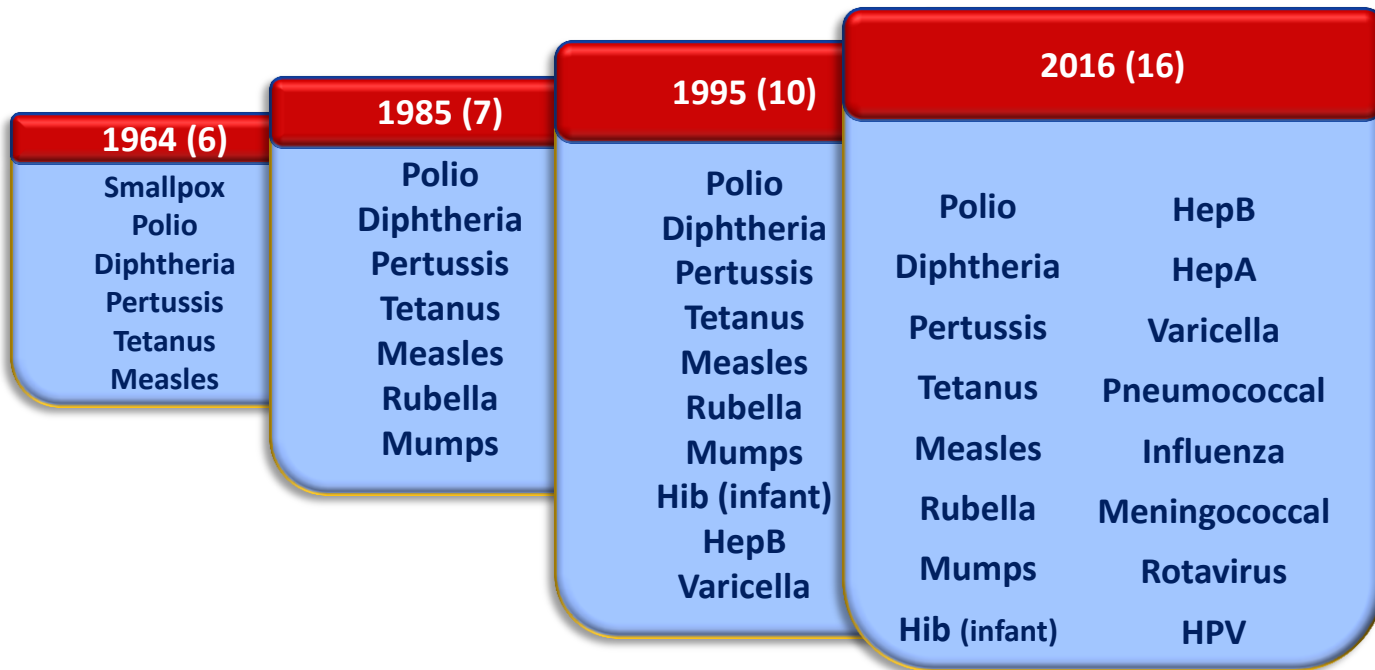
National Center for Immunization and Respiratory Diseases (NCIRD)

Areas of Focus

- **Maintain and strengthen childhood immunizations**
- **Increase vaccination coverage (HPV and maternal vaccination)**
- **New vaccines (RSV and shingles)**
- **Influenza (improving vaccine virus selection)**
- **New technology and systems (Advanced Molecular Detection and lab enhancement)**
- **Respiratory disease detection and response (Global Health Security, *Legionella*, Influenza, and MERS)**

Vaccine Successes

Number of Diseases Prevented by Vaccines Included in the Routine Child/Adolescent Immunization Schedule



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

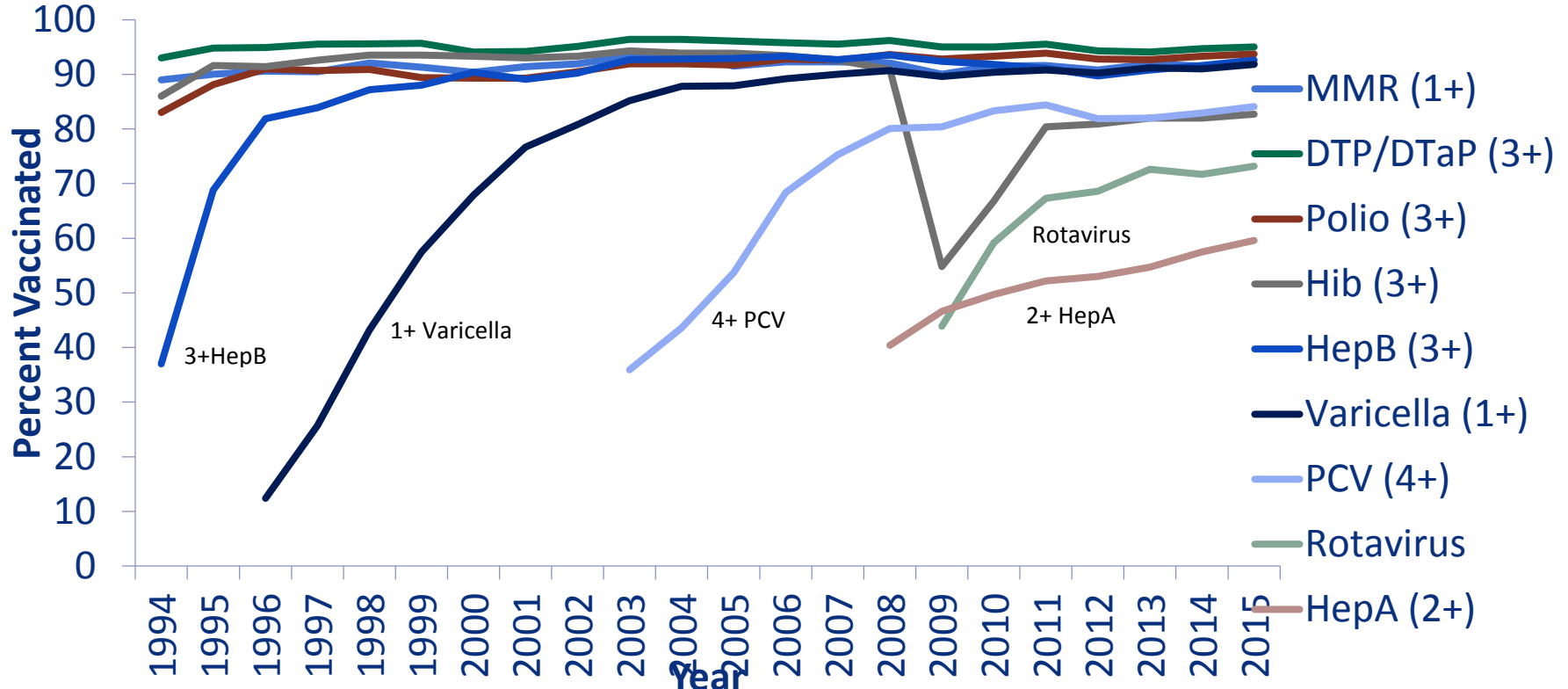
Disease	20th Century Annual Morbidity [†]	2016 Reported Cases ^{††}	Percent Decrease
Smallpox	29,005	0	100%
Diphtheria	21,053	0	100%
Measles	530,217	69	> 99%
Mumps	162,344	5,311	99%
Pertussis	200,752	15,737	91%
Polio (paralytic)	16,316	0	100%
Rubella	47,745	5	> 99%
Congenital Rubella Syndrome	152	1	99%
Tetanus	580	33	96%
<i>Haemophilus influenzae</i>	20,000	22*	> 99%

† JAMA. 2007;298(18):2155-2163

†† CDC. MMWR January 6, 2017/ 64(52);ND-924 – ND-941. (MMWR 2016 week 52 provisional data)

* *Haemophilus influenzae* type b (Hib) < 5 years of age. An additional 11 cases of Hib are estimated to have occurred among the 222 reports of Hib (< 5 years of age) with unknown serotype.

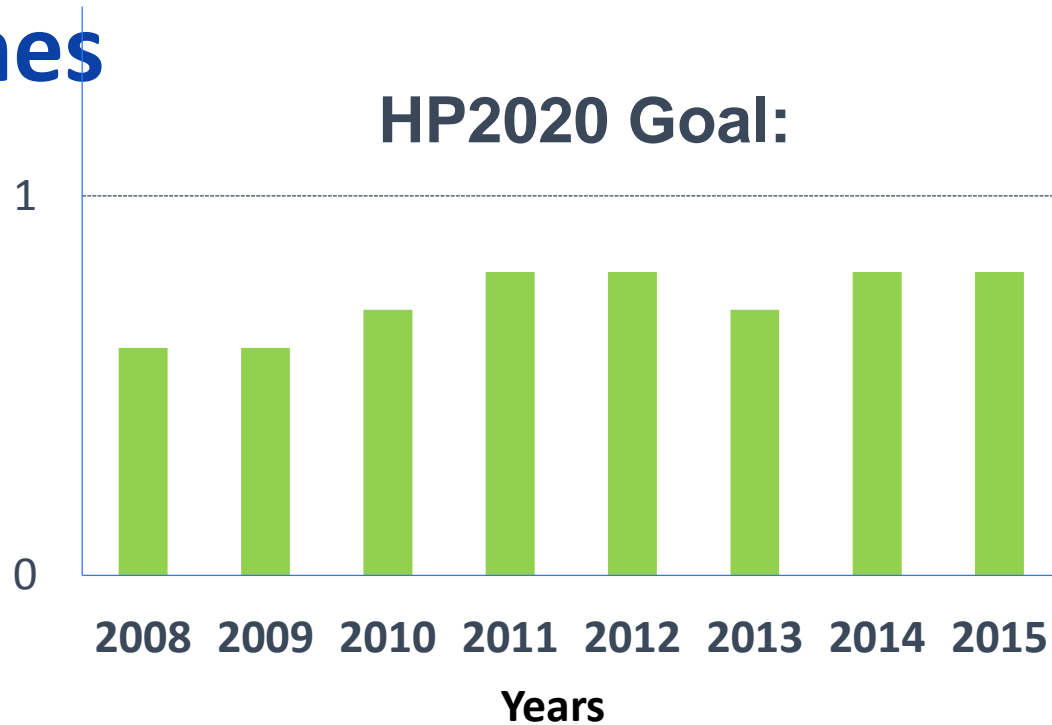
Vaccine Coverage among Children 19-35 Months, National Immunization Survey, United States, 1994-2015



The Healthy People 2020 target for coverage is 90% for all these vaccines with the exception of rotavirus (80%) and HepA (85%).

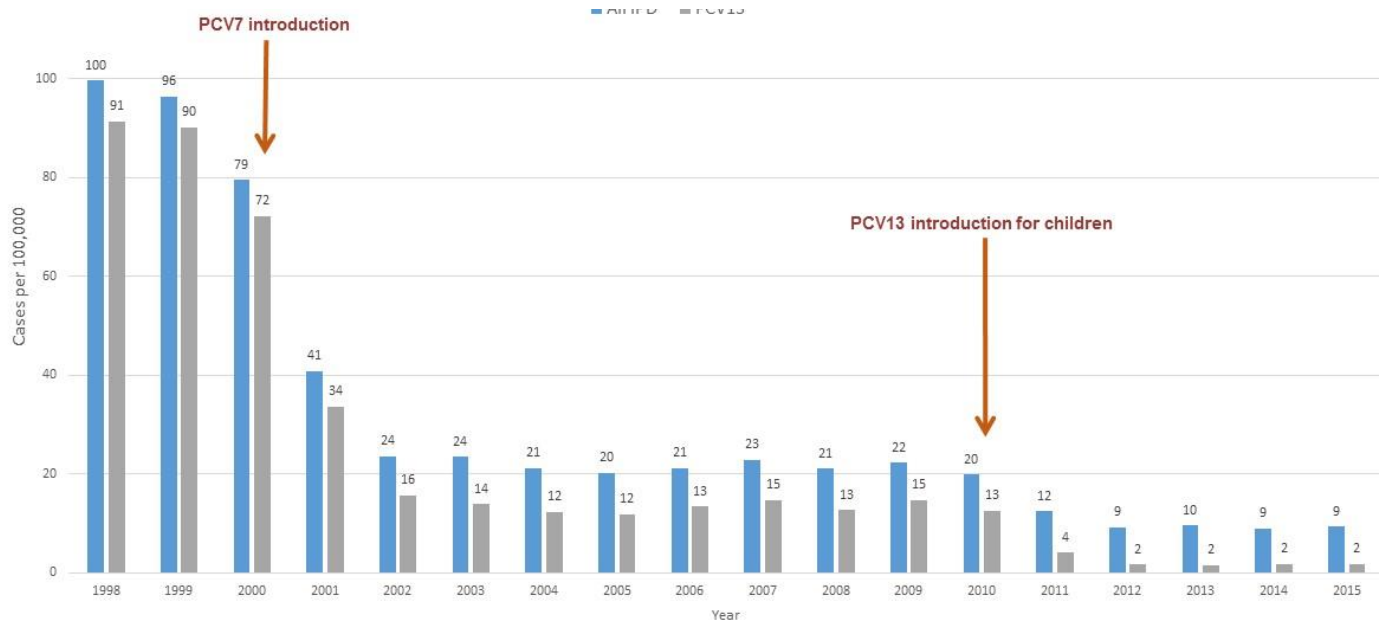
Abbreviations: MMR = measles, mumps, and rubella vaccine; DTP/DTaP = diphtheria, tetanus toxoids, and pertussis vaccine / diphtheria, tetanus toxoids, and acellular pertussis vaccine; Hib = *Haemophilus influenzae* type b vaccine; FS = full series; HepB = hepatitis B vaccine; PCV = pneumococcal conjugate vaccine; HepA = hepatitis A vaccine

Very Few U.S. Toddlers Have Received No Vaccines



Protecting Children from Serious Disease through 1st and 2nd Generation Pneumococcal Conjugate Vaccines (PCV)

Trends in invasive pneumococcal disease among children aged <5 years old, 1998-2015



*PCV13 serotype: 1, 3, 4, 5, 6A, 6B, 7F, 9V, 14, 18C, 19A, 19F, and 23F

Active Bacterial Core surveillance data, 1998–2015, unpublished

Childhood Immunization Provides

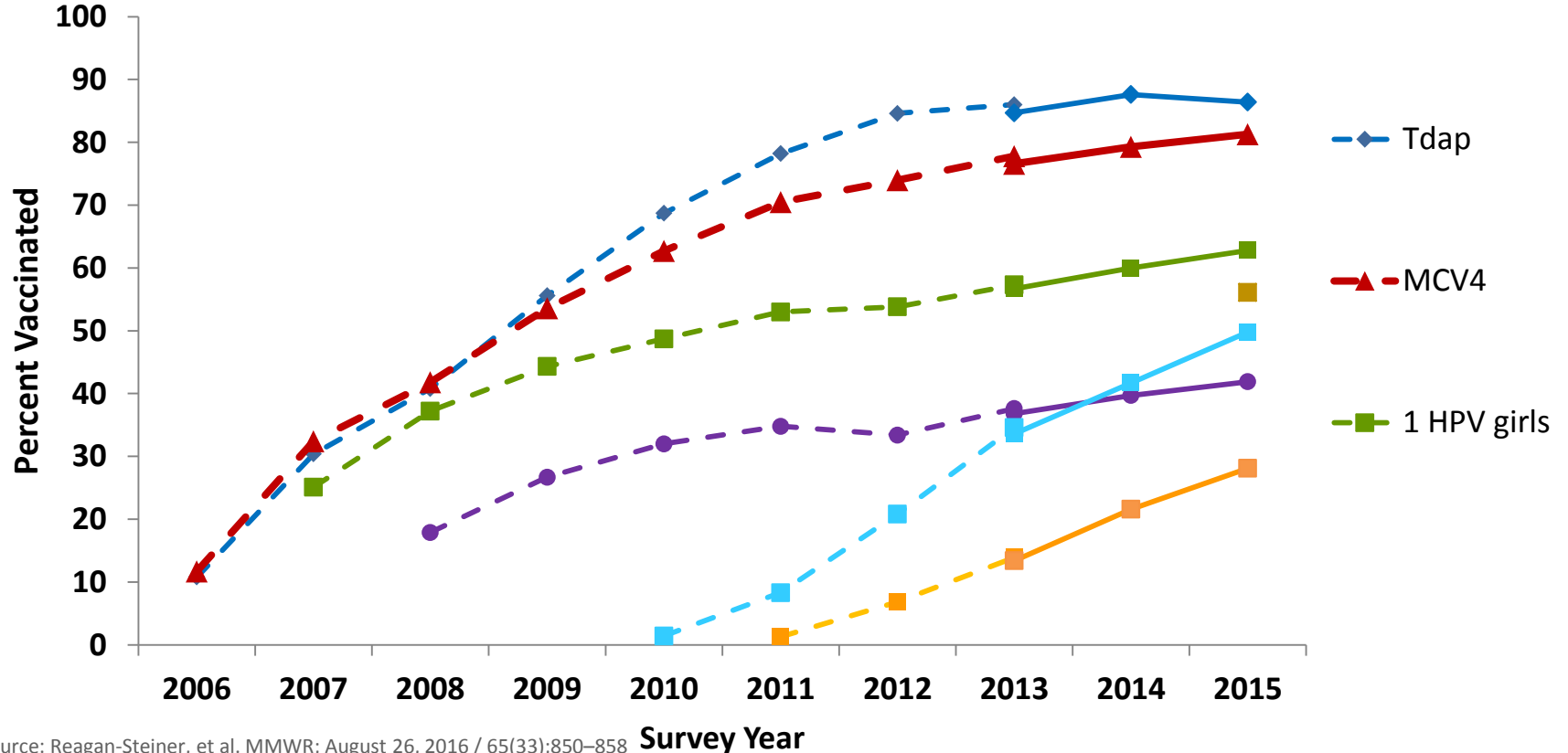
Big Savings
CDC estimates that vaccination of U.S. children born between 1994 and 2016 will:

- Prevent 381 million illnesses
- Prevent 24.5 million hospitalizations
- Help avoid 855,000 early deaths
- Save nearly \$360 billion in direct costs and \$1.65 trillion in total society costs



Vaccines for Preteens and Teens

Adolescent Vaccination Coverage
United States, 2006-2015



Source: Reagan-Steiner, et al. MMWR; August 26, 2016 / 65(33);850-858

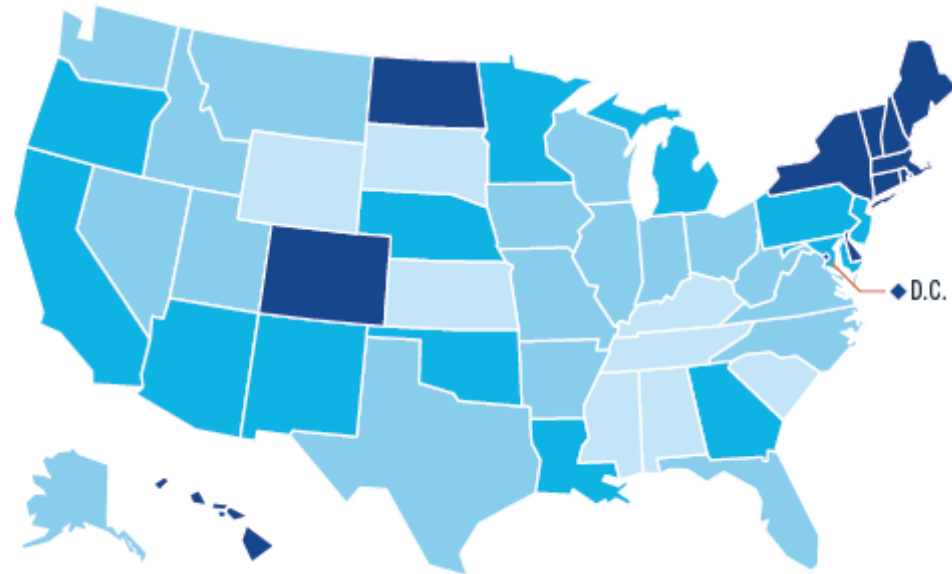
Increases in HPV Vaccination Among Boys

NATIONWIDE
5 OUT OF 10

**BOYS HAVE STARTED
THE HPV VACCINE SERIES**

Percentage of adolescent boys who have received one or more doses of HPV vaccine*

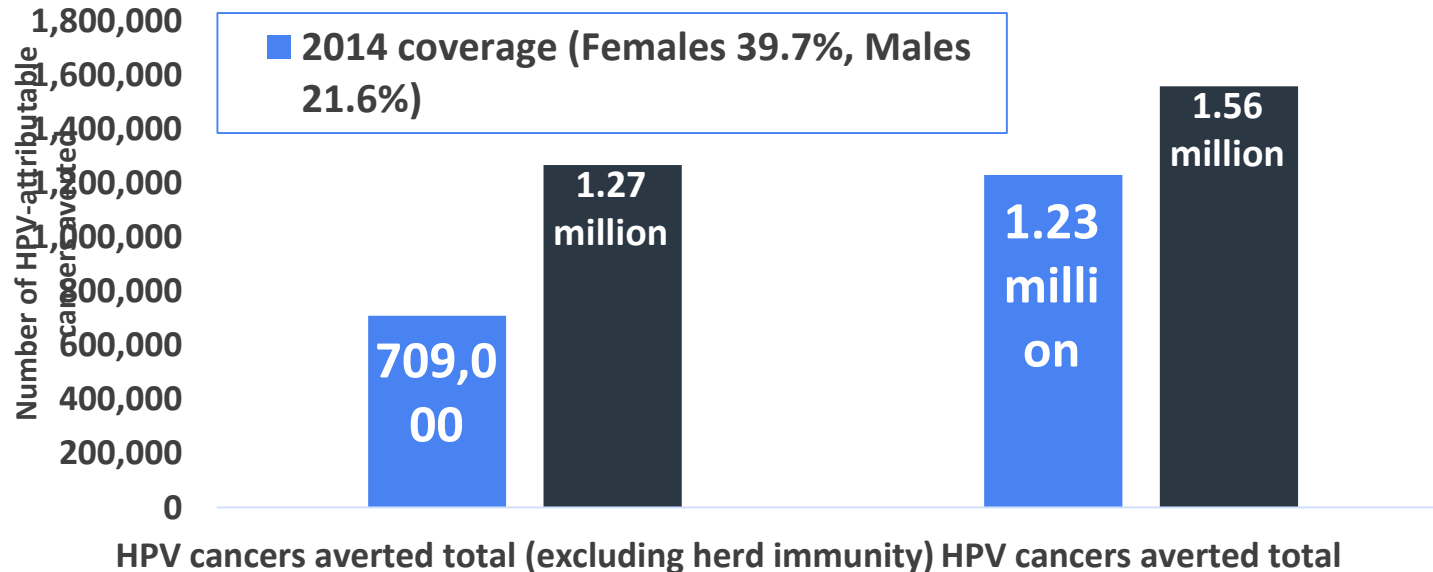
National coverage is 50%
Coverage by state:



*Estimated coverage with ≥ 1 dose of human papillomavirus (HPV) vaccine among adolescents aged 13-17 years, National Immunization Survey–Teen (NIS–Teen), United States, 2015. Source: MMWR August 26, 2016

Number of HPV-Attributable Cancers Averted Over 100 Years of 9-Valent HPV Vaccination Program

Total U.S. population



- Estimates calculated using published model (Chesson et al, Hum Vaccin Immunother 2016), with modified coverage assumptions. Coverage levels shown (39.7%, 21.6%, and 80%) refer to coverage among ages 13-17. For females, the annual probability of vaccination in the current coverage scenario was modeled as 20.9% for age 12, 8.9% for ages 13 to 18, and 0.89% for ages 19 to 26. For males, these values were 10.5%, 4.4%, and 0.44% (through age 21), respectively. In the 80% coverage scenario, the annual probability of vaccination was 73.8% for age 12, 8.9% for ages 13 to 18, and 0.89% for those 19 and older (through age 21 for men and age 26 for women).

Immunization Challenges

Childhood Immunization Disparities

In spite of high national childhood immunization coverage rates:

- Children living below the poverty level continued to have lower coverage with rotavirus, PCV, Hib, and DTaP vaccines
- Children living in more rural areas have lower coverage with DTaP, polio, varicella, PCV, hepatitis A, and rotavirus vaccines
- CDC is currently working to identify reasons for disparities and evidence-based interventions

Measles Cases in the U.S.

- Although year-round transmission eliminated from U.S. cases still reported in U.S., including among adults
 - Most cases importation-related
- Measles is still common in many parts of the world including some countries in Europe, Asia, the Pacific, and Africa
- The majority of people who got measles were unvaccinated

Number of measles cases by year since 2010

Year	Cases
2010	63
2011	220
2012	55
2013	187
2014	667
2015	188
2016*	70
2017**	28

*Cases as of December 31, 2016. Case count is preliminary and subject to change.

Cases as of March 25, 2017. Case count is preliminary and subject to change. **Data are updated monthly.

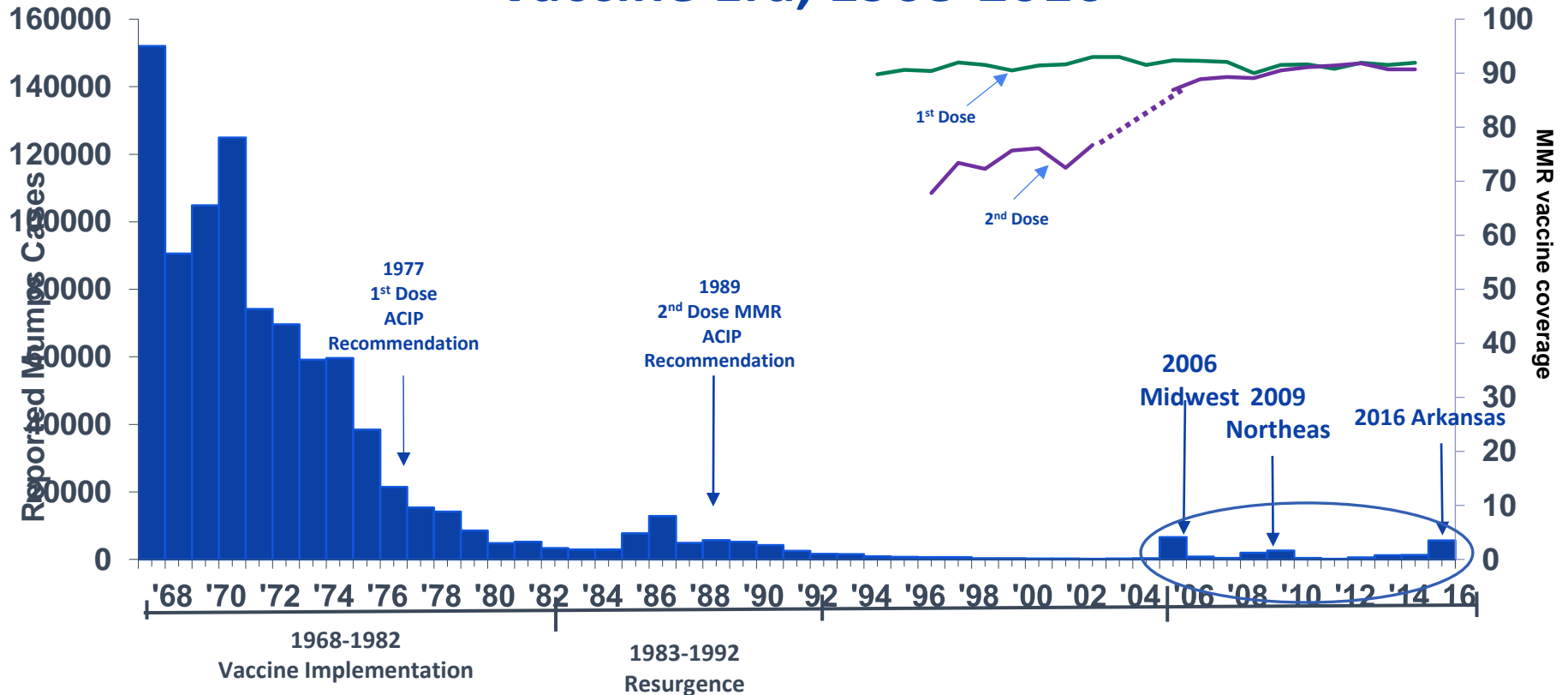
Source: [Morbidity and Mortality Weekly Report \(MMWR\), Notifiable Diseases and Mortality Tables](https://www.cdc.gov/mmwr/publications/index.html)

Measles, U.S. 2016 and 2017

- **Provisional total for 2016: 70 cases reported by 15 states**
 - 29 cases in Arizona
 - Total of 4 outbreaks reported in 2016 (defined as 3 or more linked cases)
 - 72% of cases reported were outbreak-related.
- **So far in 2017 (January 1 to March 25, 2017)**
 - 28 cases reported by 10 states (CA, CO, FL, MI, NE, NJ, NY, PA, UT, WA)
 - 2 outbreaks reported
 - 48% of cases are outbreak related

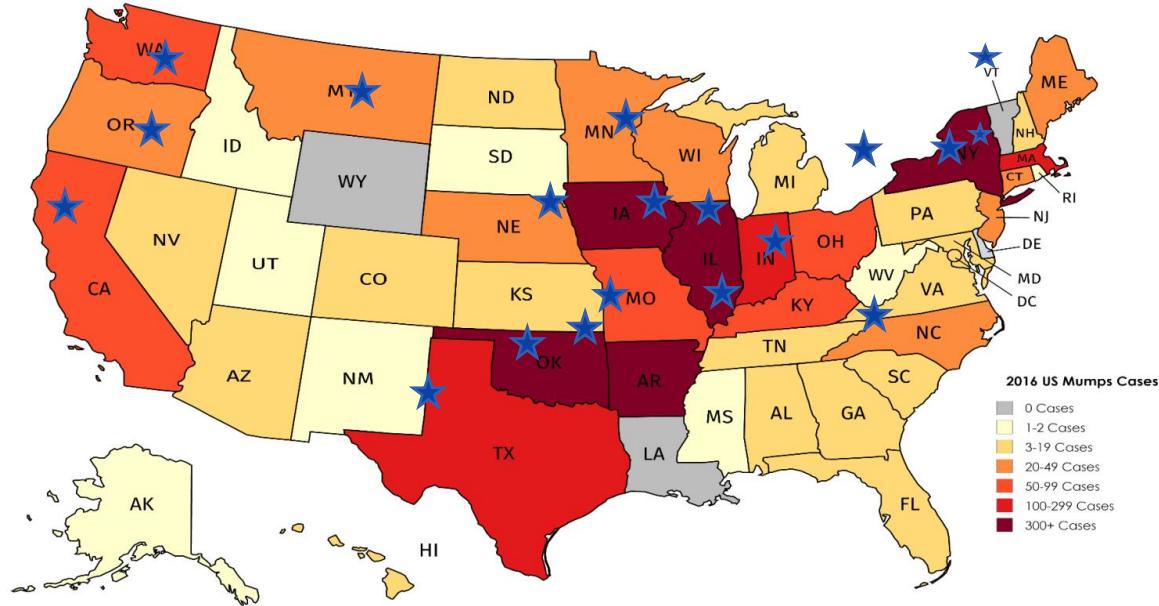


Reported Mumps Cases, United States, Vaccine Era, 1968-2016



Source: National Notifiable Diseases Surveillance System (cases, passive surveillance); National Immunization Survey (NIS) (1st dose coverage 19-35 year olds), National Health Interview Survey & NIS-Teen (2nd dose coverage); 2016 case data is preliminary (Feb 9, 2017) and subject to change

Reported Mumps Cases and Outbreaks, United States, 2016 (n=5,642)



Created with mapchart.net ©

Stars indicate states that notified CDC of mumps [outbreaks](#)

Source: National Notifiable Diseases Surveillance System (cases, passive surveillance), preliminary (Feb 9, 2017); state reports to CDC (outbreaks)

Mumps Summary

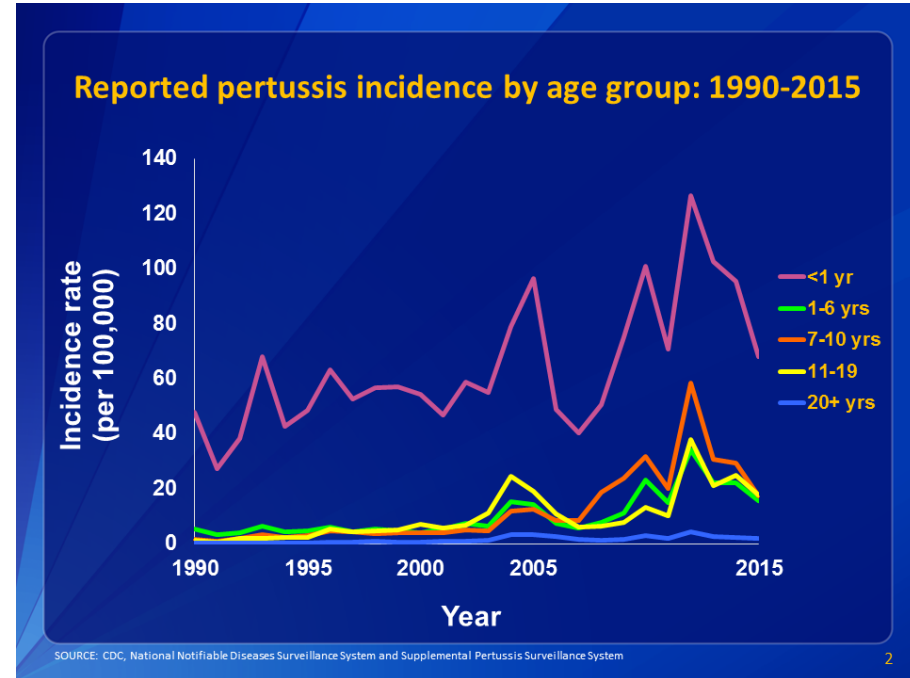
- Use of the mumps vaccine reduced disease levels ~99% versus pre-vaccine era in the United States
- Since 2006, mumps outbreaks have occurred in highly 2-dose vaccinated populations
- Current 2-dose schedule is sufficient for mumps control in the general population
- Intense exposure settings and waning immunity appear to be risk factors for secondary vaccine failure
- The benefit of a 3rd MMR dose still needs to be assessed
- The Advisory Committee on Immunization Practices (ACIP) has established a Mumps Working Group

Pertussis Trends

- Pertussis cases have steadily increased in recent decades
- More than 20,000 cases per year in recent years:
 - 20,762 cases in 2015
 - 32,971 cases in 2014
 - 28,639 cases in 2013
 - 48,277 cases in 2012
- 580 cases in Arizona in 2015

Sources: <https://www.cdc.gov/pertussis/surv-reporting/cases-by-year.html>
<https://www.cdc.gov/pertussis/surv-reporting.html>

- For U.S. infants under 1 year old:



Pertussis Summary – “It’s Complicated!”

- Pertussis incidence has increased since 1980s
- Resurgence of childhood disease despite high DTaP coverage
 - Young infants at risk
 - Excellent initial vaccine effectiveness
 - Moderate and immediate waning of immunity
- Re-emergence of adolescent disease
 - Tdap effectiveness about 70%^{1, 2}, duration of protection unknown
 - Tdap boost in DTaP recipients may wane more quickly³
- Switch to acellular pertussis vaccines is changing epidemiology
 - Waning immunity driving disease incidence
 - Contribution of pertactin-deficient strains

¹Clin Infect Dis. 2010 Aug 1;51(3):315-21.

²Ped Infect Dis J 2009;28(2):152-153.

³CDC. MMWR 2012;61(28);517-522.

Low Maternal Vaccination Rates

- Coverage of recommended vaccines for pregnant women remains low—leaving a number of pregnant women and their infants at risk for complications from vaccine-preventable diseases
- Only 50.3% of women received influenza vaccination before or during pregnancy in 2014-2015^a
- Only 41.7% of pregnant women received Tdap vaccination from 2007-2013^b

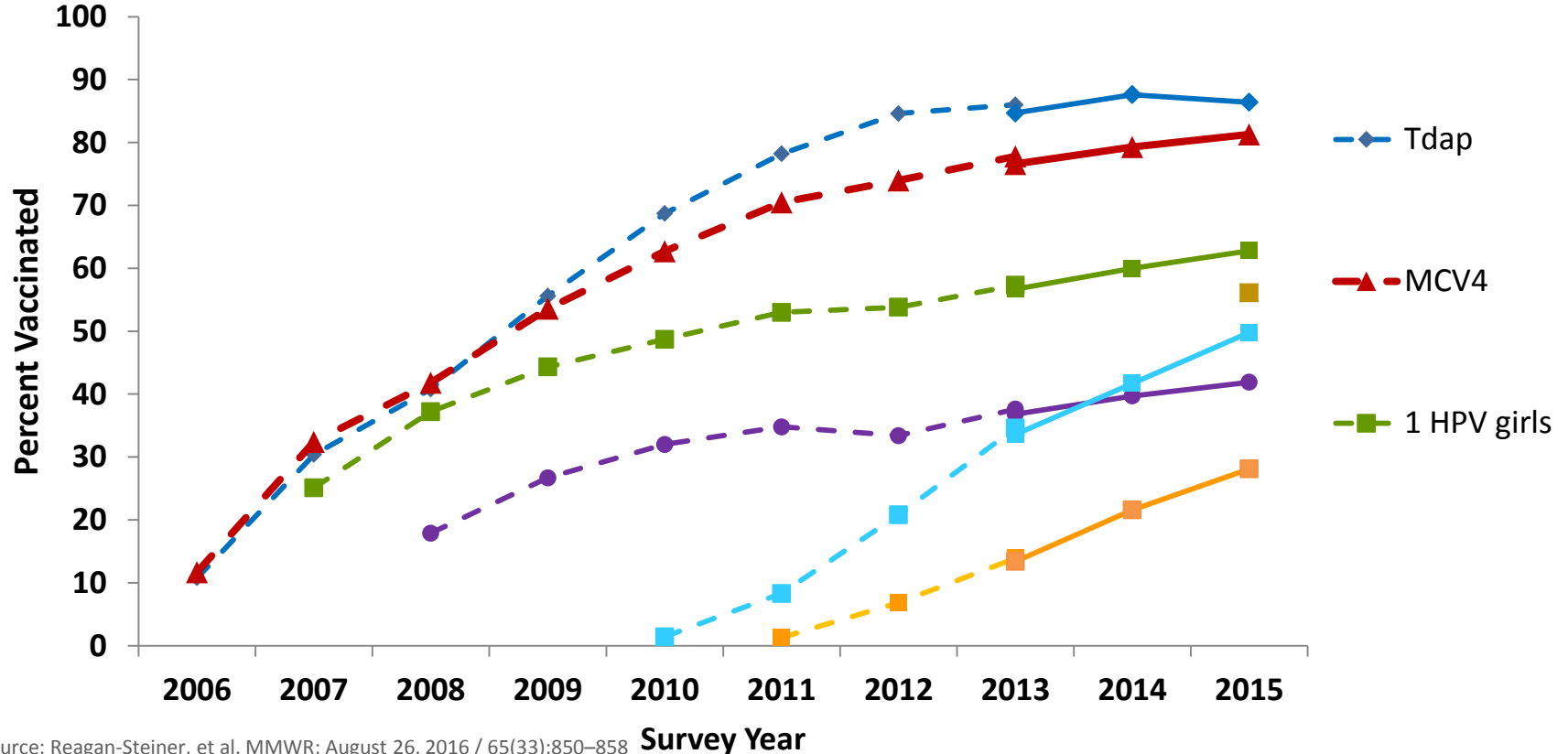


^a Ding H. *MMWR Morb Mortal Wkly Rep.* 2015.

^b Kharbanda EO. *Vaccine.* 2016.

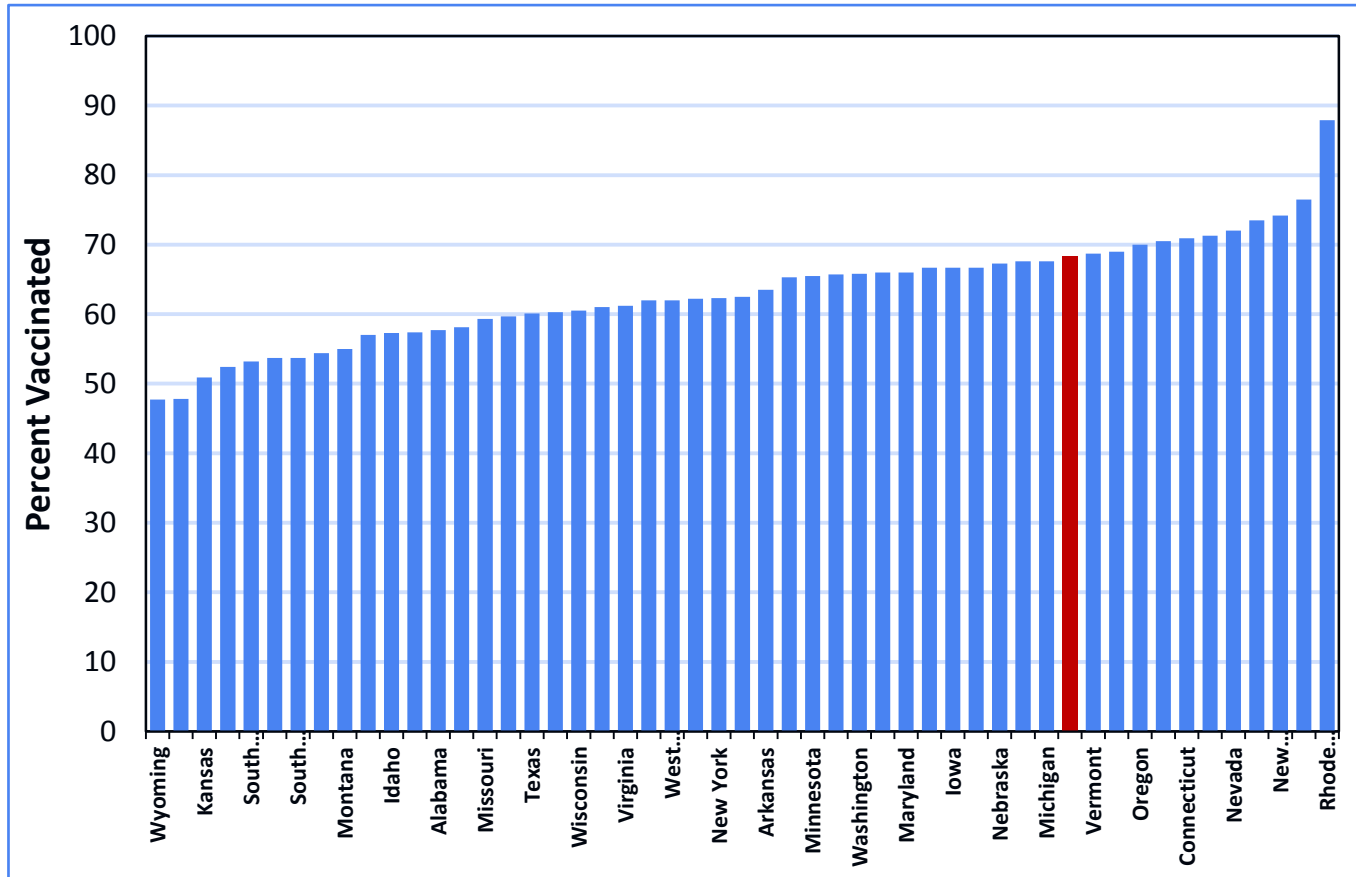
Vaccines for Preteens and Teens: HPV

Adolescent Vaccination Coverage
United States, 2006-2015

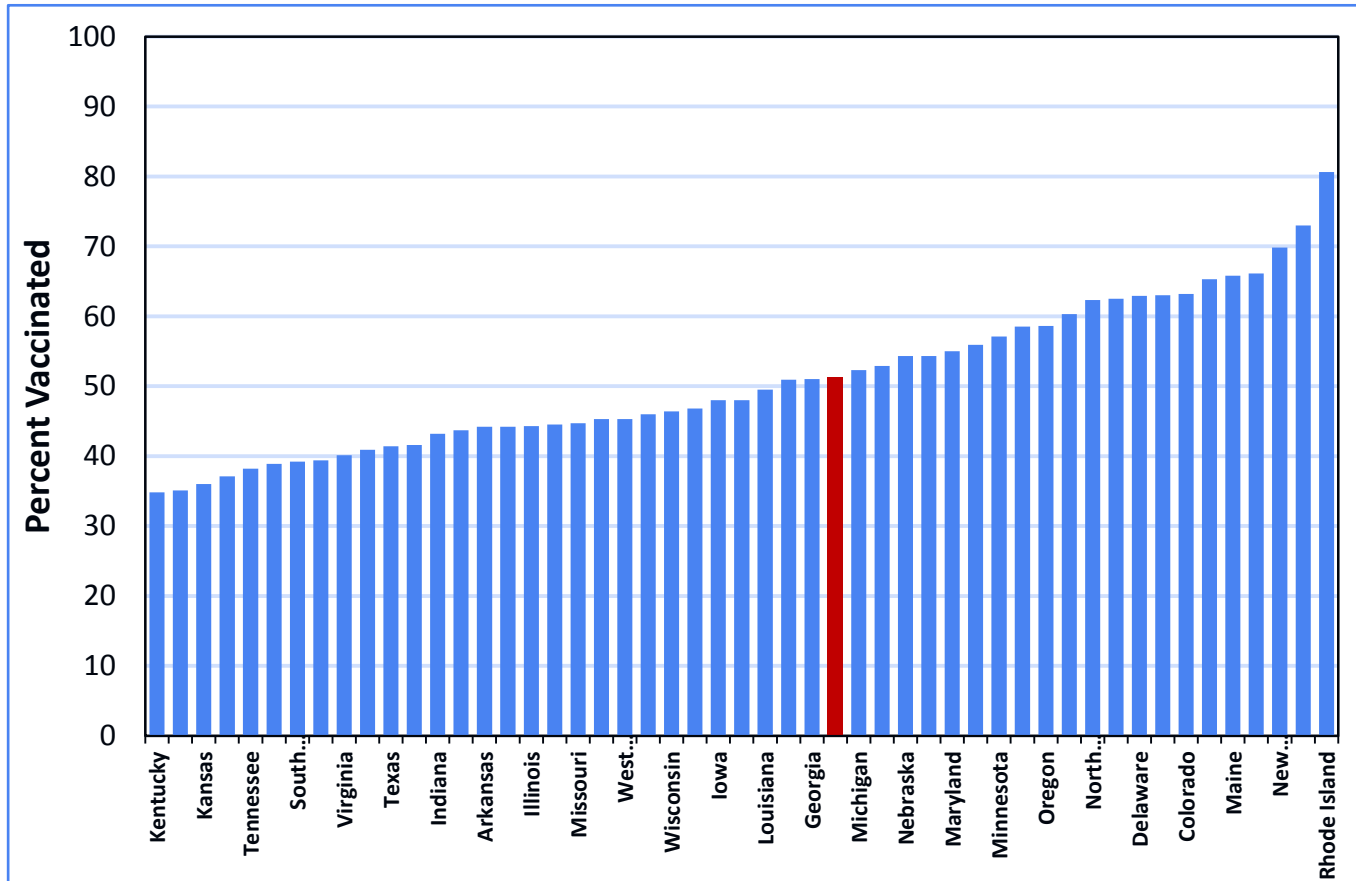


Source: Reagan-Steiner, et al. MMWR; August 26, 2016 / 65(33);850-858

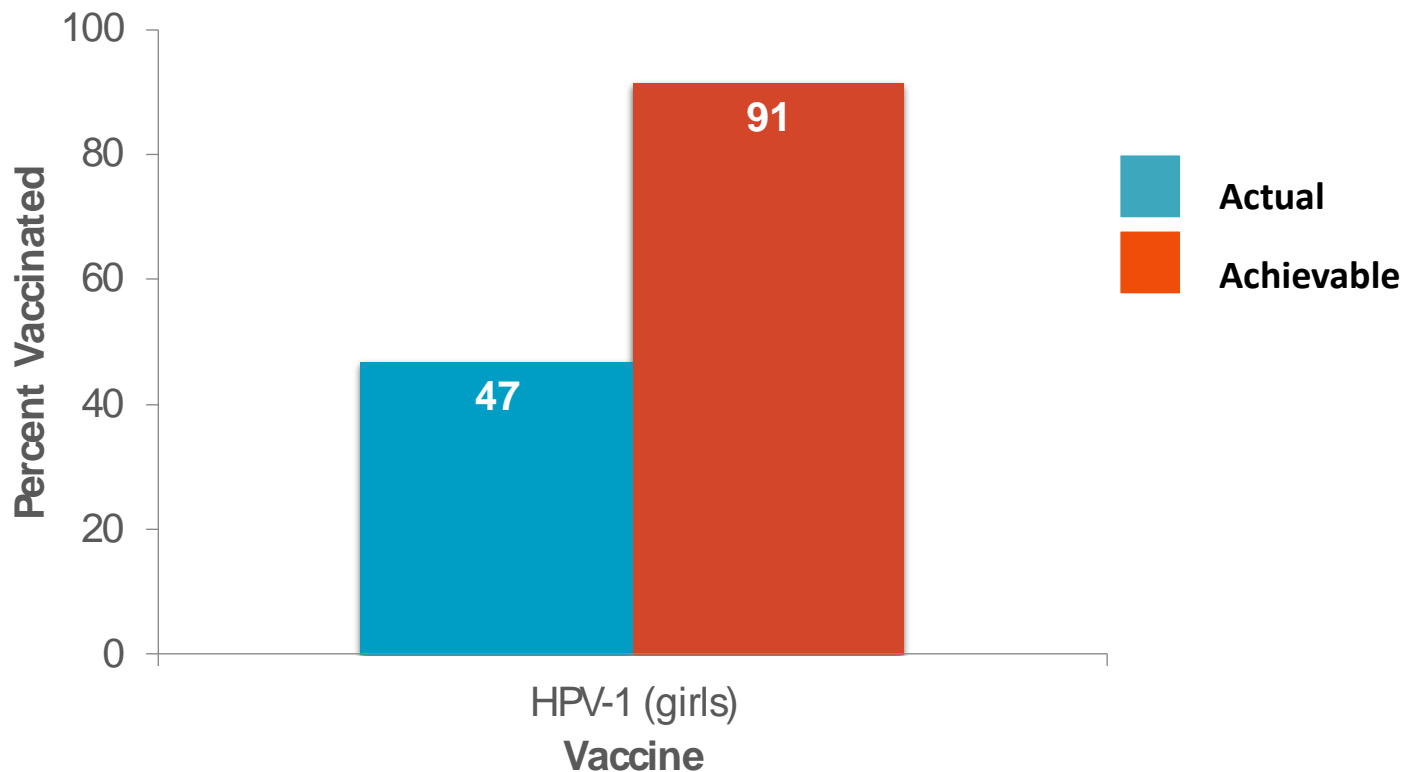
Estimated Coverage With ≥ 1 Dose HPV Vaccine Among Females Aged 13-17 Years, by State – National Immunization Survey-Teen, United States, 2015



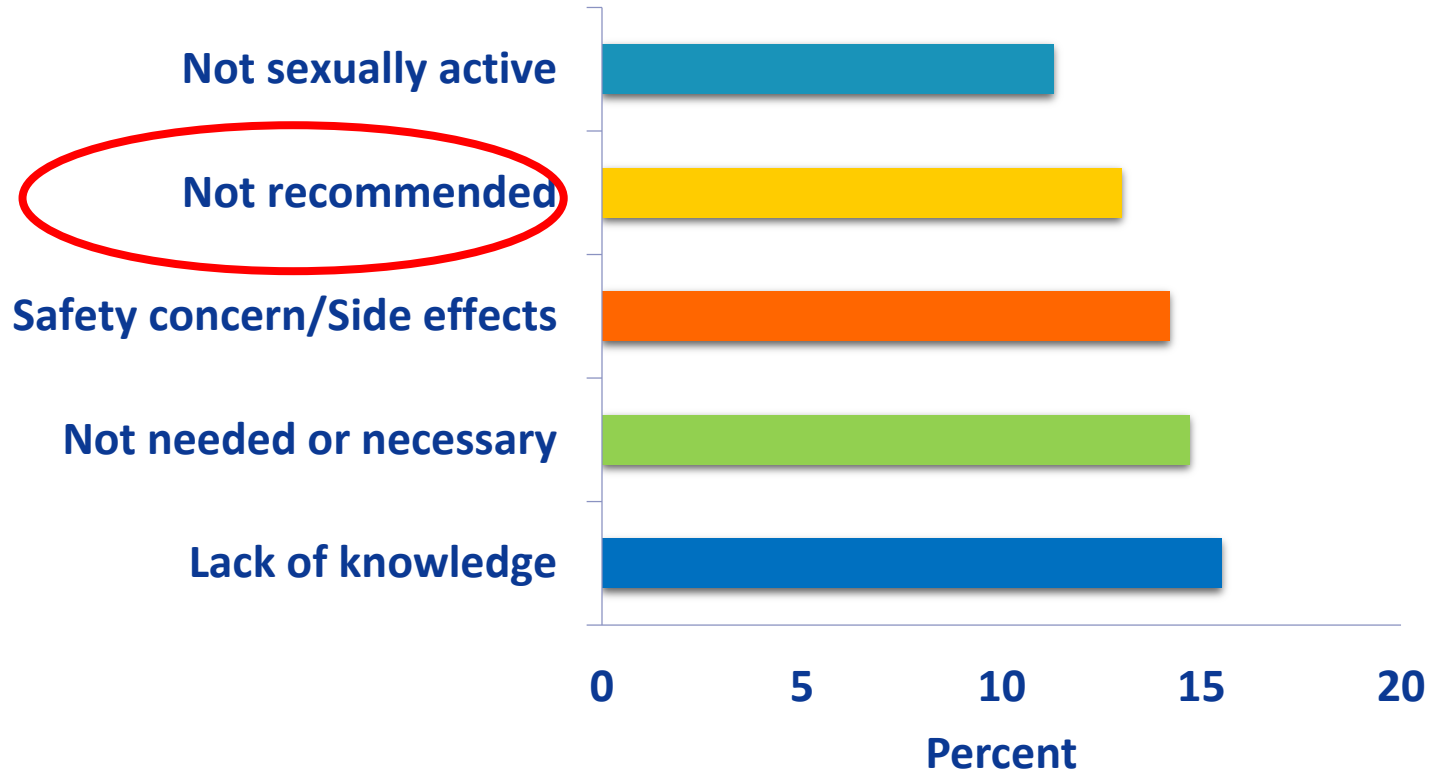
Estimated Coverage With ≥ 1 Dose HPV Vaccine Among Males Aged 13-17 Years, by State – National Immunization Survey-Teen, United States, 2015



Impact of Eliminating Missed Opportunities by Age 13 Years in Girls Born in 2000



Reasons Parents Won't Initiate HPV Vaccine Series for Their Children in the Next Year, NIS-Teen 2014



Evidence Supports Importance of Strong Recommendation from Clinicians:

- Parents value the HPV vaccine and clinicians underestimate the value that parents place on HPV vaccine
- Younger adolescents less likely to receive a strong recommendation
- An effective recommendation from a clinician is the main reason parents decide to vaccinate
- Recommend HPV vaccination the **same way** and on the **same day** you recommend meningococcal and Tdap vaccines
- Some parents may be interested in vaccinating, yet still have questions.
- Give an effective recommendation for HPV vaccine at age 11 or 12:

“Now that your child is 11/12, he/she is due for three vaccines today. These will help protect him/her from the infections that can cause meningitis, HPV cancers, and pertussis. We’ll give those shots at the end of the visit. Do you have any questions for me?”

Example 2: Effective Bundled Recommendation

“Now that Sophia is 11, she is due for three important vaccines. The first vaccine is to help prevent infection that can cause meningitis, which is very rare, but potentially deadly. The second vaccine helps prevent a very common infection, HPV, that can cause several kinds of cancer. The third vaccine is the “tetanus booster” which also protects against pertussis, so your child doesn’t get whooping cough, but also to protect babies too young to be vaccinated. We’ll give those shots at the end of the visit today and have Sophia stay seated or lying down for about 15 minutes afterwards. Do you have any questions for me?”

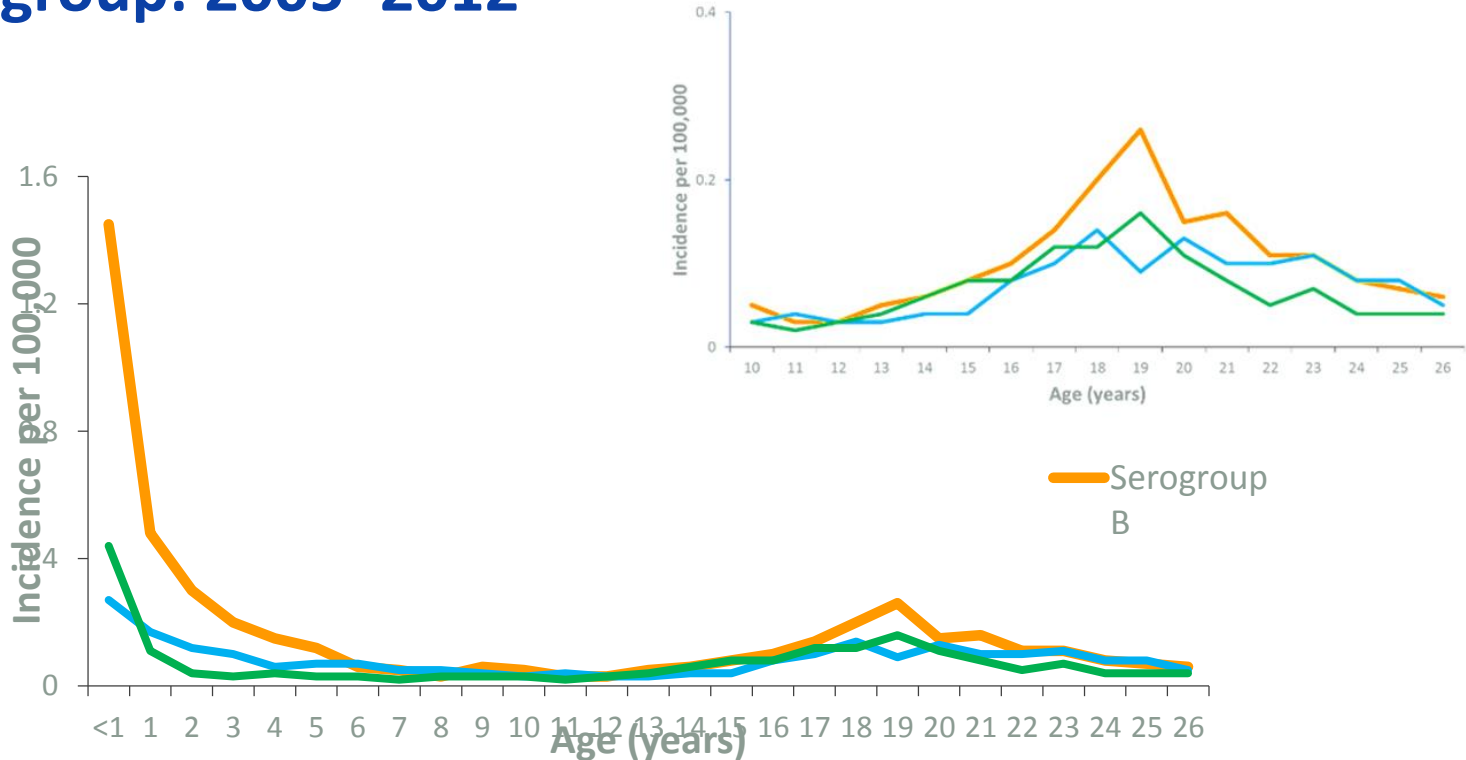
Recent Changes to Vaccine Recommendations

HPV Vaccine Recommendation

- CDC recommends routine vaccination at age 11 or 12 years to prevent HPV cancers
- The vaccination series can be started at age 9 years
- Two doses of vaccine are recommended
- The second dose of the vaccine should be administered 6 to 12 months after the first dose.
- Prevalence of genital HPV in adults aged 18-69:
 - Any strain: 45.2% (males) and 39.9% (females)
 - High risk strains: 25.1% (males) and 20.4% (females)
- Prevalence of oral HPV in adults aged 18-69:
 - Any strain: 11.5% (males) and 3.3% (females)
 - High risk strains: 6.8% (males) and 1.2% (females)



Incidence of Meningococcal Disease by Age and Serogroup: 2005–2012



ACIP Recommendations for Use of Serogroup B Meningococcal Vaccines

- Routine immunization of persons aged 10 years and older at “increased risk”
 - Complement deficiency (including eculizumab users)
 - Functional / anatomic asplenia
 - Microbiologists routinely exposed to the organism
 - Outbreak response
- No serogroup B vaccine preference
- This is a Category A or routine recommendation for all persons designated at “increased risk”
- Targets persons at increased risk, small populations

ACIP Recommendations for Use of Serogroup B Meningococcal Vaccines: Adolescents

- **Very low disease burden in 18–23 year olds**
 - Estimated 30–50 cases (4–7 deaths) per year currently
 - More cases in non-college than college students
- **Many unknowns about the vaccines (i.e., effect on carriage; duration of protection; strain coverage)**
- **MenB may be administered to healthy adolescents and young adults 16 through 23 years of age (preferred ages are 16 through 18 years) to provide short-term protection against most strains of serogroup B meningococcal disease**
 - Discussion with healthcare provider and parent
 - Same vaccine for all doses
 - VFC (up to age 19 years) or insurance will cover cost
- **This is a Category B recommendation that leaves vaccination up to individual clinical decision making: “Non-routine”**

Maternal Tdap Vaccination

- Tdap vaccine (updated guidance Oct 2016^a):
 - Tdap should be administered between 27 and 36 weeks gestation, although it may be given at any time during pregnancy
 - Vaccinating earlier in the 27 through 36 week window will maximize passive pertussis antibody transfer to the infant



^a October 2016 meeting of the Advisory Committee on Immunization Practices

^b Grohskopf et al, MMWR. *Morb Mortal Wkly* .2013.

Active Evaluation: Evaluating Safety of Tdap During Every Pregnancy

Clinical Study of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccine (Tdap) Safety in Pregnant Women

Kathryn Edwards, MD

Vanderbilt University School of Medicine
Monroe Carell, Jr. Children's Hospital at Vanderbilt

Geeta Swamy, MD

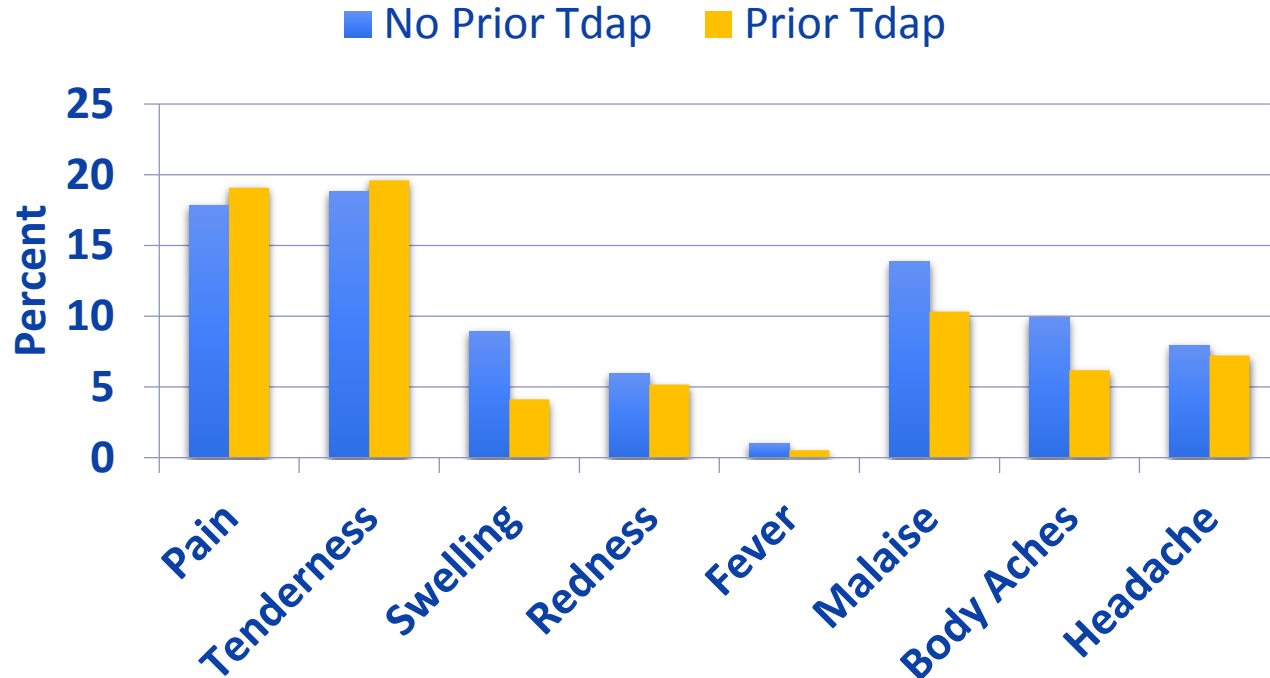
Duke University Dept of ObGyn
Division of Maternal-Fetal Medicine

Karen Broder, MD

Immunization Safety Office
Centers for Disease Control and Prevention

- Active evaluation of the recommendation to vaccinate with Tdap during every pregnancy
- Rapid safety evaluation supports ongoing use of Tdap during every pregnancy

Rates of Moderate+Severe Reactions Among Pregnant Women With and Without Prior Tdap Receipt within 7 days after vaccination



All comparisons for moderate/severe or severe reactions met non-inferiority criteria

Maternal Flu Vaccination

- Influenza vaccine:
 - CDC recommends that all women who are pregnant or who might be pregnant in the upcoming influenza season receive the influenza vaccine
 - Influenza vaccination can be administered at any time during pregnancy, before and during the influenza season^b
- CDC recommends influenza vaccine for pregnant women during each pregnancy to protect both infants and mothers



^a October 2016 meeting of the Advisory Committee on Immunization Practices

^b Grohskopf et al, *MMWR. Morb Mortal Wkly* .2013.

The Way Forward

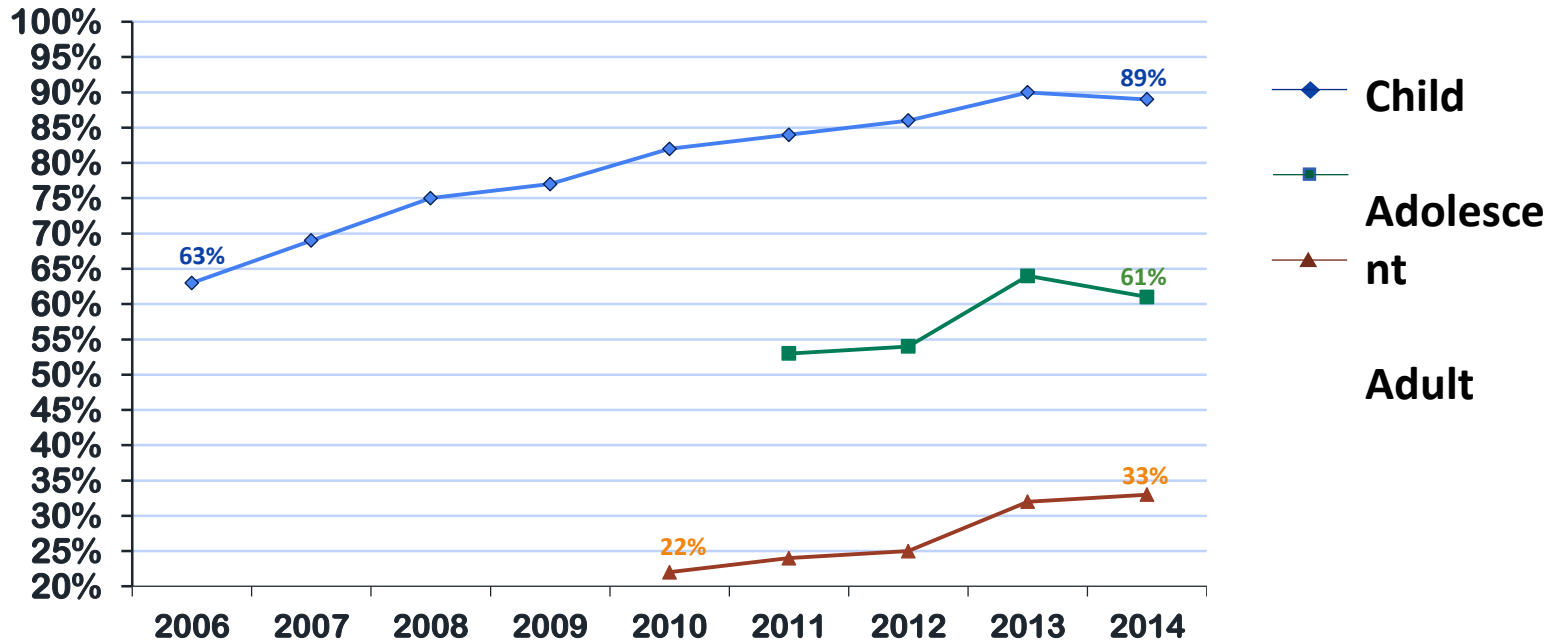
Modernizing Infrastructure through Immunization Information Technology

- Interoperability between electronic health records and immunization information systems (IIS)
- Vaccine Tracking System (VTrckS)
- 2D Vaccine Barcodes



Most Children have Immunization Records in IIS but Adolescents and Adults Lag Behind

Participation in IIS 2006 – 2014



Benefits of IIS for Clinicians

- IIS foster enhanced care coordination, better health care, and improved patient outcomes.
- IIS can help you improve quality by:
 - Providing immunization histories of new patients
 - Supporting patient compliance by flagging missed opportunities and/or overdue immunizations
 - Identifying and managing panels of patients
 - Using filters to identify patients most in need of intervention
 - Developing clinician reports
 - Managing patient follow up
 - Generating care-planning tools for individual patients (e.g. vaccination forecasts, reminder/recall notifications)
 - Providing clinic-based vaccination coverage estimates
 - Producing official immunization records for compliance with school and daycare requirements



For clinicians who use electronic health records (EHRs), IIS in many states can electronically exchange immunization information in real-time to allow

providers to access complete immunization histories and vaccination forecasts

HealthIT.gov. What is a disease/immunization registry? <https://www.healthit.gov/providers-professionals/faqs/what-diseaseimmunization-registry>

directly in their EHR.

Maintain and Strengthen Childhood Immunization Rates



Monitoring of Vaccine Knowledge, Attitudes and Beliefs

- CDC monitors parental knowledge, attitudes, and beliefs about childhood vaccines through bi-annual surveys and polls
- Most parents vaccinate or intend to vaccinate according to the CDC recommended schedule
- Parents' attitudes about vaccines have remained consistently positive on a national level
- Parents *do* have questions and concerns
- Health care professionals remain parents' #1 trusted source of vaccine information

Vaccination Plan for Youngest Child

Which of the following best describes your plans for vaccinating your youngest child?

Weighted Est. (95% CI)	2011 (N = 873) <i>Missing: n = 9</i>	2012 (N = 779) <i>Missing: n = 13</i>	2015 (N = 749) <i>Missing: n = 3</i>
My child <u>has already received all</u> of the recommended vaccines	75.1% (71.2, 78.6%)	74.0% (69.2, 78.2%)	79.1% (75.4, 82.4%)
I intend to have my child <u>receive all as scheduled</u>	12.7% (10.1, 15.9%)	14.9% (11.5, 19.1%)	10.6% (8.3, 13.5%)
I intend to have my child <u>receive all but will space-out or delay</u> them	6.4% (4.6, 8.9%)	4.7% (2.8, 7.9%)	5.8% (4.0, 8.4%)
I intend to have my child <u>receive some but not all</u>	3.6% (2.4, 5.4%)	4.2% (2.8, 6.4%)	2.9% (1.8, 4.5%)
I intend to have my child <u>receive none</u>	2.2% (1.3, 3.9%)	2.1% (1.2, 3.9%)	1.6% (0.9, 2.9%)

Source: Styles surveys of parents with one or more child under 7 years of age.

Vaccine Information Source

What are the three most important sources of information that have helped you make decision about your youngest child's vaccinations?

	2011 (N = 873) <i>Missing: n = 7</i>	2012 (N = 779) <i>Missing: n = 3</i>	2015 (N = 749) <i>Missing: n = 0</i>
1	My child's HCP (66.0%)	My child's HCP (76.0%)	My child's HCP (82.4%)
2	Family (44.8%)	Family (53.2%)	Family (45.4%)
3	My child's other parent (22.7%)	My child's other parent (29.7%)	My child's other parent (30.9%)
4	AAP (18.8%)	AAP (24.2%)	CDC (30.1%)
5	Friends (16.8%)	Friends (23.8%)	AAP (29.1%)
6	Internet (15.9%)	CDC (22.3%)	Internet (16.4%)
7	CDC (15.8%)	Internet (20.8%)	Friends (15.9%)
8	Traditional media (4.4%)	Traditional media (5.5%)	Traditional media (7.2%)
9	Complementary HCP (0.7%)	Complementary HCP (3.5%)	Complementary HCP (6.1%)

Vaccine Questions Parents Ask

Weighted Est. (95% CI)	2012 (N = 779) <i>Missing: n = 16</i>	2015 (N = 749) <i>Missing: n = 8</i>
How many vaccines will my child get today*	61.6% (45.0, 75.9%)	42.9% (25.5, 62.2%)
Which vaccines will my child get today*	52.2% (35.4, 68.5%)	35.2% (19.5, 54.9%)
How likely is there to be side effects*	44.6% (28.5, 61.9%)	41.2% (23.7, 61.2%)
How harmful/serious are the side effects*	41.0% (25.2, 58.9%)	27.4% (14.0, 46.8%)
What is normal to expect the day after	38.2% (23.1, 55.9%)	40.5% (23.4, 60.3%)
What are the side effects I should look for	37.3% (22.4, 55.1%)	29.8% (15.5, 49.6%)
Can it be delayed until they are older	33.8% (19.3, 52.0%)	28.2% (14.7, 47.2%)
Does the child really need it*	25.4% (13.3, 43.0%)	21.6% (9.6, 41.5%)
Has provider vaccinated his/her own child*	13.1% (4.4, 32.9%)	9.8% (3.6, 24.1%)
Is it required or optional for daycare/school*	10.2% (4.4, 21.8%)	16.0% (6.3, 35.1%)
Does provider recommend it	8.6% (3.3, 20.5%)	11.8% (4.0, 29.7%)
Usually don't ask questions*	8.4% (2.8, 22.6%)	7.1% (1.7, 24.8%)
How serious is the disease it prevents*	5.0% (1.6, 14.3%)	12.1% (4.5, 28.7%)

▪ * p-value < 0.05

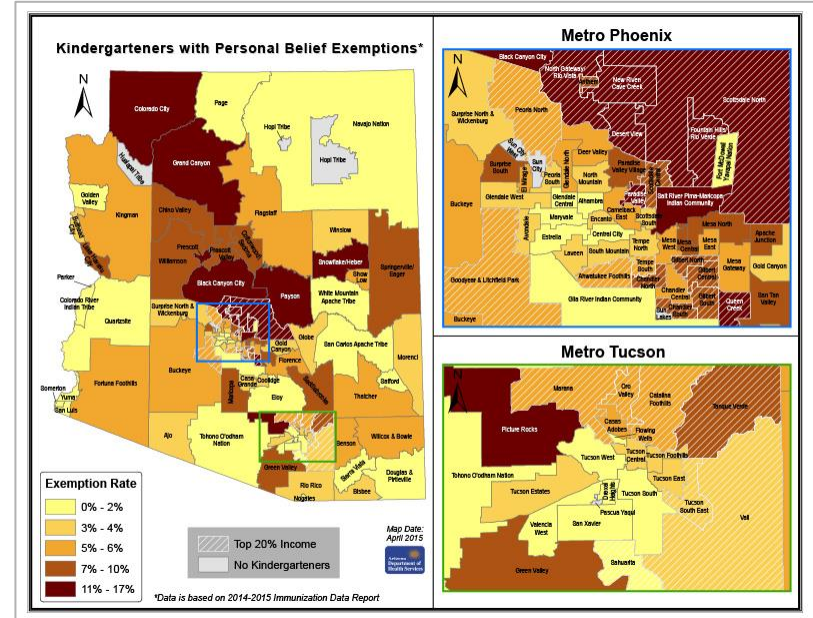
Source: Styles surveys of parents with one or more child under 7 years of age.

How Can We Maintain and Increase Immunization Rates?

- Convene, educate, and partner with healthcare and community organizations to make increasing immunization coverage a priority
- Implement effective strategies:
 - Support AFIX focused on adolescent and childhood vaccination
 - Use EHR/EMR prompts as reminders/cues
 - Promote Adult Immunization Practice Standards
 - Use HPV and adult immunization as a quality measure
- Support **STRONG** and **EFFECTIVE RECOMMENDATIONS** for all vaccines
- Educate prenatal healthcare professionals
- Share data—what gets measured, gets done

Knowing the Vaccination Rates in Your Community is Important

- Unvaccinated people tend to cluster and put communities at risk for outbreaks of diseases like measles
- Arizona is making vaccination data available online so you can see local vaccine coverage and vaccine exemption data

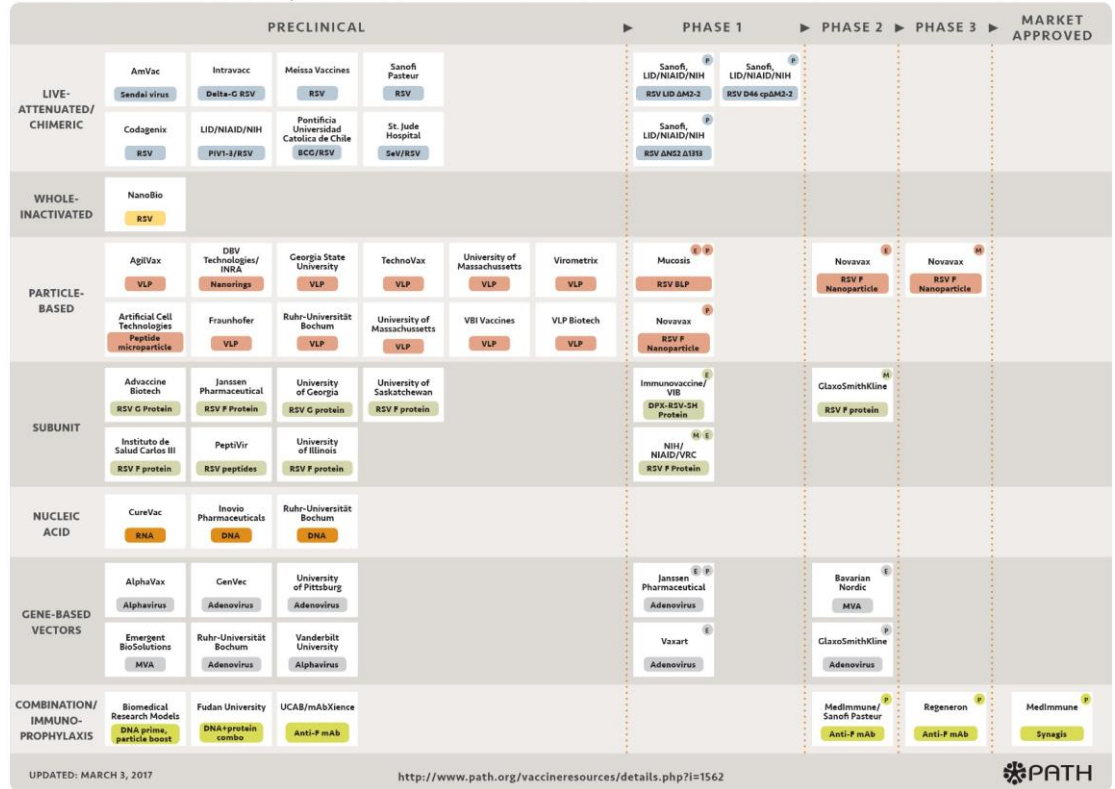


New Vaccines

- Very little low-hanging fruit
- Innovative vaccine technology
- New vaccines cost more
- Compared to prior successes

RSV Vaccine and mAb Snapshot

TARGET INDICATION: P = PEDIATRIC M = MATERNAL E = ELDERLY



UPDATED: MARCH 3, 2017

<http://www.path.org/vaccineresources/details.php?i=1562>



Free CDC Resources

Provider Resources for Vaccine Conversations with Parents

- Taking to Parents about Vaccines
- Understanding Vaccines and Vaccine Safety
 - How Vaccines Work
 - The Recommended Childhood Immunization Schedule
 - Ensuring the Safety of U.S. Vaccines
 - Understanding MMR Vaccine Safety
 - Understanding Thimerosal, Mercury, and Vaccine Safety
 - The Advisory Committee on Immunization Practices

The screenshot shows the CDC website page for 'Provider Resources for Vaccine Conversations with Parents'. The page includes a navigation menu with 'Conversations Home' selected, a search bar, and a 'Vaccines Home' link. The main content area features a 'Vaccines Home' section with social media sharing options (Recommend, Tweet, Share) and a paragraph about the challenges of vaccine conversations. Below this are two columns: 'For You and Your Practice' with an image of a doctor and a list of resources to help strengthen communication, and 'To Share With Parents' with an image of a doctor and a list of downloadable materials. A 'Keep in Touch' section offers e-mail updates. The right sidebar contains contact information for the CDC, including the address, phone number, and TTY.

www.cdc.gov/vaccines/conversations

You Are the Key to HPV Cancer Prevention

CDC Centers for Disease Control and Prevention
 CDC 24/7. Saving Lives. Protecting People™

SEARCH

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For Clinicians



KNOW THE FACTS

Get information on the burden of HPV cancers, the importance of HPV vaccination, and how to help parents overcome hesitancy about HPV vaccine.

COMMIT TO THE CAUSE

Find ways to help improve HPV vaccination rates by promoting vaccination in your offices. Get CDC resources to help raise awareness among parents about the importance of HPV vaccine for preventing cancer.

LEAD THE CONVERSATION

Learn how to successfully communicate about HPV vaccine with the parents of your preteen patients, as well as how to become an HPV vaccination champion with your colleagues and in your community.

Addressing Parents' Top Questions about HPV VACCINE

Clinicians can give a strong and effective HPV vaccine recommendation by advising parents that their 11- or 12-year-old child needs shots today and naming those shots with HPV vaccine listed in the middle. Start the vaccine discussion with parents by saying "Your child is due for three shots today to protect her from meningitis, HPV cancer, and whooping cough. We'll open those at the end of the visit."

Parents may be interested in vaccinating, yet still have questions. Some parents might just need additional reassurance from you, the clinician they trust. Taking the time to answer their questions and address their concerns can help parents to accept a recommendation for HPV vaccination.

WHEN PARENTS SAY:

Why does my child need the HPV vaccine?

What diseases are caused by HPV?

Is my child really at risk for HPV?

TRY SAYING:

HPV vaccine is important because it prevents cancer. We'd both like to protect your child from cancer and I strongly recommend she get her first dose of the HPV vaccine series today.

Persistent HPV infection causes about 27,000 cancers each year: cervical, mouth/throat, anal, vaginal, and vulvar cancers. There are over 300,000 cases of cervical preancer that require treatment that can have lasting effects. We can stop those right now, I recommend we get HPV vaccine for your child today.

HPV is so common that almost everyone will be infected at some point. We can protect your child from infection by starting HPV vaccine today.

With every vaccine, it is important to vaccinate before exposure and we can't predict when exposure might occur. Also, HPV vaccine produces the most antibodies during the preteen years. This is why we need to start protecting with HPV vaccine today.

I know there are stories in the media and online about vaccines, and I can see how that could concern you. However, I want you to know that HPV vaccine has been carefully studied for many years by medical and scientific experts and has shown to be very safe. Vaccines, like any medication, can cause side effects. With HPV vaccine most of these are mild, primarily pain or redness in the arm. This should go away quickly. HPV vaccine has not been linked with any serious or long-term side effects.

There is no data to suggest that getting HPV vaccine will have an effect on future fertility. However, persistent HPV infection can cause cervical cancer and the treatment of cervical cancer can leave women unable to have children. Even treatment for cervical preancer can cause a woman at risk for problems with her child during pregnancy.

Numerous research studies have shown that getting the HPV vaccine does not make kids more likely to be sexually active or start having sex at a younger age.

In clinical trials the vaccine was shown to be very effective at keeping women and men from getting the HPV infections that can lead to cancer. Fewer young women and men are getting genital warts, and less young women are being diagnosed with cervical preancer caused by HPV infection since HPV vaccination started.

HPV infection can cause cancers of the anus, penis, and mouth/throat in men. HPV infections can also cause genital warts. HPV vaccine can help prevent the infections that cause these diseases in men, as well as prevent the spread of HPV to their partners.

I have given HPV vaccine to my child for (grandchild, etc) because I strongly believe in the importance of this vaccine to preventing cancer. The American Academy of Pediatrics, cancer doctors, and the CDC also agree that getting the HPV vaccine is very important for your child.

Top 10 List for HPV #VaxSuccess

Attain and Maintain High HPV Vaccination Rates

1. Appreciate the significance of the HPV vaccination recommendation.
 - ✓ By boosting HPV vaccination rates among your patients, you will be preventing cancer.
2. Acknowledge the importance of your recommendation to parents to get their children vaccinated.
 - ✓ Clinician recommendation is the number one reason parents decide to vaccinate. This is especially important for HPV vaccination.
3. Use the right approach by presenting immunizations the correct way, especially with the HPV vaccine.
 - ✓ Recommend the HPV vaccine the same day and the same way you recommend all other vaccines. For example, "Now that Danny is 12, he is due for vaccinations to help protect against meningitis, HPV cancers, pertussis, and flu. We'll give those shots during today's visit."
4. Motivate your team and facilitate their immunization conversations with parents.
 - ✓ Starting with your front office, ensure each team member is aware of HPV's importance and is educated on proper vaccination practices and recommendations, ready to answer parents' questions, and/or regularly remind and recall patients. Be sure staff regularly check immunization records, place calls to remind families about getting vaccines, and report back to you.
5. Create systematic pathways and procedures that help your team attain and maintain immunization rates.
 - ✓ Establish a policy to vaccinate at every visit. Create a system to check immunization status ahead of all sick and well visits. Before seeing the patient, staff should indicate if the patient is due for immunization, with special consideration to HPV vaccination. Use standing orders.
6. Utilize your local health department's resources.
 - ✓ Utilize the resources of the local health department to achieve your goals of protecting your patients.
7. Know your rates of vaccination and referral.
 - ✓ Deprioritize your staff to assist you with knowing your actual vaccination rates and learning more about why some patients are behind on their vaccines. They can also help you facilitate solutions on how to bring their patients in and keep immunization rates up.
8. Maintain strong doctor-patient relationships to help with challenging immunization conversations.
 - ✓ It is extremely gratifying when parents who initially questioned immunization agree to get their child vaccinated on time. It's always nice to hear: "Okay, that makes sense and I trust you!"
9. Be familiar with vaccine skeptics and critics by learning more about their reasoning.
 - ✓ Be prepared with answers to successfully, accurately, and compassionately inform parents with the most current medical facts. Skeptics often accept their provider's explanations if presented correctly.
10. Use personal examples of how you choose to vaccinate children in your family.
 - ✓ Providing personal examples shows you believe in the importance of immunizations, especially HPV vaccine. These examples—combined with an effective recommendation—can help parents better understand the benefits of HPV vaccination for cancer prevention.

Adapted with Permission from: Khantz, B. (2015)
 The 10 Immunization Success Factors: Practical Strategies for Providers. Unpublished manuscript.



www.cdc.gov/HPV

Maternal Vaccination Resources

Making a strong vaccine referral to pregnant women

Strategies for healthcare professionals



Stocking and administering vaccines in your office may not be feasible for all prenatal healthcare professionals, often due to issues with reimbursement. By making a strong vaccine referral, you can help ensure that your pregnant patients receive the recommended influenza (flu) and tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccines even if you are unable to administer them in your office. The strategies outlined are based on research with healthcare professionals and pregnant women. The goal is to strengthen vaccine referrals to increase the likelihood of patient follow-through.

Vaccines Routinely Recommended for Pregnant Women

- Flu Vaccine**
- Is recommended for pregnant women and safe to administer during any trimester.
 - Is the best way to protect pregnant women and their babies from the flu, and prevent possible flu-associated pregnancy complications.
 - Is safe and can help protect the baby from flu for up to 6 months after birth. This is important because babies younger than 6 months of age are too young to get a flu vaccine.

Provide the best prenatal care to prevent pertussis

Strategies for healthcare professionals



Pertussis is on the rise and outbreaks are happening across the United States. In recent years, up to 1,450 infants have been hospitalized and about 10 to 20 have died each year in the United States due to pertussis. Most of these deaths are among infants who are too young to be protected by the childhood pertussis vaccine series that starts when infants are 2 months old.

These first four months of life are when infants are at greatest risk of contracting pertussis and having severe, potentially life-threatening complications from the infection. To help protect babies during this time when they are most vulnerable, women should get the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine during **each** pregnancy. A strong recommendation from you may ultimately be what most influences whether or not your patients' newborns are protected against pertussis.

Strongly recommend Tdap to your patients during the 3rd trimester of each pregnancy.

5 Facts about Tdap and Pregnancy

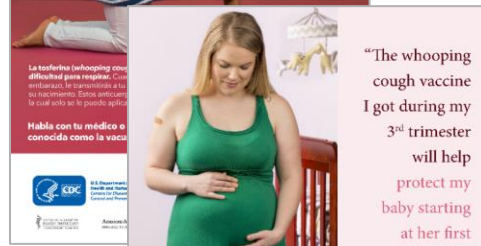
- 1. Tdap during pregnancy provides the best protection for mother and infant.**
 - Recommended and administer or refer your patients to receive Tdap during every pregnancy.
 - Optimal timing is between 27 and 36 weeks gestation to maximize the maternal antibody response and passive antibody transfer to the infant.
 - Fewer babies will be hospitalized for and die from pertussis when Tdap is given during pregnancy rather than during the postpartum period.
- 2. Postpartum Tdap administration is NOT optimal.**
 - Postpartum Tdap administration does not provide immunity to the infant, who is most vulnerable to the disease's serious complications.
 - Infants remain at risk of contracting pertussis from others, including siblings, grandparents, and other caregivers.
 - It takes about 2 weeks after Tdap receipt for the mother to have protection against pertussis, which means the mother is still at risk for catching and spreading the disease to her newborn during this time.
- 3. Cocooning alone may not be effective and is hard to implement.**
 - The term "cocooning" means vaccinating anyone who comes in close contact with an infant.
 - It is difficult and can be costly to make sure that everyone who is around an infant is vaccinated.
- 4. Tdap should NOT be offered as part of routine preconception care.**
 - Protection from pertussis vaccines does not last as long as vaccine exposures would, so Tdap is recommended during pregnancy in order to provide optimal protection to the infant.
 - If Tdap is administered at a preconception visit, it should be administered again during pregnancy between 27 and 36 weeks gestation.
- 5. Tdap can be safely administered earlier in pregnancy if needed.**
 - Pregnant women should receive Tdap anytime during pregnancy if it is indicated for wound care or during a community pertussis outbreak.
 - If Tdap is administered earlier in pregnancy, it should not be repeated between 27 and 36 weeks gestation; only one dose is recommended during each pregnancy.

February 2018



Mamá tú siempre protegerás a tu pequeño milagro.

Empieza ahora con tu vacuna contra la tosferina.



La tosferina (whooping cough) es una enfermedad grave que puede causar o matar los bebés de la mamá. Después de dar a luz, un bebé puede estar en riesgo de contraer la tosferina. Los bebés recién nacidos son especialmente vulnerables a esta enfermedad.

Háblala con tu médico o con la persona que conoce a la mamá.

"The whooping cough vaccine I got during my 3rd trimester will help protect my baby starting at her first breath."

Whooping cough can make your baby very sick with coughing fits and gagging for air. I can even be hospitalized if there are outbreaks happening across the United States. When you get the whooping cough vaccine (also called Tdap) during the third trimester of your pregnancy, you'll pass antibodies on to your baby that will help protect her from this disease from the first she's born. Those antibodies will last for the first few months of her life, when she is most vulnerable to serious disease and complications.

Talk to your doctor or midwife about the whooping cough vaccine.



Be on your best protection against whooping cough. www.cdc.gov/whoopingcough



Puedes empezar a proteger a tu bebé de la tosferina desde antes del nacimiento

Información para las mujeres embarazadas



Cuando tú te vacunes contra la tosferina durante tu tercer trimestre, tu bebé tendrá protección contra esta enfermedad.

¿Qué qué tengo que saber acerca de la tosferina?

La tosferina (la tosferina) es una enfermedad grave que puede causar o matar los bebés de la mamá. Después de dar a luz, un bebé puede estar en riesgo de contraer la tosferina. Los bebés recién nacidos son especialmente vulnerables a esta enfermedad.

¿Lo que voy a hacer para proteger a mi bebé de la tosferina?

La mejor manera de proteger a tu bebé de la tosferina es vacunarte tú misma durante tu tercer trimestre de embarazo. Después de dar a luz, tu bebé tendrá protección contra la tosferina.

¿Un refresco con azúcar puede hacer que mi bebé tenga que ser hospitalizado?

La tosferina es una enfermedad grave que puede causar o matar los bebés de la mamá. Después de dar a luz, un bebé puede estar en riesgo de contraer la tosferina. Los bebés recién nacidos son especialmente vulnerables a esta enfermedad.

You can start protecting your baby from whooping cough before birth

Information for pregnant women



When you get the whooping cough vaccine during your 3rd trimester, your baby will be born with protection against whooping cough.

Why do I need to get a whooping cough vaccine?

The whooping cough vaccine is recommended during your pregnancy because it will help protect your baby from whooping cough. After you get the vaccine, antibodies will be passed on to your baby that will help protect her from this disease from the first she's born. Those antibodies will last for the first few months of her life, when she is most vulnerable to serious disease and complications.

Is this vaccine safe for me and my baby?

Yes. The whooping cough vaccine is safe for you, your baby, and your unborn child. It is safe to get the vaccine during any trimester of pregnancy. The vaccine is recommended for pregnant women because it will help protect your baby from whooping cough.

What are the risks of not getting the whooping cough vaccine?

Whooping cough can make your baby very sick with coughing fits and gagging for air. I can even be hospitalized if there are outbreaks happening across the United States. When you get the whooping cough vaccine (also called Tdap) during the third trimester of your pregnancy, you'll pass antibodies on to your baby that will help protect her from this disease from the first she's born. Those antibodies will last for the first few months of her life, when she is most vulnerable to serious disease and complications.

Can babies ever get whooping cough symptoms if the mother doesn't get the vaccine?

Yes. Babies can get whooping cough symptoms if the mother does not get the vaccine. The vaccine is recommended for pregnant women because it will help protect your baby from whooping cough.

How long does the protection last?

The protection from the whooping cough vaccine lasts for the first few months of your baby's life. After that, you should get the vaccine again during each pregnancy.

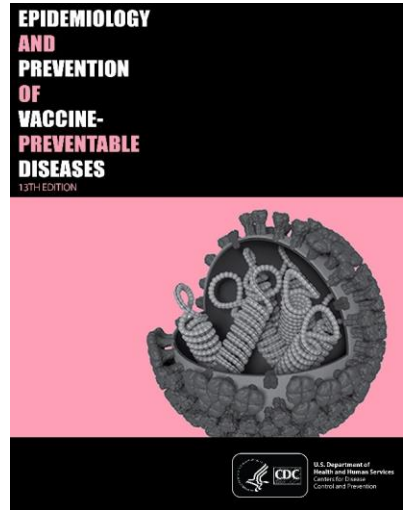


www.cdc.gov/whoopingcough



Immunization Training for Clinicians

- **You Call the Shots:** Web-based modules that discuss vaccine-preventable diseases (VPDs) and explain the latest recommendations for vaccine use. CE/CME credit offered.
- **Current Issues in Immunization Net Conference (CIINC):** Live 1-hour audio and visual presentations with on-demand replays. Offered 4-5 times per year. CE/CME credit offered.
- **Pink Book Webinar Series:** Online series of 15 1-hour webinars. Provides an overview of the principles of vaccination, general recommendations, immunization strategies for providers, and specific information about VPDs and vaccines. CE/CME credit offered.
- **Webcasts:** Topics include HPV, pertussis, flu, vaccine storage and handling, and more. CE credits offered.



Questions?

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