



# Immunization Strategies for Healthcare Practices and Providers

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

Disease	20th Century Annual Morbidity <sup>†</sup>	2017 Reported Cases <sup>††</sup>	Percent Decrease
Diphtheria	21,053	0	100%
Measles	530,217	122	> 99%
Mumps	162,344	5,629	97%
Pertussis	200,752	15,808	>92%
Polio (paralytic)	16,316	0	100%
Rubella	47,745	9	> 99%
Congenital Rubella Syndrome	152	2	99%
Tetanus	580	32	95%
<i>Haemophilus influenzae</i>	20,000	22	> 99%
Total	999,159	24,493	97%

<sup>†</sup>JAMA. 2007;298(18):2155-2163

<sup>††</sup>CDC. *National Notifiable Diseases Surveillance System, Week 52, 2017 Weekly Tables of Infectious Disease Data*. Atlanta, GA. CDC Division of Health Informatics and Surveillance, 2018. Available at: [www.cdc.gov/nndss/infectious-tables.html](http://www.cdc.gov/nndss/infectious-tables.html). Accessed on January 4, 2018.

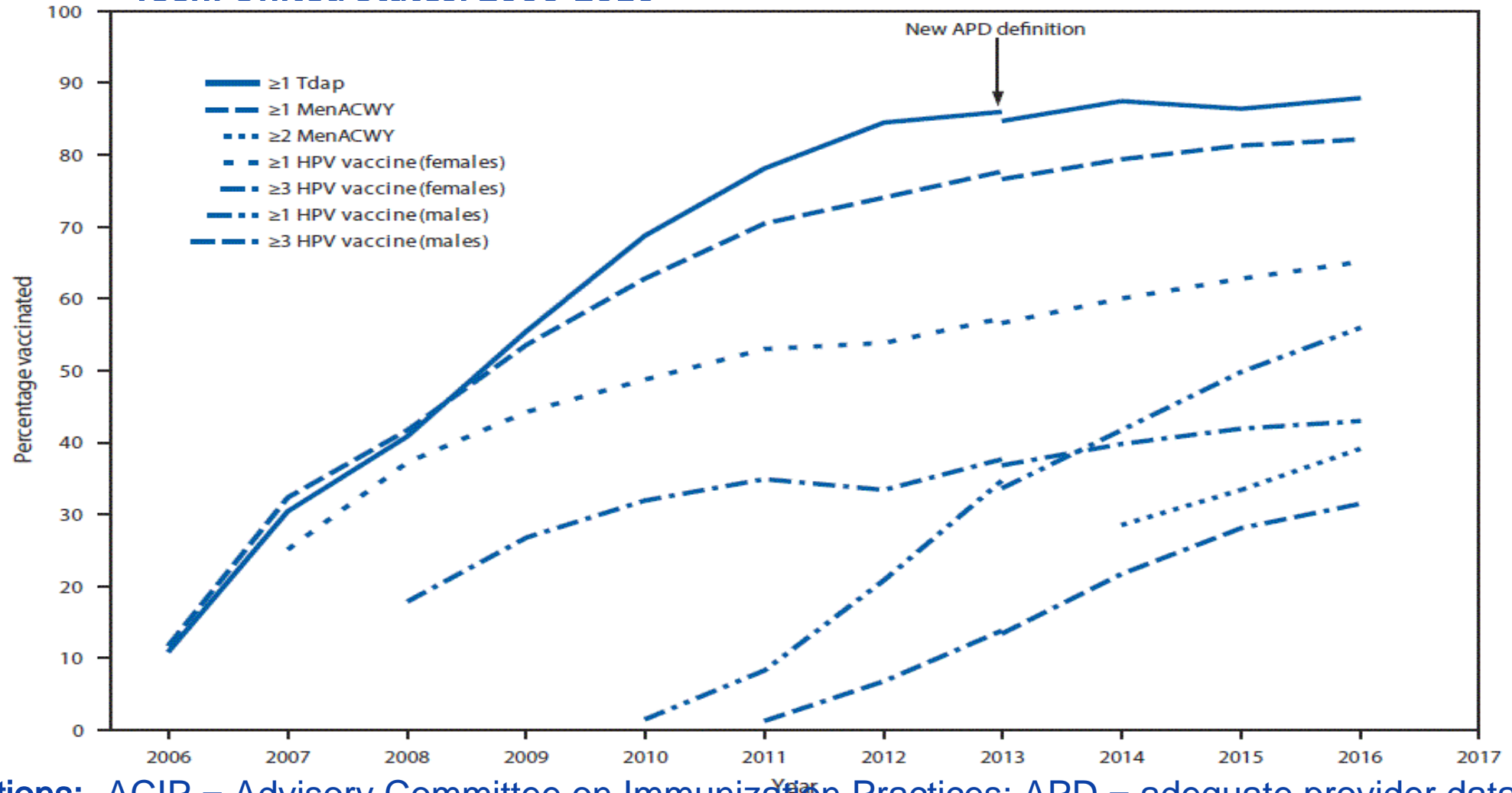
\**Haemophilus influenzae* type b (Hib) < 5 years of age. An additional 11 cases of Hib are estimated to have occurred among the 237 notifications of Hib (< 5 years of age) with unknown serotype.

# Estimated Vaccination Coverage among Children Aged 19–35 Months, NIS 2016

State/Area	Combined Series* 4:3:1:3:3:1:4
United States	70.7%

\*The combined (4:3:1:3:3:1:4) vaccine series includes  $\geq 4$  doses of DTaP,  $\geq 3$  doses of poliovirus vaccine,  $\geq 1$  dose of measles-containing vaccine, full series of Hib vaccine ( $\geq 3$  or  $\geq 4$  doses, depending on product type),  $\geq 3$  doses of HepB,  $\geq 1$  dose of varicella vaccine, and  $\geq 4$  doses of PCV

## Estimated Vaccination Coverage among Adolescents Aged 13-17 Years, NIS-Teen. United States. 2006-2016

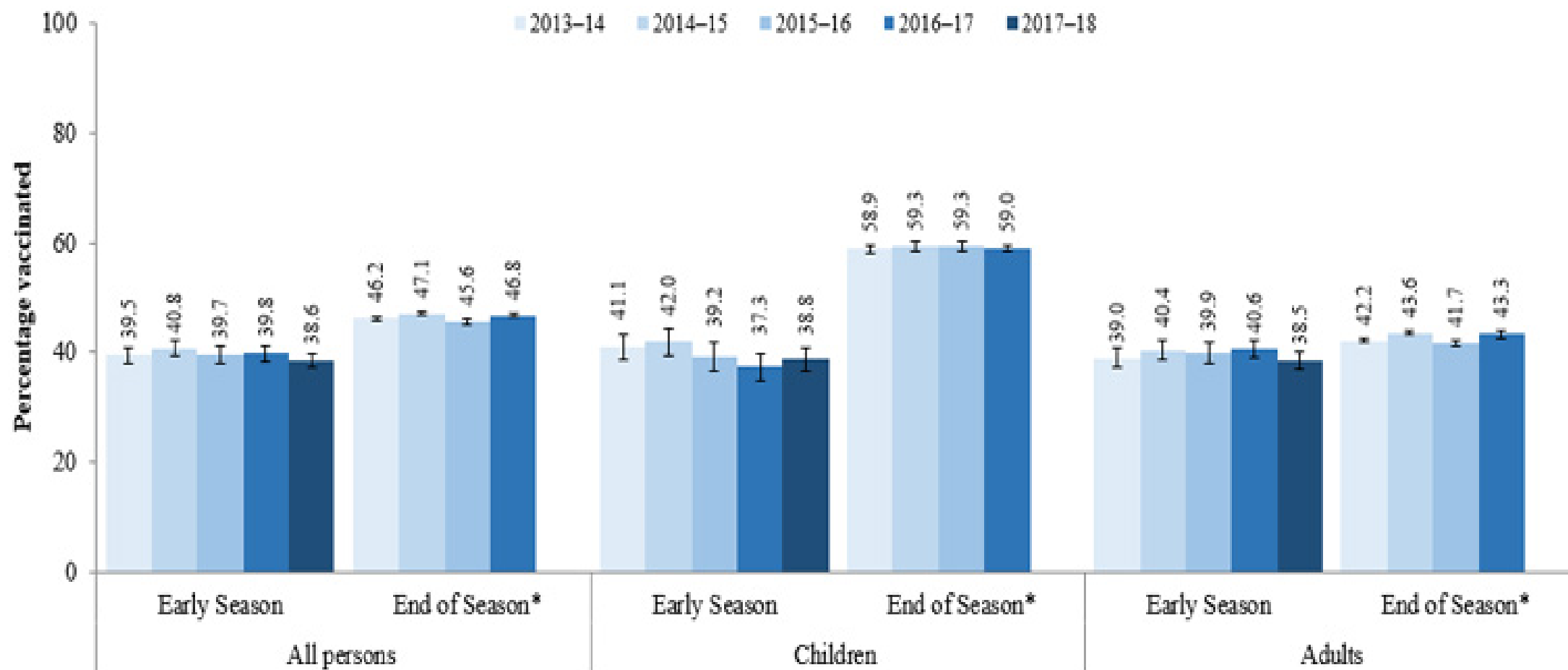


**Abbreviations:** ACIP = Advisory Committee on Immunization Practices; APD = adequate provider data; HPV = human papillomavirus; MenACWY = quadrivalent meningococcal conjugate vaccine; Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine. † NIS-Teen implemented a revised APD definition in 2014, and retrospectively applied the revised APD definition to 2013 data. Estimates using different APD definitions might not be directly comparable.

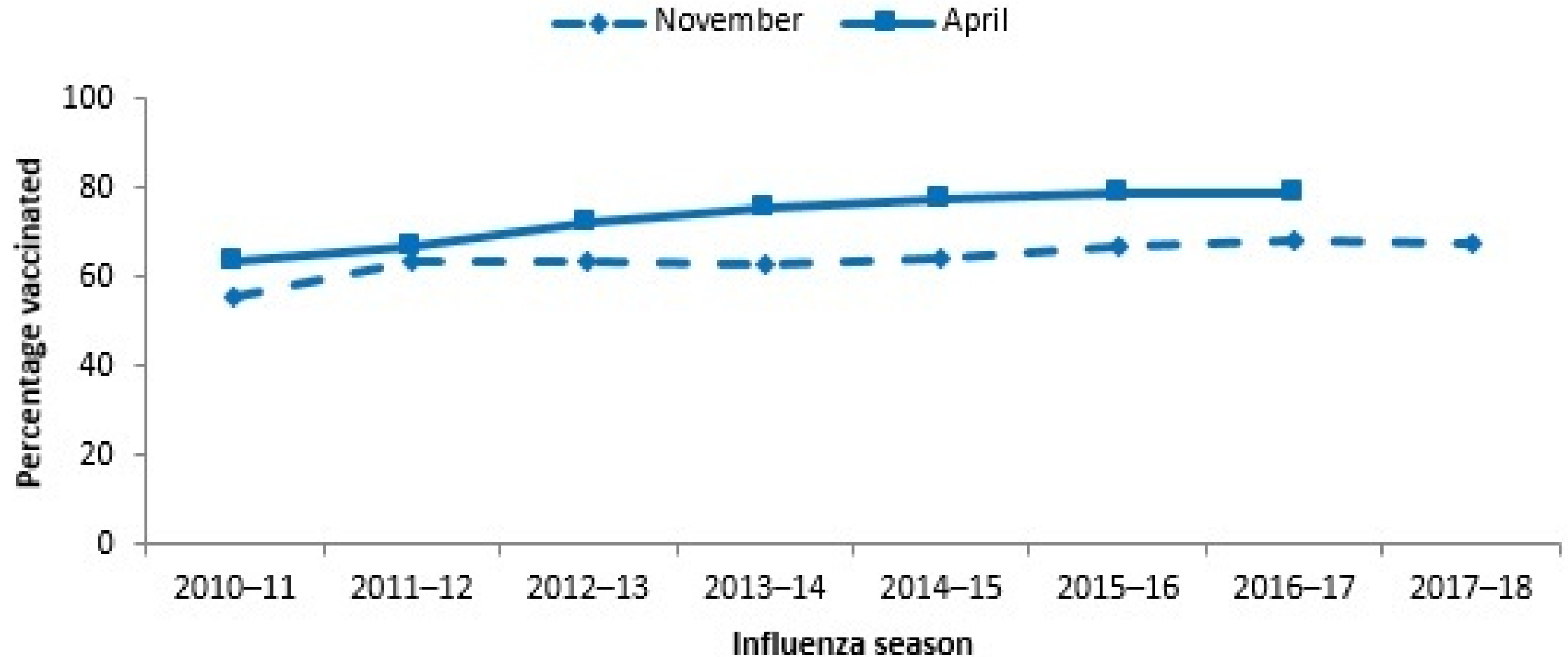
# Estimated Vaccination Coverage among Adolescents Aged 13–17 Years, NIS-Teen, 2016

Vaccine	United States	
≥1 Tdap	88.0%	
≥1 HPV (M and F)	60.4%	
UTD HPV (M and F)	43.4%	
≥1 MenACWY	82.2%	

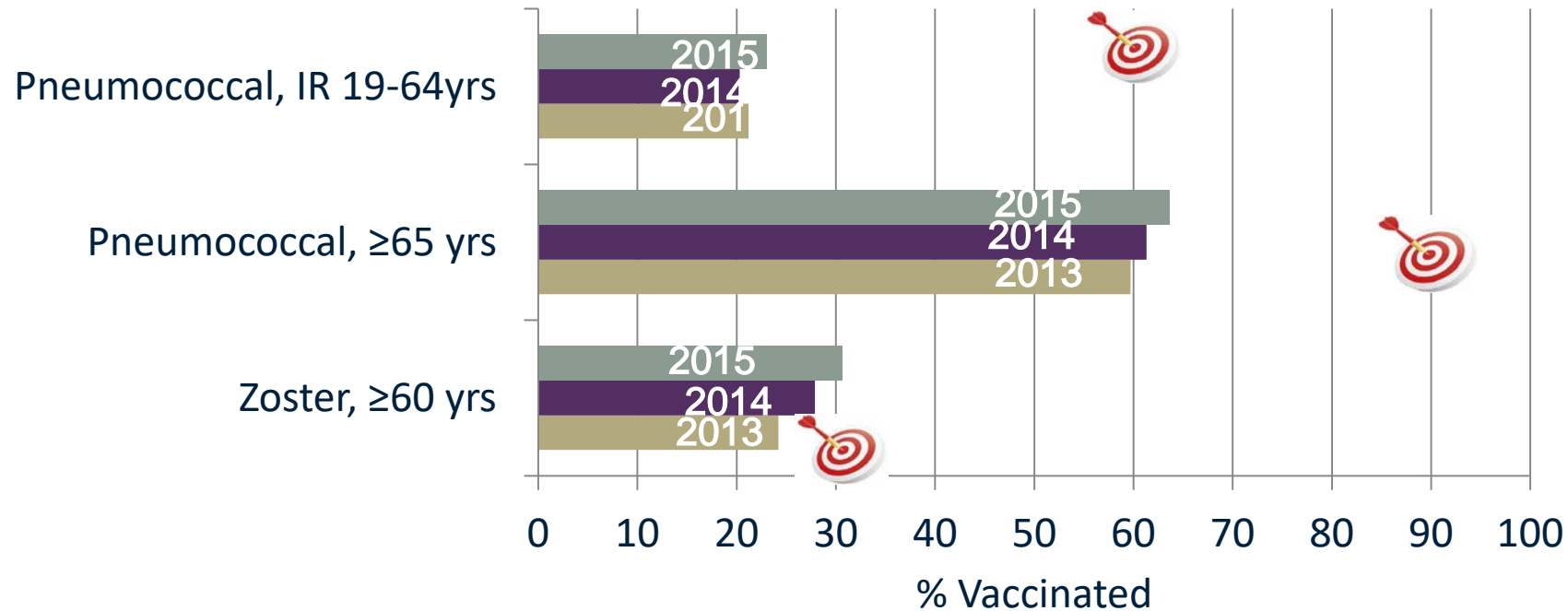
Early-season and end-of-season flu vaccination coverage estimates, National Immunization Survey-Flu and National Internet Flu Survey, United States, 2013–14 flu season to November, 2017



**Flu vaccination coverage among health care personnel vaccinated by November and by April for 2010–11 through 2016–17 flu seasons, and by November for 2017–18 flu season, Internet panel survey, United States**



## Adult Immunization Coverage, Selected Vaccines by Age and Increased-risk Status, 2013-2015, United States



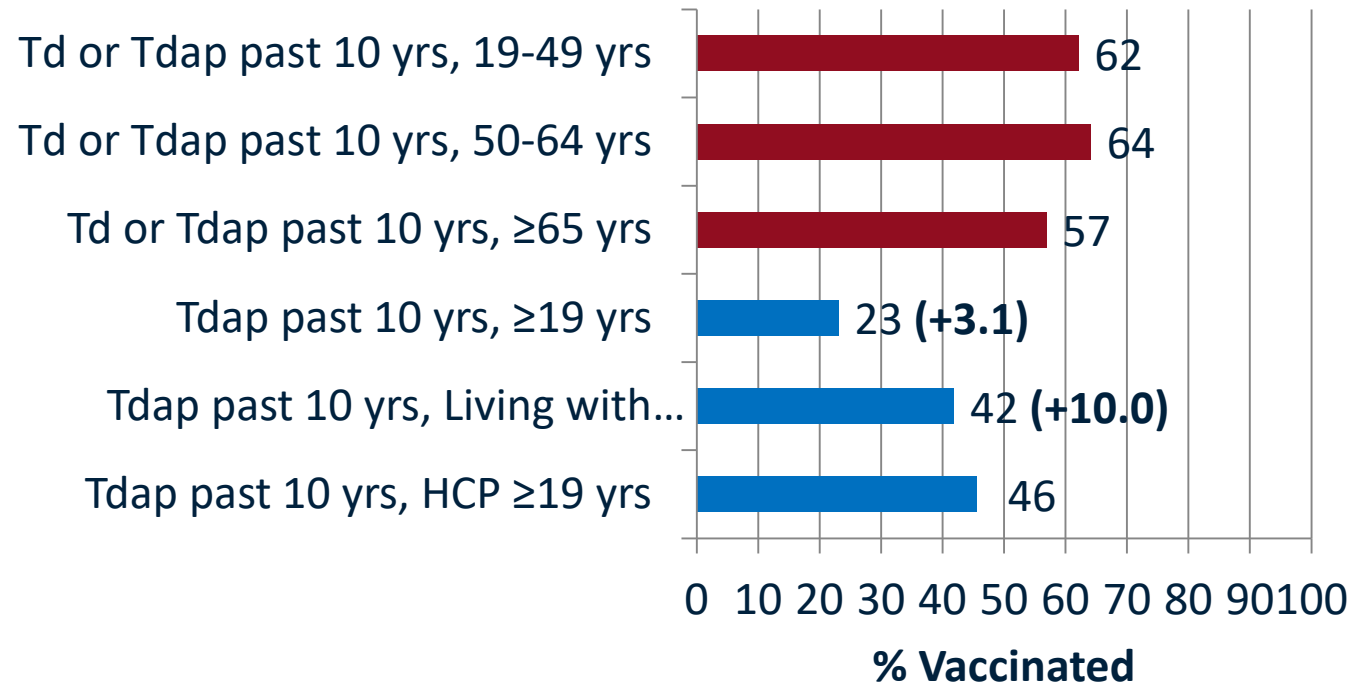
HP2020 Targets: 90% PPV ≥65 yrs, 60% PPV IR 19-64 yrs, 30% zoster ≥60 yrs

Data Source: 2013, 2014 and 2015 NHIS

Surveillance of Vaccination Coverage Among Adult Populations — United States, 2015 MMWR Surveillance Summaries / May 5, 2017 / 66(11);1–



## Adult Tetanus-containing Vaccination Coverage by Age and High-risk Status, United States



Data Source: 2015 NHIS

Surveillance of Vaccination Coverage Among Adult Populations — United States, 2015 MMWR Surveillance Summaries / May 5, 2017 / 66(11);1–28

# Strategies Overview

- ❑ Many available strategies
- ❑ Some targeted to public and/or non-healthcare settings
  - School immunization requirements
  - Women Infant and Children (WIC) services
  - Home visits
- ❑ Match strategy to the problem and population
- ❑ Today's focus on healthcare settings

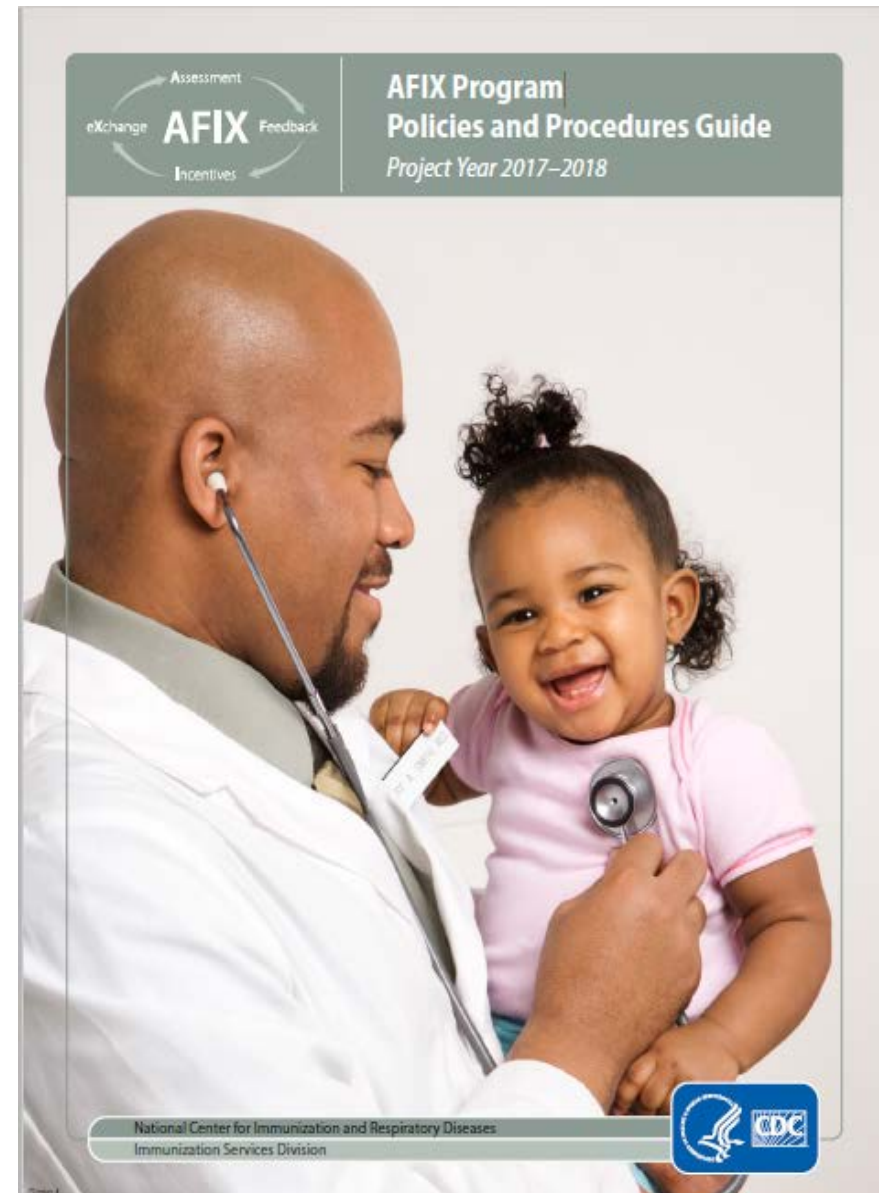
# AFIX Program

Assessment

Feedback

Incentives

eXchange



<https://www.cdc.gov/vaccines/programs/afix/index.html>

# Special Characteristics of AFIX

- Focuses on outcomes
- Focuses on providers
- Blend of advanced technology and personal interaction

# Assessment

- ❑ **Assessment involves generating data reports on a provider's vaccination coverage levels, and examining the impact of a provider's vaccination delivery practices.**
- ❑ **Targeted diagnosis for improvement**
- ❑ **Assessment increases awareness**

## Assessments – Cont.

- ❑ **Immunization Information Systems (IIS):** Assessment reports are generated using IIS data if awardee has robust IIS. CDC released AFIX-IIS Integration Operational and Technical Guidance for Implementing IIS-Based Coverage Assessment—Phase I and Phase II.
- ❑ **Comprehensive Clinic Assessment Software Application (CoCASA):** Assessment reports may be generated using CoCASA. CDC has plans to phase this software out.

# Feedback

- **Feedback provides an opportunity to share Assessment results with providers, discuss practice procedures and barriers, and collaborate to develop customized evidence-based quality improvement strategies.**

# Incentives

- ❑ **Something that incites to action or effort**
- ❑ **Vary by provider and stage of progress**
- ❑ **Opportunities for partnership and collaboration**



# eXchange of Information

- eXchange is the ongoing dialogue between the immunization program and providers regarding their progress in adopting strategies to improve vaccination delivery.

# Strategies for High Immunization Levels

- ❑ Recordkeeping
- ❑ Immunization Information Systems (IIS)
- ❑ Recommendations and reinforcement
- ❑ Reminder and recall to patients
- ❑ Reminder and recall to providers
- ❑ Reduction of missed opportunities
- ❑ Reduction of barriers to immunization



# Records

❑ Available for inspection

❑ Easy to interpret

❑ Accurate, up-to-date, and complete

- reflect current patient population
- Reflect all vaccines given

The image shows a screenshot of a vaccination record table. The table has a header row with columns for 'Patient Name', 'Date', and 'Vaccine Type'. Below the header, there are several rows of data. The first row shows a patient named 'John Doe' with a date of '01/15/2023' and a vaccine type of 'MMR2'. The second row shows the same patient with a date of '02/15/2023' and a vaccine type of 'MMR2'. The third row shows the same patient with a date of '03/15/2023' and a vaccine type of 'MMR2'. The fourth row shows the same patient with a date of '04/15/2023' and a vaccine type of 'MMR2'. The fifth row shows the same patient with a date of '05/15/2023' and a vaccine type of 'MMR2'. The sixth row shows the same patient with a date of '06/15/2023' and a vaccine type of 'MMR2'. The seventh row shows the same patient with a date of '07/15/2023' and a vaccine type of 'MMR2'. The eighth row shows the same patient with a date of '08/15/2023' and a vaccine type of 'MMR2'. The ninth row shows the same patient with a date of '09/15/2023' and a vaccine type of 'MMR2'. The tenth row shows the same patient with a date of '10/15/2023' and a vaccine type of 'MMR2'. The eleventh row shows the same patient with a date of '11/15/2023' and a vaccine type of 'MMR2'. The twelfth row shows the same patient with a date of '12/15/2023' and a vaccine type of 'MMR2'. The table is part of a larger document titled 'Vaccination and Developmental Milestones for Your Child from Birth Through 5 Years Old'. The document is published by the Centers for Disease Control and Prevention (CDC) and the American Academy of Pediatrics (AAP). The document is available in English and Spanish. The document is available for free download at <https://www.cdc.gov/nczod/dndpi/immunization/developmental-milestones/index.html>. The document is also available on the CDC website and the AAP website. The document is a valuable resource for parents and healthcare providers. The document provides information on the recommended vaccination schedule for children from birth through 5 years of age. The document also provides information on developmental milestones for children. The document is a helpful tool for ensuring that children are up-to-date on their vaccinations and are meeting their developmental milestones.

# Immunization Information Systems (IIS)

- ❑ Single data source for all providers
- ❑ Reliable immunization history
- ❑ Produce records for patient use
- ❑ Increase vaccination rates



# Recommendations and Reinforcement

## □ Recommend the vaccine

- powerful motivator
- patients likely to follow recommendation of the provider

## □ Reinforce the need to return

- verbal
- written
- link to calendar event



# Reminders and Recall to Patients

- **Reminder**—notification that immunizations are due soon
- **Recall**—notification that immunizations are past due
- **Content of message and technique of delivery vary**
- **Reminders and recall have been found to be effective**



<https://www.whyimmunize.org/product/reminder-postcards-baby-bilingual/>

# Reminders and Recall to Providers

□ **Communication to healthcare providers that a patient's immunizations are due soon or past due**

## □ **Examples**

- computer-generated list
- stamped note in the chart
- "Immunization Due" clip on chart
- electronic reminder in an electronic medical record

# Missed Opportunity

- A healthcare encounter in which a person is eligible to receive vaccination but is not vaccinated completely





# Reasons for Missed Opportunities

- ❑ Lack of simultaneous administration
- ❑ Unaware child (or adult) needs additional vaccines
- ❑ Invalid contraindications
- ❑ Inappropriate clinic policies
- ❑ Reimbursement deficiencies

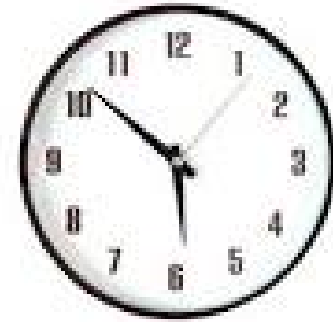
# Strategies for Reducing Missed Opportunities

- Standing orders
- Provider education with feedback
- Provider reminder and recall systems

# Reduction of Barriers to Immunization

## □ Physical barriers clinic hours

- waiting time
- distance
- cost



## □ Psychological barriers

- unpleasant experience
- vaccine safety concerns



# Costs of Implementing Strategies

Intervention Strategy	Median Intervention Group Size	Median cost per person per year	Median cost per vaccinated person (US\$)
Home visits	575	56	786
Client/family incentive, reducing costs	774	209	399
<b><u>Vac in schools, child care</u></b>	<b><u>5,840</u></b>	<b><u>22</u></b>	<b><u>29</u></b>
Vac in WIC settings	4,967	16	66
<b><u>Client reminder/recall</u></b>	<b><u>654</u></b>	<b><u>2.13</u></b>	<b><u>15</u></b>
Community based strategies in combination	429	54	15
Provider reminders/assessment/fdback	2,705	4	111
<b><u>Standing Orders</u></b>	<b><u>11,813</u></b>	<b><u>6</u></b>	<b><u>29</u></b>
<b><u>Healthcare system strategies in combination</u></b>	<b><u>20,000</u></b>	<b><u>4</u></b>	<b><u>12</u></b>

# Provider Resources

- ❑ **Conversations with parents:**
  - <https://www.cdc.gov/vaccines/hcp/patient-ed/conversations/>
  
- ❑ **Vaccines for Children Program**
  - <https://www.cdc.gov/vaccines/programs/vfc/index.html>
  
- ❑ **The Guide to Community Preventive Services**
  - <http://www.thecommunityguide.org/>
  
- ❑ **National Vaccine Advisory Committee. Standards for child and adolescent immunization practices. Pediatrics 2003;112:958-63.**
  
- ❑ **National Vaccine Advisory Committee. Recommendations from the National Vaccine Advisory Committee: Standards for Adult Immunization Practice. Public Health Reports 2014;129:115-123.**
  - <http://www.publichealthreports.org/issueopen.cfm?articleID=3145>