Adolescent Immunizations: Give It a Shot!

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University of Oklahoma Health Sciences Center
Learning Objectives

After the session, learners will be able to:

- Restate the current Advisory Committee on Immunization Practices (ACIP) recommendations for adolescent vaccines
- Explain the benefits of adolescent vaccines
- Implement one new strategy to improve adolescent vaccination rates in the office
The Immunization Schedule: New Recommendation Highlights
## ACIP Adolescent Immunization Schedule

(“Adolescent Platform”)

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>11-12 yrs</th>
<th>13-15 yrs</th>
<th>16-18 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPV</td>
<td>2-dose series</td>
<td>3-dose series</td>
<td></td>
</tr>
<tr>
<td>Tdap</td>
<td>1 dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCV4</td>
<td>1st dose</td>
<td></td>
<td>booster</td>
</tr>
<tr>
<td>Influenza</td>
<td>Annual immunization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Range of recommended ages for all children**
- **Range of recommended ages for catch-up immunization**
- **Range of recommended ages for immunization of those at high risk**
- **Range of recommended ages for immunization among those desiring immunization**

ACIP: Advisory Committee on Immunization Practices
Tdap

- Routinely recommended for those 11–18 yr of age, preferred age 11–12 yr
- For those 7–10 yr not fully vaccinated, first dose of any catch-up vaccines to be Tdap
- A person 19 yr or older who has not received Tdap should receive one dose
- Tdap should be administered to pregnant women with each pregnancy between weeks 27 and 36 gestation
- Tdap for new mothers not previously immunized
Reported pertussis incidence by age group: 1990-2015*

*2015 data are provisional

SOURCE: CDC, National Notifiable Diseases Surveillance System and Supplemental Pertussis Surveillance System

Presented at ACIP, CDC, Atlanta, GA. October 19, 2016
## Tdap Efficacy

<table>
<thead>
<tr>
<th>Year after Tdap Vaccination</th>
<th>Tdap Vaccine Efficacy (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>68.8 (59.7, 75.9)</td>
</tr>
<tr>
<td>Year 2</td>
<td>56.9 (41.3, 68.4)</td>
</tr>
<tr>
<td>Year 3</td>
<td>25.2 (−4.3, 46.4)</td>
</tr>
</tbody>
</table>

Analysis included 1207 pertussis cases among 279,493 persons: 792,418 person years from Jan. 2006 to March 2015. All subjects had received exclusively DTaP in infancy/childhood.

## Infant Cord Blood Geometric Mean Concentrations (GMC) by Gestational Age at Maternal Tdap

<table>
<thead>
<tr>
<th>Gestational wk Tdap received</th>
<th>No.</th>
<th>Anti-PT GMC* (95% CI)</th>
<th>Anti-FHA GMC* (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-16</td>
<td>26</td>
<td>44.2 (32.2–60.7)</td>
<td>297.9 (206.7–429.4)</td>
</tr>
<tr>
<td>17-21</td>
<td>42</td>
<td>53.1 (37.2–75.7)</td>
<td>267.3 (205.4–347.9)</td>
</tr>
<tr>
<td>22-25</td>
<td>54</td>
<td>68.3 (52.8–88.3)</td>
<td>291.8 (222.8–382.2)</td>
</tr>
<tr>
<td>26-29</td>
<td>30</td>
<td>70.3 (49.0–100.8)</td>
<td>376.8 (257.0–552.7)</td>
</tr>
<tr>
<td>30-33</td>
<td>16</td>
<td>74.9 (38.3–146.4)</td>
<td>417.3 (232.7–748.4)</td>
</tr>
<tr>
<td>34-36</td>
<td>72</td>
<td>32.7 (24.1–44.3)</td>
<td>173.0 (126.5–236.6)</td>
</tr>
<tr>
<td>37-38</td>
<td>74</td>
<td>25.1 (17.9–35.3)</td>
<td>92.7 (69.0–124.7)</td>
</tr>
<tr>
<td>39-41</td>
<td>21</td>
<td>9.0 (5.0–16.2)</td>
<td>31.0 (16.9–56.6)</td>
</tr>
</tbody>
</table>

* Enzyme-linked immunosorbent assay units (EU)/mL

Table 3 from Eberhardt et al. Maternal Immunization Earlier in Pregnancy Maximizes Antibody Transfer and Expected Infant Seropositivity Against Pertussis. CID 2016. (Switzerland)
Vaccine Effectiveness: Infants

- Effectiveness of maternal Tdap vaccination
  - During the first 2 months of life – 91.4%
  - During the first year of life – 69.0% (adjusting for the DTaP series)

Baxter R et al. Pediatrics 2017; 139:e20164091
All males and females age 11–12 years should receive a 2-dose series (0, 6–12 months). The series can start at age 9 yr.

For those initiating the series on or after the 15th birthday or those with immunocompromise, a 3-dose series is indicated (0, 1–2, 6 months).

Those with a history of sexual abuse should initiate the series at age 9 yr.

Administer to all females who have not received vaccination to age 26 yr; males through age 21 or 26 years.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14–19 yrs of age</td>
<td>11.5%</td>
<td>4.3%</td>
</tr>
<tr>
<td>20–24 yrs of age</td>
<td>18.5%</td>
<td>12.1%</td>
</tr>
</tbody>
</table>

Markowitz L et al. Pediatrics 2016; e 20151968
9vHPV 2-Dose Immunogenicity Trial

Non-inferior GMT at 1 month post-last dose in 2-dose girls vs. 3-dose women

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Fold Difference (girls/women)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>2.15</td>
<td>(1.83, 2.53)</td>
</tr>
<tr>
<td>11</td>
<td>2.39</td>
<td>(2.03, 2.82)</td>
</tr>
<tr>
<td>16</td>
<td>2.54</td>
<td>(2.14, 3.00)</td>
</tr>
<tr>
<td>18</td>
<td>2.46</td>
<td>(2.05, 2.96)</td>
</tr>
<tr>
<td>31</td>
<td>2.51</td>
<td>(2.10, 3.00)</td>
</tr>
<tr>
<td>33</td>
<td>2.96</td>
<td>(2.50, 3.50)</td>
</tr>
<tr>
<td>45</td>
<td>1.67</td>
<td>(1.38, 2.03)</td>
</tr>
<tr>
<td>52</td>
<td>1.60</td>
<td>(1.36, 1.87)</td>
</tr>
<tr>
<td>58</td>
<td>2.55</td>
<td>(2.15, 3.01)</td>
</tr>
</tbody>
</table>

Luxembourg, presented at February 2016 ACIP
Follow-up through month 36
- 2 doses (0, 6 months) in 9 to 13 year olds
- 3 doses (0, 2, 6 months) in 9 to 13 year olds
- 3 doses (0, 1, 6 months) in 16 to 26 year olds

Antibody kinetics similar in 3 groups

Markowitz L. Presented at ACIP October 2016 Meeting.
Cross-Study Immunogenicity Comparison: 9vHPV Vaccine Immunogenicity in Prior GARDASIL® Recipients vs. Subjects Naïve to HPV Vaccination

Month 7 cLIA GMT in young women, 16 to 26 years of age

- 9vHPV vaccine after qHPV vaccine
- 9vHPV vaccine only
- Natural HPV infection

Luxembourg A. Presented at ACIP February 2016 Meeting.
Available at: https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2016-02/hpv-03-luxembourg.pdf
Information for persons who previously completed a three-dose or two-dose HPV vaccination series

Is additional vaccination with 9vHPV recommended for persons who have completed a three-dose or two-dose series of either 4vHPV or 2vHPV?

- There is no ACIP recommendation for additional 9vHPV doses for persons who previously completed a series of 4vHPV or 2vHPV.

If a person desires protection against the five additional types prevented by 9vHPV and has completed a series of 4vHPV, what issues should be considered?

- The majority of all HPV-associated cancers that can be prevented by vaccination are caused by HPV 16 or 18. These HPV types are prevented by all three HPV vaccines: 2vHPV, 4vHPV and 9vHPV.
- The benefit of protection against the five additional types targeted by 9vHPV would be mostly limited to females for prevention of cervical cancers and precancers. This is because only a small percentage of HPV-associated cancers in males is due to the five additional types prevented by 9vHPV.
- Available data show no serious safety concerns in persons who were vaccinated with 9vHPV after having received three doses of 4vHPV.
- Cervical cancer screening is recommended beginning at age 21 years and continuing through age 65 years for both vaccinated and unvaccinated women.
HPV Products

- 4vHPV no longer available in the United States
- 2vHPV no longer available in the United States
- 9vHPV is the only product available in the United States

- HPV vaccine received now in the United States is 9vHPV
Recommendations for Use of MenACWY

- **Routinely recommended:**
  - Adolescents age 11–12 yrs; booster dose age 16 yrs
  - For those receiving the first dose at age 16 years or older, a booster dose is not required
  - Routine vaccination not recommended after age 21 years
  - Provide 2-dose primary series to those at higher risk

- **High-risk persons age 2 months through 55 yrs**
  - Complement deficiency (including Eculizumab® users)
  - Functional / anatomic asplenia
  - HIV infection
  - Microbiologists routinely exposed; military recruits
  - Outbreak response
  - Appropriate dosing for those 2 months to 2 yrs
  - Boosting: q 3 yrs under age 7 yrs; q 5 yrs thereafter
# Decreasing Incidence of Serogroup C, W, Y Meningococcal Disease in 11–19 Year Olds

<table>
<thead>
<tr>
<th>Year</th>
<th>Incidence per 100,000 (95% confidence intervals)&lt;sup&gt;1&lt;/sup&gt;</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;1 year</td>
<td>11–19 years</td>
<td>≥20 years</td>
</tr>
<tr>
<td>2004-2005</td>
<td>0.77 (0.33, 1.55)</td>
<td>0.27 (0.17, 0.39)</td>
<td>0.17 (0.14, 0.21)</td>
</tr>
<tr>
<td>2006-2007</td>
<td>1.20 (0.61, 2.11)</td>
<td>0.31 (0.21, 0.45)</td>
<td>0.23 (0.19, 0.28)</td>
</tr>
<tr>
<td>2008-2009</td>
<td>0.93 (0.48, 1.69)</td>
<td>0.15 (0.08, 0.26)</td>
<td>0.23 (0.19, 0.27)</td>
</tr>
<tr>
<td>2010-2011</td>
<td>1.37 (0.74, 2.33)</td>
<td>0.05 (0.02, 0.12)</td>
<td>0.14 (0.11, 0.18)</td>
</tr>
<tr>
<td>2012-2013</td>
<td>0.74 (0.39, 1.32)</td>
<td>0.05 (0.02, 0.10)</td>
<td>0.12 (0.10, 0.15)</td>
</tr>
</tbody>
</table>

- 80% decrease in serogroup C, W, Y meningococcal disease among 11–19 year olds

<sup>1</sup>Source: Active Bacterial Core surveillance (ABCs) cases from 2004-2013 estimated to the U.S. population with 18% correction for nonculture confirmed cases. In 2010, estimated case counts from ABCs were lower than cases reported to the National Notifiable Diseases Surveillance System (NNDSS) and might not be representative.
### Annual Burden of Disease for 11–24 Year Olds

<table>
<thead>
<tr>
<th></th>
<th>CASES</th>
<th>DEATHS</th>
<th>SEQUELAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serogroup B*</td>
<td>54–67</td>
<td>5–10</td>
<td>5–13</td>
</tr>
<tr>
<td>Serogroup C &amp; Y</td>
<td>62–77</td>
<td>6–12</td>
<td>6–15</td>
</tr>
</tbody>
</table>

*Majority (80%) of serogroup B cases occurred among those 16–24 years of age.*

Presented at ACIP, June, 2015.
Incidence of Meningococcal Disease by Age and Serogroup, United States, 2005-2012*

* Source: National Notifiable Diseases Surveillance System (NNDS) with additional serogroup data provided by state and local health departments

Slide courtesy of Dr. Carol Baker
Routinely recommended for high-risk persons age 10 years and older
- Complement deficiency (including Eculizumab® users)
- Functional / anatomic asplenia
- Microbiologists routinely exposed
- Outbreak response
- No preference among vaccine products

Grade B (permissive) recommendation
- May be given to 16-23 yr old to prevent disease; preferred age is 16-18 yr of age
- May be given with other adolescent vaccines
- No preference; start and complete using same product

* Approved at the February 26, 2015 and June, 2015 ACIP Meetings
<table>
<thead>
<tr>
<th><strong>Product</strong></th>
<th><strong>FDA License</strong></th>
<th><strong>Antigens</strong></th>
<th><strong>Dose Schedule</strong></th>
<th><strong>Immunogenicity</strong>*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trumenba® (Pfizer)</strong></td>
<td>Oct. 29, 2014</td>
<td>2 components: fHbp subfamily A/v2,3; subfamily B/v1</td>
<td>0, 2, 6 months for high risk; 0, 6 months for healthy adolescents</td>
<td>86–99% achieve protective titer (US adol./ young adults) [~95% strain]</td>
</tr>
<tr>
<td></td>
<td>10–25 yr olds</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Bexsero® (Novartis)</strong></td>
<td>Jan. 23, 2015</td>
<td>4 components: fHbp subfamily B/v1; NhbA; NadA; Por A1.4</td>
<td>0, 1 month</td>
<td>73–93% achieve protective titer (US/Polish adol./young adults) [~91% strain]</td>
</tr>
<tr>
<td></td>
<td>10–25 yr olds</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Data not directly comparable between products; no data currently available for specific risk groups*
American Academy of Pediatrics Emphasizes Safety and Importance of Vaccines

by: Fernando Stein, MD, FAAP, President, American Academy of Pediatrics, and Karen Remley, MD, MBA, MPH, FAAP, CEO/Executive Vice President, American Academy of Pediatrics

In response to news reports today suggesting a possible new federal commission on immunizations, the American Academy of Pediatrics reiterates that vaccines protect children’s health and save lives. They prevent life-threatening diseases, including forms of cancer. Vaccines have been part of the fabric of our society for decades and are the most significant medical innovation of our time.

Vaccines are safe. Vaccines are effective. Vaccines save lives.

Claims that vaccines are linked to autism, or are unsafe when administered according to the recommended schedule, have been disproven by a robust body of medical literature. Delaying vaccines only leaves a child at risk of disease. Vaccines keep communities healthy, and protect some of the most vulnerable in our society, including the elderly, and children who are too young to be vaccinated or have compromised immune systems.

Pediatricians partner with parents to provide the best care for their children, and what is best for children is to be fully vaccinated. We stand ready to work with the White House and the federal government to share the extensive scientific evidence demonstrating the safety of vaccines, including the recommended schedule.
Vaccination protects individuals from disease.
When vaccination rates are low, disease outbreaks occur.
High vaccination rates protect those who cannot receive/do not respond to vaccination.
### NIS-Teen Coverage Results (%)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tdap after 10 yrs</td>
<td>40.8</td>
<td>55.6</td>
<td>68.7</td>
<td>78.2</td>
<td>84.6</td>
<td>86.0</td>
<td>87.6</td>
<td>86.4</td>
</tr>
<tr>
<td>≥3 HepB</td>
<td>87.9</td>
<td>89.9</td>
<td>91.6</td>
<td>92.3</td>
<td>92.8</td>
<td>93.2</td>
<td>91.4</td>
<td>91.1</td>
</tr>
<tr>
<td>≥2 MMR</td>
<td>89.3</td>
<td>89.1</td>
<td>90.5</td>
<td>91.1</td>
<td>91.4</td>
<td>91.8</td>
<td>90.7</td>
<td>90.7</td>
</tr>
<tr>
<td>≥2 Varicella (no dz hx)</td>
<td>34.1</td>
<td>48.6</td>
<td>58.1</td>
<td>68.3</td>
<td>74.9</td>
<td>78.5</td>
<td>81.0</td>
<td>83.1</td>
</tr>
<tr>
<td>≥1 MCV4</td>
<td>41.8</td>
<td>53.6</td>
<td>62.7</td>
<td>70.5</td>
<td>74.0</td>
<td>77.8</td>
<td>79.3</td>
<td>81.3</td>
</tr>
<tr>
<td>&gt;2 MCV4 (17 yr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;1 HPV</td>
<td>37.2</td>
<td>44.3</td>
<td>48.7</td>
<td>53.0</td>
<td>53.8</td>
<td>57.3</td>
<td>60.0</td>
<td>62.8</td>
</tr>
<tr>
<td>Among Males</td>
<td>1.4</td>
<td>8.3</td>
<td>20.8</td>
<td>34.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Among Males for >1 HPV: 1.4 (26.7), 8.3 (34.8), 20.8 (37.6), 34.6 (41.9), 49.8 (28.1)
How to Improve Vaccination Rates: Policy Updates
16-year Platform

- CDC has highlighted a 16 year column in the 2017 Immunization Schedule

- SAHM – published in April, 2017: “SAHM supports the establishment of a 16-year-old immunization platform to ensure completion of all recommended vaccines, which has the added value of providing an opportunity for developmentally-appropriate adolescent health services.”
Secondary School Vaccination requirements through 2016-2017*

Tdap: 47 states (+ DC)
MCV4: 26 states (+ DC)
HPV: 2 states (VA, RI) (+ DC)

*as of January, 2017, IAC
### School Requirements Significantly Affect Coverage Rates – 2010 NIS-Teen Data (13-17 year olds)

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Vaccination requirement</th>
<th>Education Requirement</th>
<th>No Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥1 MCV4</td>
<td>3 (70.5)</td>
<td>10 (51.0)</td>
<td>38 (53.4)</td>
</tr>
<tr>
<td>≥1 Td/Tdap</td>
<td>32 (79.8)</td>
<td>--</td>
<td>19 (69.5)</td>
</tr>
<tr>
<td>≥1 HPV</td>
<td>--</td>
<td>6** (45.0)</td>
<td>45 (44.2)</td>
</tr>
</tbody>
</table>

Red font indicates significantly lower (p<0.05) coverage compared to states with vaccine requirements.

*Status based on requirements for the 2008-2009 School Year

**Because of small sample size, one state with a vaccine requirement is included with the states with education only requirements.

Personal belief exemptions have been increasing since 2000

Greater increase in personal belief versus religious exemptions

Easier exemptions associated with increased rates of pertussis

Nonmedical exemptions cluster geographically

Outbreaks of measles/Hib associated with personal belief exemptions

Omer SB et al. JAMA, 2006;296:1757
Varun K et al. JAMA. 2016;315(11):1149-1158
The existing statute in California, Minnesota, and Louisiana does not explicitly recognize religion as a reason for claiming an exemption, however, as a practical matter, the non-medical exemption may encompass religious beliefs.

In Arizona, the personal exemption is for school enrollees. In Missouri, it is for childcare enrollees only.
AAP Policy Statement: August 29, 2016

Medical Versus Nonmedical Immunization Exemptions for Child Care and School Attendance

otherwise required for child care and school attendance. The American Academy of Pediatrics (AAP) supports regulations and laws requiring certification of immunization to attend child care and school as a sound means of providing a safe environment for attendees and employees of these settings. The AAP also supports medically indicated exemptions to specific immunizations as determined for each individual child. The AAP views nonmedical exemptions to school-required immunizations as inappropriate for individual, public health, and ethical reasons and advocates for their elimination.
How to Improve Vaccination Rates: Provider
# Adolescents Access Preventive Care

<table>
<thead>
<tr>
<th>National Survey</th>
<th>Adolescents (10 through 17 years): Percent (95% CI) who accessed preventive services in the past 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 National Health Interview Survey</td>
<td>74.4 (72.9–75.9)</td>
</tr>
<tr>
<td>2011–2012 National Survey of Children’s Health</td>
<td>81.2 (80.3–82.1)</td>
</tr>
<tr>
<td>2011 Medical Expenditure Panel Survey</td>
<td>43.0 (40.3–45.7)</td>
</tr>
</tbody>
</table>

“...provider recommendation is the strongest predictor of vaccination”
“The most common reason for nonvaccination reported by parents/guardians was never being offered the vaccine (44%); many stated they would have accepted the vaccine if offered…”
Strong Recommendation

Announcement
- Timeliness
- Urgency
- Consistency
- Strength of endorsement


Courtesy of Annie–Laurie McRee.
Announce versus Converse

- Pediatrics January 2017 (early release)
- Noel Brewer et al.; HPV vaccine
- Intervention practices – announced the vaccines and discussed vaccines if needed
- Conversation practices – discussed vaccines first, recommended HPV vaccine strongly
- Intervention clinic vaccination rates exceeded controls by 5.4%
- Conversation clinic vaccination rates same as controls
Important Messages for HPV Vaccination

- It is time to get your adolescent vaccines: Tdap, HPV and meningococcal vaccines...
- The HPV vaccine PREVENTS CANCER!
- The immune response is more vigorous and only 2 doses are needed in younger adolescents.
- Nearly everyone gets the virus at some point in their lifetime.
- You don’t have to have sex to get the virus.
- I strongly recommend the vaccine – my child(ren)/nieces/nephews had this vaccine.
Actual and Achievable Vaccination Coverage if Missed Opportunities Were Eliminated: Adolescents 13–17 Years, NIS–Teen 2012

Among girls unvaccinated for HPV, 84% had a missed opportunity

Missed opportunity: Healthcare encounter when some, but not all ACIP–recommended vaccines are given. HPV–1: Receipt of at least one dose of HPV.

Providers underestimate the value parents place on adolescent vaccines

HPV vaccine is CANCER PREVENTION.

www.cdc.gov/vaccines/teens
Educate office staff about:

- Importance of simultaneous administration of vaccinations (same day, different anatomic sites)
- True contraindications to vaccination
- Best practices (General Immunization Recommendations)
- Check immunization status of scheduled patients
- Establish practice immunization goals; AFIX www.cdc.gov/nip/afix
Other Vaccination Strategies

- Standing orders
  - Recommended by CDC (strong evidence) to increase adult immunization\(^1\)
  - Would likely decrease missed vaccination opportunities in adolescents

- Vaccination “quick visits”

- Reminder/recall systems (can be part of IIS)
  - Recommended (strong evidence) by CDC to increase adult, adolescent, and childhood immunizations\(^1\)

Using standing orders for administering vaccines: What you should know
FAQ provides an overview for healthcare professionals about the use of standing orders for vaccination [#P3066, 6/15]

Chickenpox (varicella) vaccine - Children and teens
Eligible health professionals may vaccinate children and teens who meet any of the criteria on this form [#P3080A, 2/25/14]

Chickenpox (varicella) vaccine - Adults
Eligible health professionals may vaccinate adults who meet any of the criteria on this form [#P3080, 2/14]

Diphtheria, tetanus, acellular pertussis vaccine (DTaP) - Infants and Children
Eligible health professionals may vaccinate children under 7 who meet any of the criteria on this form [#P3073, 10/12]

Hepatitis A vaccine - Children and teens
Eligible health professionals may vaccinate children and teens who meet any of the criteria on this form [#P3077A, 6/13]

Hepatitis A vaccine - Adults
Eligible health professionals may vaccinate adults who meet any of the criteria on this form [#P3077, 6/13]
Impact of Reminder and Recall on Vaccination Rates among Adolescents

Reminders = Letter, 2 “robocalls”, letter

*S p<0.05

Effect of provider prompts on adolescent immunization rates: a randomized trial. Szilagyi PG¹, Serwint JR², Humiston SG³, Rand CM⁴, Schaffer S⁴, Vincelli P⁴, Dhepyasuwan N⁵, Blumkin A⁴, Albertin C⁴, Curtis CR⁶.

Abstract

OBJECTIVE: Adolescent immunization rates are suboptimal. Experts recommend provider prompts at health care visits to improve rates. We assessed the impact of either electronic health record (EHR) or nurse- or staff-initiated provider prompts on adolescent immunization rates.

METHODS: We conducted a randomized controlled trial, allocating practices in 1 of 2 practice-based research networks (PBRN) to provider prompts or standard-of-care control. Ten primary care practices participated, 5 intervention and 5 controls, each matched in pairs on urban, suburban, or rural location and practice type (pediatric or family medicine), from a PBRN in Greater Rochester, New York (GR-PBRN); and 12 practices, 6 intervention, 6 controls, similarly matched, from a national pediatric continuity clinic PBRN (CORNET). The study period was 1 year per practice, ranging from June 2011 to January 2013. Study participants were adolescents 11 to 17 years attending these 22 practices; random sample of chart reviews per practice for baseline and postintervention year to assess immunization rates (n = 7,040 total chart reviews for adolescents with >1 visit in a period). The intervention was an EHR prompt (4 GR-PBRN and 5 CORNET practice pairs) (alert) that appeared on providers' computer screens at all office visits, random sample of chart reviews per practice for baseline and postintervention year to assess immunization rates (n = 7,040 total chart reviews for adolescents with >1 visit in a period). The intervention was an EHR prompt (4 GR-PBRN and 5 CORNET practice pairs) (alert) that appeared on providers' computer screens at all office visits, indicating the specific immunizations that adolescents were recommended to receive. Staff prompts (1 GR-PBRN pair and 1 CORNET pair) in the form of a reminder sheet was placed on the provider's desk in the exam room indicating the vaccines due. We compared immunization rates, stratified by PBRN, for routine vaccines (meningococcus, pertussis, human papillomavirus, influenza) at study beginning and end.

RESULTS: Intervention and control practices within each PBRN were similar at baseline for demographics and immunization rates. Immunization rates at the study end for adolescents who were behind on immunizations at study initiation were not significantly different for intervention versus control practices for any vaccine or combination of vaccines. Results were similar for each PBRN and also when only EHR-based prompts was assessed. For example, at study end, 3-dose human papillomavirus vaccination rates for GR-PBRN intervention versus control practices were 51% versus 53% (adjusted odds ratio 0.96; 95% confidence interval 0.64–1.34); CORNET intervention versus control rates were 50% versus 42% (adjusted odds ratio 1.06; 95% confidence interval 0.68–1.88).

CONCLUSIONS AND RELEVANCE: In both a local and national setting, provider prompts failed to improve adolescent immunization rates. More rigorous practice–based changes are needed.
AFIX (Assessment, Feedback, Incentives, and eXchange)

Overview of AFIX

AFIX is a quality improvement program used by awardees to raise immunization coverage levels, reduce missed opportunities to vaccinate, and improve standards of practices at the provider level. The acronym for this four-part dynamic strategy stands for:

1. **Assessment** of the healthcare provider’s vaccination coverage levels and immunization practices.
2. **Feedback** of results to the provider along with recommended quality improvement strategies to improve processes, immunization practices, and coverage levels.
3. **Incentives** to recognize and reward improved performance.
4. **eXchange** of information with providers to follow up on their progress towards quality improvement in immunization services and improvement in immunization coverage levels.

Contacts

What’s New!

- Quarterly Conference Call Minutes
  - March 26, 2015
- AFIX Policies and Procedures Guide
- AFIX Site Visit Questionnaire
- AFIX Site Visit Answer Guide
HPV, Tdap, and mening vax
We’ve got to get rates up to the max
With policies in place
Providers in the race
We’ll stop teen diseases in their tracks.