Immunization Strategies for Health Care Practices and Providers
## Comparison of 20th Century Annual Morbidity and Current Morbidity: Vaccine-Preventable Diseases

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

† JAMA. 2007;298(18):2155-2163

*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 2017

<table>
<thead>
<tr>
<th>State/Area</th>
<th>Combined Series*</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>70.4%</td>
</tr>
</tbody>
</table>

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

Data at [https://www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/data-reports/7-series/dashboard/2017.html](https://www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/data-reports/7-series/dashboard/2017.html)
## Estimated Vaccination Coverage among Adolescents Aged 13–17 Years, NIS-Teen, 2017

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥1 Tdap</td>
<td>88.7%</td>
</tr>
<tr>
<td>≥1 HPV (M and F)</td>
<td>65.5%</td>
</tr>
<tr>
<td>UTD HPV (M and F)</td>
<td>48.6%</td>
</tr>
<tr>
<td>≥1 MenACWY</td>
<td>85.1%</td>
</tr>
</tbody>
</table>

Figure 1. Early and End-of-Season Flu Vaccination Coverage Among Children, United States, 2014–November 2018

- Early-season estimate (based on NIS-Flu)
- End-of-season estimate (based on NIS-Flu)

Error bars represent 95% confidence intervals around the estimates.
* indicates the estimate was significantly different compared to the previous season.

Figure 2. Early and End-of-Season Flu Vaccination Coverage Among Adults, United States, 2014–November 2018

- Early-season estimate (based on NIFS)
- End-of-season estimate (based on BRFSS)

Error bars represent 95% confidence intervals around the estimates.
* indicates the estimate was significantly different compared to the previous season.
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

Strategies Overview

- Many available strategies
- Some targeted to public and/or non-health care settings
  - School immunization requirements
  - Women Infant and Children (WIC) services
  - Home visits
- Match strategy to the problem and population
- Today’s focus on health care settings
- Immunization Quality Improvement for Providers (IQIP)

- IQIP is designed by CDC and implemented by CDC’s 61 state and local immunization program awardees.

- IQIP promotes and supports implementation of provider-level strategies designed to increase on-time vaccination among children and adolescents
IQIP Promotes On-Time Vaccination

- On-time vaccination provides maximum protection against vaccine-preventable diseases for children and adolescents by ensuring they are getting the vaccines they need when they need them.

- IQIP uses a 12-month technical assistance process to support VFC providers in applying quality improvement strategies to increase on-time vaccination.
IQIP Promotes Three (Sometime Four) Strategies

- Schedule the next vaccination visit before the patient leaves the office
- Leverage immunization information system (IIS) functionality to improve immunization practice
- Give a strong vaccine recommendation (including effective responses to vaccine hesitancy)

The immunization program awardees may choose to promote a fourth, custom strategy to address local priorities
IQIP Timeline

- Site visit
- 2-month check-in
- 6-month check-in
- 12-month follow-up
IQIP Site Visit

- Observe the provider’s vaccination workflow
- Review vaccination coverage and set 12-month coverage goals
- Select appropriate quality improvement strategies
- Provide technical assistance to support strategy implementation
- Create a Strategy Implementation Plan with action items that are tailored to best meet the provider’s needs
IQIP Check-Ins (2-Month and 6-Month)

- Review progress made on the action items in the Strategy Implementation Plan

- Provide technical assistance for each strategy as needed

- Update the Strategy Implementation Plan with new or revised action items for each strategy selected
IQIP Follow-Up (12-Month)

- Review progress made on the action items in the Strategy Implementation Plan
- Review year-over-year changes in vaccination coverage and compare to the coverage goals set 12 months earlier
- Provide technical assistance for each strategy as needed
- Update the Strategy Implementation Plan with new or revised action items for each strategy selected
Benefits of IQIP for Providers

- Help ensure that more child and adolescent patients get the vaccines they need when they need them.

- Save time and money by reducing the need for catch-up appointments and follow-up for patients who are not vaccinated on time.

- Assist in meeting childhood and adolescent HEDIS measures.
Strategies for High Immunization Levels

- Recordkeeping
- Immunization Information Systems (IIS)
- Recommendations and reinforcement
  - Schedule next immunization visit before patient leaves the office
- 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
Immunization Information Systems (IIS)

- Single data source for all providers
- Reliable immunization history
- Produce records for patient use

- Increase vaccination rates

http://www.cdc.gov/vaccines/programs/iis/index.html
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
- Schedule the next immunization visit before the patient leaves the office
- 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

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

Provider Resources

- Conversations with parents:
  - https://www.cdc.gov/vaccines/parents/vaccine-decision/index.html

- Vaccines for Children Program

- The Guide to Community Preventive Services
  - https://www.thecommunityguide.org/
