Immunization Strategies for Healthcare 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>2014 Reported Cases † †</th>
<th>Percent Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria</td>
<td>21,053</td>
<td>1</td>
<td>&gt; 99%</td>
</tr>
<tr>
<td>Measles</td>
<td>530,217</td>
<td>628</td>
<td>&gt; 99%</td>
</tr>
<tr>
<td>Mumps</td>
<td>162,344</td>
<td>1,151</td>
<td>99%</td>
</tr>
<tr>
<td>Pertussis</td>
<td>200,752</td>
<td>32,971</td>
<td>86%</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>8</td>
<td>&gt; 99%</td>
</tr>
<tr>
<td>Congenital Rubella Syndrome</td>
<td>152</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Tetanus</td>
<td>580</td>
<td>21</td>
<td>96%</td>
</tr>
<tr>
<td><em>Haemophilus influenzae</em></td>
<td>20,000</td>
<td>27*</td>
<td>&gt; 99%</td>
</tr>
<tr>
<td>Total</td>
<td>999,159</td>
<td>34,807</td>
<td>97%</td>
</tr>
<tr>
<td>Vaccine Adverse Events</td>
<td>Not available</td>
<td>~30,000</td>
<td>Not available</td>
</tr>
</tbody>
</table>

† JAMA. 2007;298(18):2155-2163
† † CDC. MMWR January 9, 2015 / 63(53);ND-733-ND-746. (MMWR 2014 provisional week 53 data)
* Haemophilus influenzae type b (Hib) < 5 years of age. An additional 12 cases of Hib are estimated to have occurred among the 226 reports of Hi (< 5 years of age) with unknown serotype.
**Estimated Vaccine Coverage Among Children Aged 19-35 Months, NIS 2015**

<table>
<thead>
<tr>
<th>State/Area</th>
<th>Vaccine Series*</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>4:3:1:3:3:1:4</td>
</tr>
<tr>
<td></td>
<td>72.2%</td>
</tr>
</tbody>
</table>

*Includes >4 doses DTaP/DT/DTP, > 3 doses polio, > 1 dose MMR, full series Hib, > 3 doses Hep B, dose > 1 varicella, and > 4 doses PCV.

MMWR 2016; 65(39): 1065-71
Estimated Vaccination Coverage among Adolescents Aged 13-17 Years, NIS-Teen, United States, 2006-2015

- ≥1 Tdap
- ≥1 MenACWY
- ≥1 HPV (F)
- ≥1 HPV (M)
- ≥3 HPV (F)
- ≥2 MenACWY
- ≥3 HPV (M)

* APD = Adequate provider data; ** ≥2 doses MenACWY among adolescents aged 17 years
MMWR 65(33);850-858
Adult Influenza Vaccination Coverage by Age, 2014-15 season, United States

Data Source: 2014-2015 NHIS
HP2020 Targets: 70% ≥19 years, 90% HCP ≥19 years
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
Adult Tetanus-containing Vaccination Coverage by Age and High-risk Status, United States

Data Source: 2015 NHIS
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.

http://www.cdc.gov/vaccines/programs/cocasa/index.html
http://www.cdc.gov/vaccines/programs/afix/index.html
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
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
- 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>5,840</td>
<td>22</td>
<td>29</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>654</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>6</td>
<td><strong>29</strong></td>
</tr>
<tr>
<td>Healthcare system strategies in combination</td>
<td><strong>20,000</strong></td>
<td>4</td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Provider Resources

- Conversations with parents:

- Vaccines for Children Program

- The Guide to Community Preventive Services


  - [http://www.publichealthreports.org/issueopen.cfm?articleID=3145](http://www.publichealthreports.org/issueopen.cfm?articleID=3145)