Immunization Update from CDC

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Dane County Immunization Coalition
Coulee Region Immunization Coalition
Wisconsin
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Disclosures

• Donna Weaver is a federal government employee with no financial interest or conflict with the manufacturer of any product named in this presentation
• Donna will discuss the off-label use of HPV, Tdap, Influenza and PCV13 vaccines
• Donna will not discuss a vaccine not currently licensed by the FDA

Objectives

• Increase provider knowledge regarding immunizations and the importance of promoting immunizations in the community.
• Explain at least one recent change to immunization recommendations from the Advisory Committee on Immunization Practices (ACIP)
Overview

• 2012 schedules
• Immunization coverage
• Outbreaks
• ACIP recommendations
  – Influenza
  – Healthcare personnel
  – PCV13
  – Hepatitis B
• Brief updates
  – VISs
  – Barcoding
  – Vaccine supply
• Best practices
  – Storage & Handling
• The future
• Resources

2012 Recommended Childhood & Adolescent Immunization Schedules
http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html

2012 Recommended Adult Immunization Schedules
http://www.cdc.gov/vaccines/schedules/hcp/adult.html

<table>
<thead>
<tr>
<th>State/Area</th>
<th>Vaccine Series*</th>
<th>Coverage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>4:3:1:3:1:4:3</td>
<td>73.6%</td>
</tr>
<tr>
<td>Wisconsin</td>
<td></td>
<td>79.2%</td>
</tr>
</tbody>
</table>

*Includes ≥4 doses DTaP/DT/DTP, ≥3 doses polio, ≥1 dose MMR, ≥3 doses Hep B, ≥1 varicella, and ≥4 PCV. Hib is excluded.

MMWR 2012;61(33):657-652

Estimated Coverage Adolescents 13–17 Years, National Immunization Survey-Teen, United States, 2006–2011

<table>
<thead>
<tr>
<th></th>
<th>HPV4</th>
<th>HPV2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HPV4</strong></td>
<td>Types 6, 11, 16, 18</td>
<td>Types 16, 18</td>
</tr>
<tr>
<td><strong>HPV2</strong></td>
<td>Females ONLY</td>
<td>Females ONLY</td>
</tr>
<tr>
<td><strong>Routine</strong></td>
<td>Females Routine: 11-12 yrs</td>
<td>Females Routine: 11-12 yrs</td>
</tr>
<tr>
<td><strong>Catch-up</strong></td>
<td>Catch-up: 13-26 yrs</td>
<td>Catch-up: 13-26 yrs</td>
</tr>
<tr>
<td><strong>Males</strong></td>
<td>Males Routine: 11-12 yrs</td>
<td>Males Routine: 11-12 yrs</td>
</tr>
<tr>
<td><strong>Catch-up</strong></td>
<td>Catch-up: 13-21 yrs</td>
<td>Catch-up: 13-21 yrs</td>
</tr>
<tr>
<td><strong>Immunocompromised</strong></td>
<td>11-26 yrs</td>
<td>11-26 yrs</td>
</tr>
<tr>
<td><strong>MSM</strong></td>
<td>MSM: 11-26 yrs</td>
<td>MSM: 11-26 yrs</td>
</tr>
<tr>
<td><strong>May be given as young as</strong></td>
<td>May be given as young as</td>
<td>May be given as young as</td>
</tr>
<tr>
<td>9 yrs</td>
<td>9 yrs</td>
<td>9 yrs</td>
</tr>
<tr>
<td><strong>0, 1-2, 6 mos</strong></td>
<td>0, 1-2, 6 mos</td>
<td>0, 1-2, 6 mos</td>
</tr>
<tr>
<td><strong>Intramuscular (IM)</strong></td>
<td>Intramuscular (IM)</td>
<td>Intramuscular (IM)</td>
</tr>
</tbody>
</table>

MMWR 2012;61(34):671-77

HPV Vaccines

MMWR 2012;61(33):657-652
HPV Series Completion

- Significant number of girls who began the HPV series do not receive all three doses
- Related factors include:
  - parents often lack awareness of the importance of vaccinating preteen girls
  - not receiving a strong recommendation for HPV vaccination from healthcare providers

HPV Immunization Rates
13-17 years of age

<table>
<thead>
<tr>
<th>HPV Vaccine</th>
<th>U.S.</th>
<th>WI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or more doses*</td>
<td>53.0%</td>
<td>65.7%</td>
</tr>
<tr>
<td>3 dose series completion **</td>
<td>70.7%</td>
<td>80.3%</td>
</tr>
</tbody>
</table>

*Percentages ≥1 human papillomavirus vaccine, either HPV4 or HPV2 reported among females only (n=11,2360)
** Percentage of females who received 3 or more HPV doses, either HPV4 or HPV2

MMWR 2011; 60 (No. 33):1117-11123

Strategies for Increasing HPV Vaccination Rates in Clinical Practices

- Recommend HPV vaccine
  - include HPV vaccine when discussing other needed vaccines
- Integrate standard procedures
  - assess for needed vaccines at every clinical encounter
  - immunize at every opportunity
  - standing orders
- Use reminder and recall
- Use AFIX (assessment, feedback, incentives, eXchange of information)
- Report to ShowMeVax
- HEDIS measure (Jan 2012)
  - proportion of 13 year old girls who have not received 3 doses
Measles Epidemiology in the Post Elimination Era

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Reported Cases Total (indigenous/imported)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>222</td>
</tr>
<tr>
<td>2010</td>
<td>63 (23/40)</td>
</tr>
<tr>
<td>2009</td>
<td>71 (51/20)</td>
</tr>
<tr>
<td>2008</td>
<td>140 (115/25)</td>
</tr>
<tr>
<td>2007</td>
<td>43 (14/29)</td>
</tr>
<tr>
<td>2006</td>
<td>55 (24/31)</td>
</tr>
</tbody>
</table>

U.S. Measles Outbreaks in 2012

- 51 reported measles cases as of September 22
- Most measles cases associated with importation
  - travelers from other countries coming into the U.S. who are infected
  - returning U.S. citizens infected while traveling internationally

Controlling Measles Outbreaks

- Healthcare providers should:
  - be sure they are immune to measles
  - continue to encourage high vaccination rates
  - review patients’ vaccination history, especially anyone planning international travel
MMR Immunization Rates
Children 19-35 Months of Age

| +1 MMR U.S. WI |
| 2011 91.6% 94.9% |

MMWR 2012; 61 (No. 34): 671- 677

Measles Immunization for Infants
Traveling Internationally

• Infants 6 months through 11 months of age
  – should receive a single dose of MMR
  – still need routinely recommended doses at 12
    months and 4 to 6 years of age
• Children 13 months and older traveling
  internationally should have 2 doses of MMR
  – ensure at least 4 weeks between doses

Controlling Measles Outbreaks

• Clinicians should:
  – be alert and maintain high level of suspicion for
    measles in patients with febrile rash illness and
    recent travel outside the United States
  – immediately report suspected measles cases to
    local health department
  – obtain viral specimens for confirmation and
    genotyping
Pertussis Outbreaks - U.S. in 2012

- Provisional data as of September 29
  - 4,036 reported cases – Washington
  - 4,640 reported cases - Wisconsin
- Nationwide
  - 30,908 reported cases (11,969 in 2011)

Tdap Recommendations

- Tdap is indicated for:
  - Children 7 through 10 years of age who are not fully vaccinated against pertussis and who do not have a contraindication to pertussis vaccine*
  - Anyone 11 years of age or older who has not received a dose of Tdap, especially healthcare personnel with direct patient contact, pregnant and postpartum women, and anyone who will have close contact with an infant younger than 12 months of age

*Tdap – Additional Information

- “Fully Vaccinated Against Pertussis”
  - 5 doses of DTaP, or
  - 4 doses of DTaP if the fourth dose was administered on or after the fourth birthday
- There is no minimum interval between the last dose of tetanus toxoid-containing vaccine and a dose of Tdap
- Either Tdap brand may be used, but Boostrix preferred (if available) for adults 65 and older (off-label for Adacel)
- Administer to pregnant women in the 3rd trimester or late in the 2nd trimester (after 20 weeks gestation)
- Tdap may be used for wound prophylaxis
- Tdap FDA approved for ONLY one dose
Persons without Documentation of Pertussis Vaccination

- Preferred schedule
  - single dose of Tdap
  - Td at least 4 weeks after the Tdaco dose
  - second dose of Td at least 6 months after the prior Td dose

Pertussis Strategies

- Short-term - optimize current vaccine recommendations
  - DTaP for infants and children
  - Tdap for adolescents and adults
  - Tdap for pregnant women (pass protective antibodies onto infant)
- Long-term
  - Improve diagnostic testing to improve surveillance
  - Enhance surveillance
  - Evaluate effectiveness of cocooning/maternal vaccination
  - Evaluate Tdap duration of protection
  - Assess temporal trends in susceptibility/infection

Influenza A (H3N2) Variant Virus ("H3N2v")
http://www.cdc.gov/flu/swineflu/h3n2v-outbreak.htm

- In 2011, new influenza A (H3N2)v virus detected
- Beginning July 2012, human infections with H3N2v virus detected
- 305 H3N2v reported cases in 2011 – 2012 in 10 states
- 20 cases reported in WI
- 16 hospitalizations
- One H3N2v-associated death reported in Ohio
- Vast majority of confirmed cases are associated with swine exposure
- Virus seems to be more transmissible to humans from swine than previous variant viruses

As of September 28, 2012
Three Step Approach to Prevent Flu

- Take time to get a flu vaccine
- Take everyday preventive actions to stop the spread of germs that can cause respiratory illness like the flu
- Take flu antiviral drugs if your doctor prescribes them

Influenza Vaccine Strains for 2012-13 Season

- A/California/7/2009 (H1N1)pdm09, the pandemic strain
- A/Victoria/361/2011 (H3N2), which replaces A/Perth/16/2009
- B/Wisconsin/1/2010, which replaces B/Brisbane/60/2008
- *Quadrivalent TIV and LAIV are in various stages of FDA review, but will not be available for the 2012-13 season

- MMWR 2012;61(32):613-618

Influenza Vaccine Products 2012-2013

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Age Indications</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluzone</td>
<td>6 months and older</td>
<td>Sanofi Pasteur</td>
</tr>
<tr>
<td>Fluzone High-Dose</td>
<td>65 years and older</td>
<td></td>
</tr>
<tr>
<td>Fluzone Intradermal</td>
<td>18 through 64 years</td>
<td></td>
</tr>
<tr>
<td>Fluarix</td>
<td>3 years and older</td>
<td>GlaxoSmithKline (GSK)</td>
</tr>
<tr>
<td>FluLaval</td>
<td>18 years and older</td>
<td></td>
</tr>
<tr>
<td>FluLaval</td>
<td>18 years and older</td>
<td></td>
</tr>
<tr>
<td>FluLaval</td>
<td>4 years and older</td>
<td>Novartis</td>
</tr>
<tr>
<td>Agriflu</td>
<td>18 years and older</td>
<td></td>
</tr>
<tr>
<td>Afluria</td>
<td>9 years and older*</td>
<td>CSL</td>
</tr>
<tr>
<td>FluMist</td>
<td>2 through 49 years</td>
<td>MedImmune</td>
</tr>
</tbody>
</table>

*Afluria may be administered to children 5 through 8 years of age with a high-risk condition if no other age appropriate inactivated seasonal influenza vaccine is available.
Intradermal Fluzone
18 through 64 years of age ONLY

www.vaccineshoppe.com

Influenza Dosing for Children
6 Months through 8 Years of Age

• These children need only 1 dose of vaccine in 2012-2013 if they have received any of the following:
  • 2 or more doses of seasonal influenza vaccine since July 1, 2010 or;
  • 2 or more doses of seasonal influenza vaccine before July 1, 1010 AND 1 or more doses of monovalent 2009 H1N1 vaccine or;
  • 1 or more doses of seasonal influenza vaccine before July 1, 2010 AND 1 or more doses of seasonal influenza vaccine since July 1, 2010

• Children for whom one of these conditions is not met require 2 doses in 2012-2013

ACIP - www.cdc.gov/mmwr/pdf/wk/mm6132.pdf
IAC - www.immunize.org/catg.d/p3093.pdf
• Healthcare personnel – all paid and unpaid persons working in healthcare settings who have the potential for exposure to patients and/or to infectious materials


Healthcare Personnel Vaccination Recommendations

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Recommendations in brief</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>Give 3-dose series (1st dose 0, 1st dose 1, approximately 6 months after 2nd); Give 3rd dose at 12 months after 2nd dose.</td>
</tr>
<tr>
<td>Influenza</td>
<td>Give 1 dose of influenza vaccine annually. Give increased specific influenza vaccine immediately or when available influenza vaccine (LAIV) annually.</td>
</tr>
<tr>
<td>MMR</td>
<td>For healthcare personnel (HCP) born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR. A second dose for HCP born before 1957, see below. Give SC.</td>
</tr>
<tr>
<td>Varicella (Varivax®)</td>
<td>For HCP with no serologic evidence of immunity, give Varivax®; If HCP have not received Varicella vaccine, give 2 doses of Varicella vaccine; 4 weeks apart. Give SC.</td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis</td>
<td>Give a one-dose dose of Td as soon as feasible to all HCP who have not received Td previously. Give Td every 10 years thereafter. Give SC.</td>
</tr>
<tr>
<td>Measles, mumps, rubella, varicella vaccination</td>
<td>Give 1 dose to individuals who are not routinely recommended for HCP who may have the job exposure to fluid aerosol.</td>
</tr>
</tbody>
</table>

Health Care Personnel and Influenza Vaccination

<table>
<thead>
<tr>
<th>Type</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>85.6%</td>
</tr>
<tr>
<td>Nurses</td>
<td>77.9%</td>
</tr>
<tr>
<td>Other</td>
<td>62.8%</td>
</tr>
</tbody>
</table>

- Be vaccinated with flu vaccine and encourage your coworkers to be vaccinated!
- When vaccinating HCP assess for other needed vaccines

MMWR 2011; 61(38): 753-757

Influenza Vaccination Rates

Pneumococcal Conjugate Vaccine (PCV13) for Immunocompromised Adults

- December, 2011, PCV13 (Prevnar) FDA approved for use among adults 50 years and older
- June, 2012, ACIP voted to recommend a dose of PCV13 for high-risk adults 19 years and older*
  - immunocompromised
  - functional or anatomic asplenia
  - cochlear implant
  - CSF leak
- PCV13 should be administered to eligible adults in addition to PPSV23

MMWR 2012;61(21):394-395

Recommendation for the use of PCV13 among pneumococcal vaccine naïve individuals:

- Adults 19 or older with immunocompromising conditions, functional or anatomic asplenia, CSF leaks, or cochlear implants, who have not previously received PCV13 or PPSV23, should receive a dose of PCV13 first followed by a dose of PPSV23 at least 8 weeks later
- Subsequent doses of PPSV23 should follow current PPSV23 recommendations for these adults.
  - A second PPSV23 dose is recommended 5 years after the first PPSV23 dose for persons aged 19–64 years with functional or anatomic asplenia and for persons with immunocompromising conditions.
  - Persons with CSF leaks or cochlear implants should receive no additional doses of PPSV23 until age 65 years.
- Those who received 1 or 2 doses of PPSV23 before age 65 for any indication should receive another dose at 65 or later if at least 5 years have elapsed since their previous PPSV23 dose
Recommendations for use of PCV13 among adults who have previously been vaccinated with PPSV23

- Adults 19 or older with immunocompromising conditions, functional or anatomic asplenia, CSF leaks, or cochlear implants who have previously received one or more doses of PPSV23 should be given a dose of PCV13 one or more years after the last PPSV23 dose was received. For those who require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years since the most recent dose of PPSV23

Administering PCV13 and PPSV23 Vaccines

- PCV13 and PPSV23 should not be administered simultaneously
- Administer PCV13 before PPSV23, whenever possible
- PPSV23 recommendations and indications for those at highest risk for invasive pneumococcal disease remain unchanged from earlier recommendations


Table 1. Medical conditions or other indications for administration of 13-valent pneumococcal conjugate vaccine (PCV13), as well as indications for 23-valent pneumococcal polysaccharide vaccine (PPSV23) administration and reimmunization for adults aged 65-64 years.

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Underlying Medical Condition</th>
<th>PCV13</th>
<th>PPSV23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunocompromising persons</td>
<td>Chronic Heart Disease</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Chronic Lung Disease</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Diabetes Mellitus</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>CF</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Congenital malformations</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Ataxia</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Chronic Liver Disease</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Cerebral Palsy</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Severe Combined Immunodeficiency</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Hypogammaglobulinemia</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Congenital or Acquired Immunodeficiencies</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>HIV Infection</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Chronic Renal Failure</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Neoplastic ( \geq 50 )</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Leukemia</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Lymphoma</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Multiple Sclerosis</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td></td>
<td>Cerebral Palsy</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Hypogammaglobulinemia</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Congenital ( \geq 50 )</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Hypogammaglobulinemia</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td></td>
<td>Severe Combined Immunodeficiency</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Immunocompromised persons</td>
<td>✓</td>
<td>✓</td>
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<td>Immunocompromised persons</td>
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<tr>
<td>Immunocompromised persons</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Hepatitis B Epidemiology

• Since 1996, 29 outbreaks of hepatitis B in long-term care facilities

• 25 outbreaks involved use of blood glucose monitors among diabetics

• These exposures occurred through:
  – shared use of monitoring devices intended for single use
  – failure to follow basic principles of infection control by cleaning devices between uses

Hepatitis B Vaccine for Diabetics

• Unvaccinated adult diabetics 19 through 59 years of age should receive a 3-dose series of hepatitis B vaccine

• Hepatitis B vaccine may be administered to diabetics 60 years of age and older at the clinician’s discretion

MMWR 2011;60(50):1709-1711

Vaccine Information Statements
2D Barcodes

- Fever (up to 1 person out of 10)
- Mild rash (about 1 person out of 20)
- Swellings of glands in the neck or neck (about 1 person out of 75)

If fever persists more, it is usually within 6-14 days after the start. They occur less often after the second dose.

Adverse Events:
- Serious health effects may be caused by a fever (about 1 out of 10,000 doses). Important side effects include:
  - Swellings in the skin or joints, mouth, or abdomen (about 1 out of 100 doses)
  - Swellings of glands in the neck or neck (about 1 out of 75 doses)

Serious Problems (Very Rare):
- Serious allergic reactions (less than 1 out of a million doses)
- Death
- Long-term illness, coma, or severe damage

www.cdc.gov/vaccines/pubs/vis/vis-barcodes.htm

Rich Text Format – RTF Files

- www.cdc.gov/vaccines/pubs/vis/default.htm
- www.cdc.gov/vaccines/pubs/vis-rtf-files.htm
- Easily converted to other file types (xml, html)
- Posted to website as they become available
- PDF files available

VISs Updated Format
Vaccine Shortage

• Daptacel (DTaP) – Sanofi Pasteur
• Pentacel (DTaP-IPV/Hib) – Sanofi Pasteur

http://www.cdc.gov/vaccines/vac-gen/shortages/default.htm

Completing Series Begun with Daptacel or Pentacel

• Supplies of single-antigen DTaP, IPV, and Hib are adequate to complete a series begun with Pentacel*
• Other combination vaccines may be used to complete a series begun with Pentacel

*As of September 14, 2012

Considerations When Changing Vaccine Products

• ACIP recommends using same brand of vaccine for all doses of vaccination series, when feasible
• If same brand is not known or not available, another brand may be used
• Do not miss an opportunity to vaccinate
Considerations When Changing Vaccine Products

- Hib vaccines are interchangeable (exception – Hiberix only for last booster dose)
- If different brands require different numbers of doses to complete a Hib series, use the higher number when mixing brands
- Hib vaccine component in Pentacel is licensed as a four-dose series

Vaccine Storage & Handling Interim Guidance

- The Interim Vaccine Storage and Handling Guidelines are a brief summary of changes in recommendations for vaccine storage and handling equipment. This guidance is intended for use by all public and private sector providers
- Several important changes have been made to previous recommendations issued by CDC

Vaccine Storage & Handling Interim Guidance

- Use of a biosafe glycol-encased probe or a similar temperature buffered probe rather than measurement of ambient air temperatures
- Use of digital data loggers with detachable probes that record and store temperature information at frequent programmable intervals for 24 hour temperature monitoring rather than non-continuous temperature monitoring
Vaccine Storage & Handling Interim Guidance

- Use of stand-alone refrigerator and stand-alone freezer units suitable for vaccine storage rather than combination (refrigerator+freezer) or other units not designed for storing fragile biologics, such as vaccines
- Discontinuing use of dorm-style or bar-style refrigerator/freezers for ANY vaccine storage, even temporary storage
- Weekly review of vaccine expiration dates and rotation of vaccine stock

Additional Resources

- Immunization Action Coalition  
  www.immunize.org
- EZIZ (CA VFC program)  
  www.eziz.org
- Vaccine Education Center  
  www.chop.edu
- American Academy  
  www.aap.org/immunize of Pediatrics (AAP)
- National Foundation for Infectious Diseases (NFID)  
  www.nfid.org

CDC Vaccines and Immunization Contact Information

- Telephone  
  800.CDC.INFO (for patients and parents)
- Email  
  nipinfo@cdc.gov (for providers)
- Website  
  www.cdc.gov/vaccines/
- Vaccine Safety  
  www.cdc.gov/vaccinesafety/