Adolescent Immunization Update

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Disclosure Statement

- JoEllen Wolicki BSN, RN, does not have any financial interest or conflicts with the manufacturer of any products named in this presentation
Why Be Concerned About Adolescents?

- Adolescents are:
  - frequently engaged in behaviors that increase their risk for disease
  - not aware of adolescent immunizations
  - exposed to and develop vaccine preventable diseases
  - vulnerable vectors- exposing others to these serious diseases

Reported Pertussis by Year, Michigan 2000 - 2009

![Graph showing reported pertussis cases by year from 2000 to 2009.]
### Comparing Immunization Rates

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>9-35 months of age</th>
<th>14-17 yrs of age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>93%</td>
<td>92%</td>
</tr>
<tr>
<td>MMR</td>
<td>88% (1 dose)</td>
<td>94% (2 doses)</td>
</tr>
<tr>
<td>Varicella</td>
<td>87% (1 dose)</td>
<td>86% (≥ 1 dose)</td>
</tr>
<tr>
<td>DTaP/Tdap</td>
<td>86% (≥ 4 doses)</td>
<td>33%</td>
</tr>
<tr>
<td>Td or Tdap</td>
<td>N/A</td>
<td>69%</td>
</tr>
<tr>
<td>HPV4</td>
<td>N/A</td>
<td>32% (≥ 1 dose)</td>
</tr>
<tr>
<td>MCV4</td>
<td>N/A</td>
<td>13% (≥ 4 doses)</td>
</tr>
</tbody>
</table>

National Immunization Survey 19-35 months of age, Teens 13-17 yrs of age 2008
www.cdc.gov/vaccines

### Recommended Immunization Schedule for Persons Aged 7 Through 18 Years—United States • 2010

For those who fall behind or start late, see the schedule below and the catch-up schedule.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Age</th>
<th>7-10 years</th>
<th>11-12 years</th>
<th>13-18 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tdap</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV (3 doses)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPSV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HepA Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HepB Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPV Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMR Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This schedule includes recommendations in effect as of December 15, 2009. Any doses not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Considerations should include provider assessment, patient preference, and the potential for adverse events. Providers should consult the relevant Advisory Committee on Immunization Practices statement for detailed recommendations. http://www.cdc.gov/vaccines/pubs/pbib-khp.htm. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS) at http://www.vaers.hhs.gov or by telephone, 800-822-7967.

1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). (Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL®)  
   • Administer at age 11 or 12 years for those who have completed the recommended childhood vaccine series and have not received for adverse events. Providers should consult the relevant Advisory Committee on Immunization Practices statement for detailed recommendations. http://www.cdc.gov/vaccines/pubs/pbib-khp.htm. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS) at http://www.vaers.hhs.gov or by telephone, 800-822-7967.
   • For healthy nonpregnant persons aged 7 through 18 years (i.e., those who do not have underlying medical conditions that predispose them to influenza complications).
   • Administer 2 doses separated by at least 4 weeks in children aged younger
Catch-up Immunization Schedule for Persons Aged 4 Months Through 18 Years Who Start Late or Who Are More Than 1 Month Behind—United States, 2018

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child’s age.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age</th>
<th>Months Past Due to Start Late</th>
<th>Minimum Interval Between Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetanus, Diphtheria/Diphtheria, Pertussis</td>
<td>7 yrs</td>
<td>4 weeks</td>
<td>If first dose administered at younger than age 12 months</td>
</tr>
<tr>
<td>Human Papillomavirus</td>
<td>9 yrs</td>
<td>6 months</td>
<td>Routine dosing intervals are recommended</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>12 mos</td>
<td>4 weeks</td>
<td>If first dose administered at age 12 months or older</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>6 mos</td>
<td>4 weeks</td>
<td>If first dose administered at age 12 months or older</td>
</tr>
<tr>
<td>Inactivated Poliovirus</td>
<td>6 mos</td>
<td>4 weeks</td>
<td>8 weeks (and at least 16 weeks after first dose)</td>
</tr>
<tr>
<td>Measles, Mumps, Rubella</td>
<td>12 mos</td>
<td>4 weeks</td>
<td>3 months if the person is younger than age 12 years</td>
</tr>
<tr>
<td>Varicella</td>
<td>12 mos</td>
<td>4 weeks</td>
<td>If the person is aged 13 years or older</td>
</tr>
</tbody>
</table>

1. Hepatitis B vaccine (HepB).
2. Inactivated poliovirus vaccine (IPV).
3. A 3-dose series is specified for previously unvaccinated people.
4. The final dose in the series should be administered on or after the 4th birthday and at least 6 months following the previous dose.

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MCIR and Adolescent Vaccines

General Information Screen

Influenza Screening Notification

<table>
<thead>
<tr>
<th>Series</th>
<th>Dose 1</th>
<th>Dose 2</th>
<th>Dose 3</th>
<th>Dose 4</th>
<th>Dose 5</th>
<th>Dose 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTPhD</td>
<td>04/08/1999</td>
<td>05/09/1999</td>
<td>07/25/1999</td>
<td>02/02/2000</td>
<td>02/19/2004</td>
<td>02/12/2009</td>
</tr>
<tr>
<td>Penta</td>
<td>04/08/1999</td>
<td>05/09/1999</td>
<td>07/25/1999</td>
<td>02/02/2000</td>
<td>02/19/2004</td>
<td>02/12/2009</td>
</tr>
<tr>
<td>Measles</td>
<td>02/02/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
</tr>
<tr>
<td>Varicella</td>
<td>02/02/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
<td>04/05/2009</td>
</tr>
</tbody>
</table>

Status: Eligible | Due Date: 02/01/2010

Hepatitis A

- Hepatitis A (HepA)
- Hepatitis A (HepA) (2018)

Status: Eligible | Due Date: 02/01/2010

Varicella

- Varicella
- Varicella (2018)

Status: Eligible | Due Date: 02/01/2010

Meningococcal Conjugate

- Meningococcal Conjugate

Status: Eligible | Due Date: 02/01/2010

Other Vaccines

- Hib
- Hib (2018)
- Hib (2018)
- Hib (2018)
- Hib (2018)

Status: Eligible | Due Date: 02/01/2010

Tuberculosis

- Tuberculosis
- Tuberculosis

Status: Eligible | Due Date: 02/01/2010

Female 11 years of age
MCIR & Other Pediatric Immunizations

Pediatric vaccines that are not routinely recommended for teens

Look Closely at the Letters

Vaccines | Use for ages:
--- | ---
DTaP | 6 weeks through 6 years of age
Td | 7 years of age and older
Tdap | Boostrix® 10 through 64 years of age
      | Adacel® 11 through 64 years of age

- Pay attention to upper and lower case letters
  - The upper case/capital letters “D” and “P” in DTaP mean there is more vaccine antigen in DTaP (it’s stronger) than in Tdap
  - Order, give, and record the correct vaccine based on the person’s age
Tdap Vaccine

- Give a single IM booster dose of Tdap to:
  - Children at ages 11-12 years who have completed the recommended childhood DTaP series and have not received a Td booster
  - Persons aged 13 thru 64 years who have not received one dose of Tdap
  - A 5 year interval from the last DTaP or Td dose is encouraged when Tdap is used as a booster dose

- Shorter intervals of 2 years or less may be used if
  - A person will be in contact with an infant less than 12 months of age
  - There is a pertussis outbreak in a community
- Tdap may be given with other vaccines
Points About Human Papillomavirus (HPV) Vaccine

- It is important to vaccinate persons **before** they become sexually active for the full benefit of either vaccine.
- Sexually active females should/males may also be vaccinated.
  - Few will have been infected with all HPV vaccine types.
  - Those already infected with 1 or more of the HPV vaccine types can still be protect against disease from the other HPV vaccine types.

HPV Vaccines

<table>
<thead>
<tr>
<th>Vaccine Type, Brand and Manufacturer</th>
<th>HPV4 (Gardasil, Merck)</th>
<th>HPV2 (Cervarix, GSK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serotypes contained in the vaccine:</td>
<td>6, 11, 16, 18</td>
<td>16, 18</td>
</tr>
<tr>
<td>Protects against:</td>
<td>Cervical, vaginal, vulvar cancers; Genital warts</td>
<td>Cervical cancer</td>
</tr>
<tr>
<td>Approved for use in:</td>
<td>Females and Males</td>
<td>Females</td>
</tr>
<tr>
<td>Recommended Schedule:</td>
<td>0, 1-2 and 6 months</td>
<td></td>
</tr>
<tr>
<td>Routine age to begin series:</td>
<td>11-12 years</td>
<td></td>
</tr>
<tr>
<td>Minimum age to begin series:</td>
<td>9 years</td>
<td></td>
</tr>
<tr>
<td>Maximum age to begin series:</td>
<td>26 years</td>
<td></td>
</tr>
<tr>
<td>Minimum interval between doses:</td>
<td>Dose 1 to 2: 4 wks; Dose 2 to 3: 12 weeks; Dose 1 to 3: 24 wks</td>
<td></td>
</tr>
</tbody>
</table>
A Word on MCIR, HPV & Boys

- ACIP Recommendations: HPV4 vaccine *may* be administered in a 3 dose series to boys to reduce the likelihood of acquiring genital warts.
- MCIR will not indicate boys need the first dose of HPV.
- Planning for a “trigger” assessment:
  - Once a dose is entered; MCIR will assess for doses 2 and 3.

Meningococcal Conjugate Vaccine (MCV4)

- Routinely given IM, 1 dose at age 11-12 years.
- Catch-up all adolescents 13 -18 years who have not been vaccinated.
- Assure high risk persons, 2-55 yrs of age, are vaccinated.
- Do not administer MCV4 to persons with a history of Guillain-Barré syndrome.
- Give Tdap and MCV4 in different limbs.
- Age indications differ based on brand:
  - Menactra® (sanofi)  2-55 years of age
  - Menveo® (Novartis)  11-55 years of age
MCV4 Revaccination

- Re-vaccinate persons at increased risk of disease including those with:
  - Terminal complement component deficiency
  - Anatomic and functional asplenia
  - Frequent travelers to areas with high rate of disease

<table>
<thead>
<tr>
<th>Interval Between Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
</tr>
<tr>
<td>2 thru 6 years</td>
</tr>
<tr>
<td>7 years &amp; older</td>
</tr>
</tbody>
</table>

Flu Vaccine: Every One Every Year

- Seasonal Influenza Vaccine
  - Beginning in 2010-2011 flu season, flu vaccine is recommended for all persons ages 6 months & older

- 2010-11 Vaccine Strains
  - A/California/7 2009 (H1N1)-like virus
  - A/Perth/16/2009 (H3N2)-like virus
  - B/Brisbane/60/2008-like virus
2 Types of Influenza Vaccines

- Live, Attenuated (nasal)
  - Given intranasally
  - Administer to healthy persons, who are not pregnant and are 2-49 years of age
  - Dosage: 0.2 mL divided between nostrils
    - Clip on the applicator divides the dose for appropriate administration

- Inactivated (injectable)
  - Given IM
  - Administer to persons 6 months of age & older
  - Dosage: 0.5 mL for persons 3 years of age and older

Pneumococcal Vaccines

- Some high risk teens may need pneumococcal vaccines
- PCV13 (Prevnar13)
  - 1 time only dose for high risk children ages 6-18 years
  - Including those previously vaccinated with PCV7 and/or PPSV23
- PPSV23 (Pneumovax)
  - Administer to any person 2-64 years with a high-risk condition
  - Revaccination is recommended only once for adolescents at highest risk of infection
    - Immunocompromised persons if 5 yrs have elapsed since first dose
    - Only 2 lifetime doses are recommended
- Ensure 8 weeks between doses of PCV13 & PPSV23
- Visit www.michigan.gov/immunize for “Quick Look at PCV13” and other resources on using these vaccines
Ensure Teens are Protected

- Assess immunization records for vaccines routinely completed in early childhood including:
  - Polio
  - Varicella
  - Hep B
  - Hepatitis A
  - MMR
  - Measles
  - Mumps
  - Rubella

**MCIR General Information Screen**

Special Considerations for Adolescents Receiving Vaccines

- Syncope or fainting after vaccination occurs most often in adolescents and young adults:
  - It can result in serious injury—usually from falling
  - Most often occurs within 15 minutes of vaccination

- When administering vaccines to adolescents:
  - Have the patient sit down while you are giving vaccine(s)
  - Have a 15-20 minute observation period after vaccination

### Immunization Schedule

<table>
<thead>
<tr>
<th>Immunization</th>
<th>Date 1</th>
<th>Date 2</th>
<th>Date 3</th>
<th>Date 4</th>
<th>Date 5</th>
<th>Date 6+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polio</td>
<td>04/01/1999</td>
<td>04/07/1999</td>
<td>07/01/1999</td>
<td>07/07/1999</td>
<td>07/14/1999</td>
<td>07/21/1999</td>
</tr>
<tr>
<td>MMR</td>
<td>04/01/1999</td>
<td>05/01/1999</td>
<td>06/01/1999</td>
<td>07/01/1999</td>
<td>08/01/1999</td>
<td>09/01/1999</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>02/01/1999</td>
<td>02/01/1999</td>
<td>02/01/1999</td>
<td>02/01/1999</td>
<td>02/01/1999</td>
<td>02/01/1999</td>
</tr>
<tr>
<td>Varicella</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
</tr>
<tr>
<td>HPV</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
</tr>
<tr>
<td>Seasonal Flu</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
</tr>
<tr>
<td>Meningococcal Conjugate</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
<td>09/01/1999</td>
</tr>
</tbody>
</table>
ACIP Recommendations & School Requirements

- ACIP immunization recommendations give the most comprehensive protection
- School requirements are state mandates for day care & school entry
- Requirements for school and childcare attendance in Michigan may differ from the ACIP Recommended Immunization Schedule
- MDCH recommends providers vaccinate based on current ACIP recommendations
  - In doing so, Michigan's school immunization requirements will be met
  - More importantly, patients will receive the maximum protection from vaccine preventable diseases

New School Communicable Disease Rules

- Beginning January 1, 2010
- New requirements for all children 11 years of age an older enrolled in 6th grade or changing school districts
- Additional vaccine requirements:
  - Tdap vaccine (if 5 years have passed since last dose of tetanus/diphtheria vaccine)
  - Meningococcal vaccine
  - 2nd dose varicella vaccine or evidence of immunity

www.michigan.gov/teenvaccines
Protecting Teens!

- Maintain an adequate supply of VFC & private stock vaccines
  - Tdap, MCV, varicella and HPV
  - Consider storage capacity (flu vaccine could be there, too!)
- Use MCIR!
  - Assess for needed vaccines at every visit
  - Tell parents when shots are due- Send out reminders!
  - Know who are missing doses- Send out recall letters!
- Adapt to increased demand for clinic appointments
  - Use standing orders
  - Weekend hours, after-school and vaccine-only appointments, etc
- Recommend ALL needed vaccines – not just school requirements
- Keep your immunization knowledge “Up to Date”
  - Use the 2010 AIM Provider Tool Kit www.aimtoolkit.org
  - Attend LHD provider meeting
  - Schedule an imm education session as needed throughout the year

Immunization Education Opportunities

- INE Education Sessions: Free office based immunization education programs
- PPEPI Free “Grand Rounds” sessions
  - Continuing Education Credits available for both programs
  - Want to arrange a session? Contact your local health department or Carlene Lockwood-lockwoodc@michigan.gov
- MDCH Fall Regional Conferences
  - CDC Key Note Speakers
  - Vaccine Safety and other Hot Topics
  - More info www.michigan.gov/immunize
Resources

- MCDH
  - Quick Looks for MCV4, Flu, HPV, Tdap  www.michigan.gov/immunize
  - Influenza  www.michigan.gov/flu
  - Adolescent website  www.michigan.gov/teenvaccines
- CDC
  - National Immunization Survey
  - Immunization Schedules  www.cdc.gov/vaccines
- 2010 AIM Tool Kit  www.aimtoolkit.org
- Meningitis Angels  www.meningitis-angels.org
- Indiana AAP Tdap Vac video  www.tdapvac.com