What You Need to Know About Immunizations

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Bureau for Public Health
Office of Epidemiology and Preventive Services

Local Health Officer Summit
Charleston, West Virginia
April 9, 2016
Objectives

- Review the compulsory immunizations for West Virginia school-aged children
- Review and summarize the medical exemption process
- Highlight efforts to increase 19-35 month-old immunization rates in West Virginia
- Efforts to increase Human Papillomavirus (HPV) vaccination rates in West Virginia
### Recommended Childhood Vaccine Schedule

#### Figure 1. Recommended immunization schedule for persons aged 0 through 18 years - United States, 2016.

*FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE (FIGURE 2).*

These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in Figure 1. To determine minimum intervals between doses, see the Catch-up Schedule (Figure 2). School entry and adolescent vaccine age groups are shaded.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>1 mo</th>
<th>2 mos</th>
<th>4 mos</th>
<th>6 mos</th>
<th>9 mos</th>
<th>12 mos</th>
<th>15 mos</th>
<th>18 mos</th>
<th>19-23 mos</th>
<th>2-3 yrs</th>
<th>4-6 yrs</th>
<th>7-10 yrs</th>
<th>11-12 yrs</th>
<th>13-15 yrs</th>
<th>16-18 yrs</th>
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<tbody>
<tr>
<td>Hepatitis B (HepB)</td>
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<td>Rotavirus (RV) (RV1) (2-dose series); RIV (3-dose series)</td>
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<td>Diphtheria, tetanus, &amp; acellular pertussis (DTaP-IPV) &lt;7 yrs</td>
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<td>Haemophilus influenza type b (Hib)</td>
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<td>Pneumococcal conjugatei (PCV13)</td>
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<td>Inactivated poliovirus (IPV-12+ yrs)</td>
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<td>Inactivated poliovirus (IPV-&lt;18 yrs)</td>
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<td>Influenza (IV, LAIV)</td>
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<td>Annual vaccination (IV only) 1 or 2 doses</td>
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<td>Measles, mumps, rubella (MMR)</td>
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<td>Annual vaccination (LAIV or IV) 1 or 2 doses</td>
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<td>Varicella (VAR)</td>
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<td>Annual vaccination (LAIV or IV) 1 dose only</td>
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<td>Hepatitis A (HepA)</td>
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<td>Meningococcal B (Meningococcal B)</td>
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<td>Annual vaccination (LAIV or IV) 1 dose only</td>
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<tr>
<td>Tetanus, diphtheria, &amp; acellular pertussis (Tdap) &gt;7 yrs</td>
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<td>Annual vaccination (LAIV or IV) 1 dose only</td>
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<td>Human papillomavirus (HPV) (2-dose series)</td>
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<td>Annual vaccination (LAIV or IV) 1 dose only</td>
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<td>Meningococcal B (Meningococcal B)</td>
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<td>Annual vaccination (LAIV or IV) 1 dose only</td>
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</tbody>
</table>

**Footnotes:**
- 1st dose
- 2nd dose
- 3rd dose
- 4th dose
- 5th dose
- See footnote
- See footnote 2
- See footnote 4
- See footnote 5
- See footnote 10
- See footnote 11
- See footnote 12
- See footnote 13
- See footnote 14

**Range of recommended ages:**
- For all children
- For catch-up immunization
- For certain high-risk groups
- For non-high-risk groups
- No recommendation

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*http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html*
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Requirement</th>
<th>Provisional Enrollment</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP/DTP</td>
<td>Before admission, four doses required, (one dose must be after the 4th birthday)</td>
<td>After one dose, student may be allowed up to 8 months to complete the series.</td>
<td>• Three doses only for children completing primary series at age 7 years and older. • Children exempted from the pertussis component of DTaP vaccine should receive DT vaccine instead, or if past 7th birthday, Td / Tdap vaccine, as applicable.</td>
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<tr>
<td>Td/Tdap</td>
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<tr>
<td>Polio (IPV)</td>
<td>Before admission, three doses required, (one dose must be after the 4th birthday)</td>
<td>After one dose, student may be allowed up to 90 days to complete the series.</td>
<td>• If polio immunization series included both OPV and IPV, then a total of 4 doses are required.</td>
</tr>
<tr>
<td>Measles, Mumps &amp; Rubella (MMR)</td>
<td>Before admission, two doses required, (first dose must be after the 1st birthday)</td>
<td>After one dose, student may be allowed up to 30 days to complete the series.</td>
<td>• Doses should be a minimum of 28 days apart.</td>
</tr>
<tr>
<td>Varicella</td>
<td>Before admission, two doses required, (first dose must be after the 1st birthday)</td>
<td>After one dose, children less than 13 years of age may be allowed up to 90 days to obtain 2nd dose; children aged 13 years and older may be allowed up to 30 days to obtain the 2nd dose.</td>
<td>• Children less than 13 years of age must have a minimum interval of 12 weeks between the 1st and 2nd doses. • Children aged 13 years and older may receive the 2nd dose 28 days after the first dose. • Immunity may also be demonstrated through the legal guardian’s written or verbal attestation of varicella (chickenpox) disease.</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Before admission, three doses required, (last dose must be after the age of 6 months)</td>
<td>After one dose, student may be allowed up to 4 months to complete the series.</td>
<td>• Final dose is not valid if administered before 24 weeks / 6 months of age.</td>
</tr>
</tbody>
</table>
# WV Vaccine Requirements for 7th and 12th Graders

## 7th Grade School Entry Requirement

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Requirement</th>
<th>Provisional Enrollment</th>
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</thead>
<tbody>
<tr>
<td>Tdap</td>
<td>Proof of booster dose of Tdap vaccine</td>
<td>No provisional enrollment permitted</td>
</tr>
<tr>
<td>(tetanus, diphtheria, acellular pertussis)</td>
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<tr>
<td>MCV4</td>
<td>Proof of 1st dose of MCV4 vaccine</td>
<td>No provisional enrollment permitted</td>
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<tr>
<td>(meningococcal)</td>
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</tbody>
</table>

## 12th Grade School Entry Requirement

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Requirement</th>
<th>Provisional Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tdap</td>
<td>Proof of booster dose of Tdap vaccine</td>
<td>No provisional enrollment permitted</td>
</tr>
<tr>
<td>(tetanus, diphtheria, acellular pertussis)</td>
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<tr>
<td>MCV4</td>
<td>One or two doses required</td>
<td>No provisional enrollment permitted</td>
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<tr>
<td>(meningococcal)</td>
<td>One dose of MCV4 is required if received after the 16th birthday. Second dose is required if first dose was before 16th birthday</td>
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</tbody>
</table>

* WV 64CSR95
Websites

Minimum Immunizations for Pre-Kindergarten Program Entry
www.wvdhhr.org/immunizations/pdf/pre-k_vacc_chart_final.pdf

WV Immunization Requirements For 7th & 12th Graders
www.dhhr.wv.gov/oeps/immunization/providers/Documents/7th%2012th%20Requirements/Final_012013-7th_12th_2013.pdf
1987: WV State Code § 16-3-4
- Required the following vaccines for all children entering school for the first time: diphtheria, polio, rubeola (measles), rubella, tetanus and pertussis

2008: WV Code of State Rule 64CSR95
- Added three vaccines for school entry: varicella, mumps, and hepatitis B

2011: WV Code of State Rule 64CSR95
- Added two adolescent vaccines for entry into 7th and 12th grades: tetanus, diphtheria and acellular pertussis (Tdap) and quadrivalent meningococcal vaccine (MCV4)

* www.legis.state.wv.us/legisdocs/code/16/WVC%2016%20%20%209%20%20%20%20%20%20%20%20%20.htm
2015: Senate Bill (SB) 286

- Attempted to change the immunization laws for school-aged children to include religious, personal and philosophical exemptions. These provisions did not pass. Law enacted on March 18, 2015. A State Immunization Officer was added for determinations of medical exemptions.

- The timing of SB 286 coincided with the Disneyland measles outbreak

- SB 286 was debated and passed with amendments

- Amended WV Code § 16-3-4 and 16-3-5
A Request for Medical Exemption from Compulsory Immunization may be initiated on behalf of a child by his/her legal guardian or a licensed physician who has treated or examined the child to the Bureau for Public Health via the West Virginia Statewide Immunization Information System (WVSIIS)

WVSIIS-Web Main Page:  [www.wvimm.org](http://www.wvimm.org)
Physicians may download the Request for Medical Exemption form located on the West Virginia Department of Health and Human Resources (WVDHHR) website.

The requesting physician will then submit the request form, with supporting medical documentation, to validate the request.
Timeline

- 20-day period for determination by Immunization Officer
- This 20-day period begins after all information to support the request has been provided to the Immunization Officer
- The Immunization Officer will make every reasonable effort to obtain relevant medical evidence from the requesting physician
- A request that remains incomplete after 45 days will result in denial of the request

* 64 CSR95-17.4a; 64 CSR95-17.5
West Virginia Statistics for 2015

- Kindergarten vaccination rate:
  - West Virginia rate was 97.6%
  - Mississippi was highest at 99.2%
  - U.S. median was 94%

- Children age 19-35 months:
  - West Virginia 63.4%
  - U.S. average 71.6%

- U.S. Department of Health and Human Services goal to ensure herd immunity: 95%

* Estimated Vaccine Coverage with Individual Vaccines Series Among Children Age 19 -35 Months by State/Selected Area (NIS- US 2014)
Vaccination Rate in 19-35 Month Old Children

Challenges to improving vaccination rates

- Lack of well-child visits during this age
- 16% of children 12-23 months of age did not have single well-child visit (four well-child visits are on the schedule at this age)
- Some providers do not carry private stock of vaccines
- Limited access to primary and specialty care
- Socioeconomic factors
Improving Vaccination Rates for 19-35 Months

Plans for Improvement

- Working with the Well Child Initiative to develop strategies to improve rates of well-child visits with improved vaccination rates
- Meeting with Medicaid MCOs to discuss plans for improvement
- Working with Child Care Center licensing unit to assess and enforce immunization compliance
- Meeting with WV WIC and local WIC directors to promote immunization screening
- Provider and parent education
- Local Health Department (LHD) support
Human Papillomavirus (HPV) Replication

HPV - human papilloma virus

HPV has a circular, double stranded DNA, protected by capsid proteins.

More than 100 HPV-types are known. HPV16 and 18 cause 70% of all cervix cancers.

Infection by HPV
HPV infects epithelial cells in the cervical mucosa. HPV DNA integrates into the cellular genome when causing cancer.

Viral replication

~90% heal within two years

HPV DNA integrated into tumour cell DNA

0.8% develop cancer

Discovery of HPV DNA in cancer cells

Probe for HPV DNA

Patient DNA

Harald zur Hausen found HPV DNA in patient DNA (+).

© The Nobel Committee for Physiology or Medicine 2008

Illustration: Annika Röhl
HPV Facts

- HPV is a virus and the most common sexually transmitted infection (STI)
- There are more than 100 strains of HPV and more than 40 associated with STIs
- Most commonly spread by oral, anal or vaginal intercourse with an infected person
- Condoms do not provide complete protection against HPV
- HPV can spread when the partner has no signs or symptoms
- 79 million Americans are currently infected with HPV
- 14 million are newly infected in the United States each year

* [http://www.cdc.gov/STD/HPV/STDFact-HPV.htm](http://www.cdc.gov/STD/HPV/STDFact-HPV.htm)
HPV Associated Cancers

Cervical Cancers:
- Nearly all cervical cancers are related to HPV
- HPV types 16 and 18 are responsible for 70% of cervical cancers

Squamous cell cervical cancer
- Comprises 80% of cervical cancers
- Most often associated with HPV 16

Adenocarcinoma of the cervix
- Comprises 15% of cervical cancers
- Most often associated with HPV 18
HPV Associated Cancers (Cont.)

HPV associated cancers

- 91% anal cancer cases
- 85% vaginal cancer cases
- 69% vulvar cancer cases
- 72% oropharyngeal cancer cases

Non-cancer HPV associated diseases

- 90% genital warts cases

* http://www.cdc.gov/hpv/parents/cancer
HPV Vaccine

HPV vaccine administration

- Food and Drug Administration (FDA) approved and indicated for ages 9-26 years old
- Advisory Committee on Immunization Practices (ACIP) recommendation for ages 11-12 years
- 2016 ACIP recommendation amended to include HPV vaccine for at-risk population ages 9-10 years
- Series of three injections given over six months

* ACIP – Recommended Immunization Schedule for Persons Age 0 – 18 years
West Virginia Statistics for HPV

- The majority of cancers caused by HPV can be prevented with HPV vaccination
- Only 24% of males 13-17 years of age are fully vaccinated against HPV in West Virginia
- Only 40% of females 13-17 years of age are fully vaccinated against HPV in West Virginia
- United States statistics indicate 50% of eligible female teens have received the first dose of HPV vaccine, and about 69% complete the HPV vaccine series
- In 2015, West Virginia had the highest incidence of cervical cancer in the U.S.
HPV Prevention and Treatment

- Educate patients and providers on HPV facts and vaccine safety
- Immunize when appropriate
- Assure follow up for patients to receive the full vaccine series
- Continue cervical cancer screenings by pap smears
- Complete HPV testing by providers when appropriate
West Virginia Statewide Immunization Information System (WVSIIS)

- Online, web-enabled immunization registry system

- Confidential and secure statewide immunization registry designed to receive accurate and timely information on all immunizations administered by all healthcare providers to ensure that all West Virginia residents are age appropriately immunized against vaccine preventable diseases
Methods of submission

- Electronic submission
  - Health Level Seven (HL7)
  - Data Translation Tool (DTT)
- Direct Data Entry (DDE)
- Paper submission
WVSIIS Users

WVSIIS can be accessed by:

- Local Health Departments
- Community Health Centers/FQHCs
- Public and Private Providers
- Hospitals
- Day Care Centers
- WIC Clinics
- School Nurses
Vaccinations for children ages 0-18 are required by law to be reported to the registry within two weeks of administration.

- Provides easy access to patients’ immunization records.
- Enables timely immunization for children whose families move or switch healthcare providers.
- Prevents unnecessary (repeat) immunizations.
- Reminder/Recall notices an important tool for notifying patients due or overdue for vaccinations

- Generates patient list, mailing labels, postcards, or form letters

- Vaccine forecasting feature displays vaccinations that are past due and past due for any patient.

- Can generate a patient detail report in which it lists all a patient's within a selected time frame and displays each patient's name and past due immunizations.

- Vaccines for Children (VFC) providers are asked during Assessment Feedback Incentives eXchange (AFIX) visits if it is being utilized
Hepatitis B

**Reporting**
All hepatitis B acute, chronic, and perinatal cases must be reported by health care providers and facilities within 24 hours to the local health department.

**State Contacts**

**Acute/Chronic:** Division of Infectious Disease Epidemiology
(800) 423-1271 or (304) 558-5358, Extension 1

**Perinatal:** Division of Immunization Services
(800) 642-3634 or (304) 558-2188

* (WV CODE 16-3-1; 64CSR7)
Objectives

- Identify infected HBsAg positive pregnant women

- Ensure post exposure prophylaxis (PEP) for infants by administering hepatitis B immune globulin (HBIG) and birth dose of HBV vaccine within 12 hours of delivery

- Ensure completion of HBV vaccine series, along with post vaccination serology testing PVST

- This approach has shown to be 85% – 95% effective in preventing mother to child transmission (MTCT)
Without Post Exposure Prophylaxis (PEP):

- **Mother positive for hepatitis B surface antigen (HBsAg) and hepatitis B e antigen (HBeAg):**
  - Infant has 70% – 90% chance of becoming infected
  - 90% of infected infants become chronically infected

- **Mother positive for HBsAg only:**
  - Infant has 10% chance of becoming infected
  - 90% of infected infants become chronically infected

- Prevention is our focus

Contact

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