



# Vaccine Recommendations

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August 24, 2016



## Topics to be Covered

- 2016 Advisory Committee on Immunization Practices (ACIP) childhood schedule
- ACIP Recommendations for Meningococcal Vaccines
  - MenACWY vaccines
  - MenB vaccines
- Human Papillomavirus Vaccine (HPV)
- Influenza



## 2016 Childhood 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.

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2-3 yrs	4-6 yrs	7-10 yrs	11-12 yrs	13–15 yrs	16–18 yrs
Hepatitis B <sup>1</sup> (HepB)	1 <sup>st</sup> dose	← 2 <sup>nd</sup> dose →			← 3 <sup>rd</sup> dose →											
Rotavirus <sup>2</sup> (RV) RV1 (2-dose series); RVS (3-dose series)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	See footnote 2											
Diphtheria, tetanus, & acellular pertussis <sup>3</sup> (DTaP: <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose				← 4 <sup>th</sup> dose →			5 <sup>th</sup> dose				
Haemophilus influenzae type b <sup>4</sup> (Hib)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	See footnote 4				← 3 <sup>rd</sup> or 4 <sup>th</sup> dose → See footnote 4							
Pneumococcal conjugate <sup>5</sup> (PCV13)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose				← 4 <sup>th</sup> dose →							
Inactivated poliovirus <sup>6</sup> (IPV: <18 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	← 3 <sup>rd</sup> dose →							4 <sup>th</sup> dose				
Influenza <sup>7</sup> (IV; LAIV)					Annual vaccination (IV only) 1 or 2 doses						Annual vaccination (LAIV or IV) 1 or 2 doses		Annual vaccination (LAIV or IV) 1 dose only			
Measles, mumps, rubella <sup>8</sup> (MMR)					See footnote 8				← 1 <sup>st</sup> dose →			2 <sup>nd</sup> dose				
Varicella <sup>9</sup> (VAR)									← 1 <sup>st</sup> dose →			2 <sup>nd</sup> dose				
Hepatitis A <sup>10</sup> (HepA)									← 2-dose series, See footnote 10 →							
Meningococcal <sup>11</sup> (Hib-MenCY ≥ 6 weeks; MenACWY-D ≥ 9 mos; MenACWY-CRM ≥ 2 mos)			See footnote 11											1 <sup>st</sup> dose		Booster
Tetanus, diphtheria, & acellular pertussis <sup>12</sup> (Tdap: ≥ 7 yrs)															(Tdap)	
Human papillomavirus <sup>13</sup> (2vHPV: females only; 4vHPV, 9vHPV: males and females)															(3-dose series)	
Meningococcal B <sup>11</sup>														See footnote 11		
Pneumococcal polysaccharide <sup>5</sup> (PPSV23)												See footnote 5				

Range of recommended ages for all children
Range of recommended ages for catch-up immunization
Range of recommended ages for certain high-risk groups
Range of recommended ages for non-high-risk groups that may receive vaccine, subject to individual clinical decision making
No recommendation

This schedule includes recommendations in effect as of January 1, 2016. Any dose 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. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (<http://www.vaers.hhs.gov>) or by telephone (800-822-7967). Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for vaccination, is available from CDC online (<http://www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm>) or by telephone (800-CDC-INFO [800-232-4636]).

This schedule is approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/vaccines/acip>), the American Academy of Pediatrics (<http://www.aap.org>), the American Academy of Family Physicians (<http://www.aafp.org>), and the American College of Obstetricians and Gynecologists (<http://www.acog.org>).

**NOTE: The above recommendations must be read along with the footnotes of this schedule.**



# Changes to 2016 ACIP Childhood Schedule

- Vaccination of certain **high-risk** individuals were added for:
  - Hib vaccine for unimmunized children aged 5-18 years (e.g. asplenia or sickle cell disease)
  - HPV for un- or under-vaccinated children and youth beginning at age 9 years who have a history of sexual abuse or assault
  - Meningococcal B for individuals aged 10 years and older (e.g. asplenia, sickle cell disease, complement deficiency)



# Changes to 2016 ACIP Childhood Schedule

- Clinical discretion for administering Meningococcal B vaccine to non-high-risk persons aged 16-23 years.
- Hepatitis B vaccination footnote revised to more clearly indicate the timing of post-vaccination serologic testing for infants born to Hepatitis B surface antigen positive mothers. Testing recommended at age 9 through 12 months.



# Administration Reminders

- It is important to administer vaccines on schedule and in accordance with ACIP guidelines
- Do not need to restart a series
- Standing orders can be used to improve immunization rates
  - See [www.immunize.org](http://www.immunize.org) for more information and sample orders



Department of Health Services



# Meningococcal Disease and Vaccines



# Meningococcal Disease

- Bacterial infection caused by *Neisseria meningitidis*.
- Most commonly presents as meningitis (about 50% of cases) or bacteremia (38% of cases).
- Overall case-fatality ratio is 10-15% and as many as 20% of survivors have long-term sequelae such as neurologic disability, limb or digit loss, and hearing loss.



# Meningococcal Disease

- The meningococci bacteria are classified into 13 distinct serogroups.
- Almost all invasive disease is caused by 1 of 5 serogroups: A, B, C, Y, and W.



# Meningococcal ACWY

Three conjugate vaccines are licensed in the U.S.:

- Menactra (Men ACWY-D), sanofi pasteur
  - Age indication: 9 months-55 years
- Menveo (MenACWY-CRM), Novartis
  - Age indication: 2 months-55 years
- MenHibrix (Hib-MenCY-TT), GlaxoSmithKline
  - Also contains Hib
  - Is licensed as a 4-dose series for children aged 12-18 months



# ACIP Recommendations- MenACWY

- Routine vaccination of all individuals with either Men ACWY vaccine at 11-12 years of age with a booster dose at age 16 years.
  - For adolescents who receive their first dose at age 13-15 years, a one-time booster should be given at age 16-18 years.
  - Adolescents receiving their first dose at or after 16 years do not need a booster dose unless they become at increased risk for disease.



# MenACWY High Risk Recommendations (1)

Individuals at high risk of disease include those with:

- Persons aged  $\geq 2$  months with certain medical conditions such as functional or anatomical asplenia (including sickle cell disease) and persistent complement deficiencies.
- Special populations such as unvaccinated first year college students living in residence halls and military recruits.



# MenACWY High Risk Recommendations (2)

Individuals at high risk of disease include those with:

- Travelers aged  $\geq 9$  months to countries where *N. meningitidis* is hyperendemic or epidemic.
- Microbiologists routinely exposed to *N. meningitidis*.



# WIR Forecasting: MenACWY

- MenACWY: WIR will recommend a dose for all clients once they turn 11 years, and will forecast the booster dose.
- Vaccine group: “Meningo”
- WIR does not forecast high risk schedules

# WIR Forecasting: MenACWY

Current Age: 11 years, 5 months, 24 days						
Vaccines Recommended by Selected Tracking Schedule				Authorize Overrides	Add Selected	
Select	Vaccine Group	Vaccine	Earliest Date	Recommended Date	Overdue Date	Latest Date
<input checked="" type="checkbox"/>	<a href="#">HepA</a>		01/27/2006	01/27/2006	01/27/2007	
<input checked="" type="checkbox"/>	<a href="#">HepB</a>		01/27/2005	01/27/2005	04/27/2005	
<input checked="" type="checkbox"/>	<a href="#">HPV</a>		01/27/2014	01/27/2016	01/27/2031	01/26/2032
<input type="checkbox"/>	<a href="#">Influenza</a>		07/27/2005	08/01/2016	01/27/2006	
<input checked="" type="checkbox"/>	<a href="#">Meningo</a>		01/27/2007	01/27/2016	01/27/2024	01/26/2027
<input checked="" type="checkbox"/>	<a href="#">MMR</a>		01/27/2006	01/27/2006	01/27/2009	
<input checked="" type="checkbox"/>	<a href="#">Pertussis/Tdap</a>	Tdap	01/27/2015	01/27/2016	01/27/2018	
<input checked="" type="checkbox"/>	<a href="#">Polio</a>		03/10/2005	03/27/2005	04/27/2005	
<input checked="" type="checkbox"/>	<a href="#">Td</a>	Tdap	01/27/2012	01/27/2012	02/27/2012	
<input checked="" type="checkbox"/>	<a href="#">Varicella</a>		01/27/2006	01/27/2006	01/27/2009	01/26/2018



# MenB Vaccines

Two vaccines are licensed in the U.S.:

- Trumenba (MenB-Fhbp) by Wyeth
  - 3-dose series
- Bexsero (MenB-4C) by Novartis
  - 2-dose series



# ACIP Recommendations-MenB

- In June 2015, the ACIP recommended that adolescents and young adults aged 16-23 years may be vaccinated with a serogroup B meningococcal (MenB) vaccine to provide short-term protection against most strains of serogroup B meningococcal disease.
- Recommendation is a **GRADE B**.



## ACIP Recommendations-MenB

“The current low prevalence of disease, coupled with the fact that important data for making policy recommendations for MenB vaccines are not yet available, resulted in ACIP determining that insufficient evidence exists to make a routine public health recommendation that all adolescents be vaccinated with MenB vaccine.

Given the seriousness of meningococcal disease and the availability of licensed vaccines, ACIP agreed that sufficient evidence exists to encourage individual clinical decision making<sup>1</sup>.”

<sup>1</sup>Excerpted from ACIP statement, MMWR 2015;64:1171-1175



# MenB Vaccines

- Recommended for individuals aged 16 through 23 years
- The **preferred** age range for MenB vaccination is 16-18 years.
  - Based on the available data, administering the vaccine in later adolescence was preferable to maximize the likelihood that protection would last into the highest age-related risk period.



# MenB Vaccines

- Vaccines are **not** interchangeable; the same MenB product must be used for all doses.



# MenB- High Risk Recommendations

Certain persons aged  $\geq 10$  years who are at increased risk should receive MenB vaccine, including:

- Persistent complement component deficiencies
- Anatomic or functional asplenia
- Microbiologists routinely exposed to *N. meningitidis*
- Persons identified as at increased risk because of a serogroup B outbreak

Note: these vaccines are not licensed or recommended for high risk individuals aged 2 months-9 years



# WIR Forecasting- MenB

- Once a dose of MenB is administered and entered into WIR, WIR will forecast subsequent doses, and will indicate which product should be used (since the two brands are not interchangeable)
- Vaccine group: Meningo B
- WIR does not forecast high risk schedules

## WIR Forecasting- MenB

Current Age: 16 years, 4 months, 13 days

Vaccines Recommended by Selected Tracking Schedule							Authorize Overrides	Add Selected	
Select	Vaccine Group	Vaccine	Earliest Date	Recommended Date	Overdue Date	Latest Date			
<input checked="" type="checkbox"/>	<a href="#">HepA</a>		11/01/2000	11/01/2000	11/01/2001				
<input checked="" type="checkbox"/>	<a href="#">HepB</a>		10/03/2015	10/03/2015	11/05/2015				
<input checked="" type="checkbox"/>	<a href="#">HPV</a>		11/01/2008	11/01/2010	11/01/2025	10/31/2026			
<input type="checkbox"/>	<a href="#">Influenza</a>		08/01/2016	08/01/2016	06/03/2017				
<input checked="" type="checkbox"/>	<a href="#">Meningo</a>		11/01/2001	11/01/2010	11/01/2018	10/31/2021			
<input checked="" type="checkbox"/>	<a href="#">MMR</a>		01/26/2016	01/26/2016	01/26/2016				
	<a href="#">Pertussis/Tdap</a>		Complete						
<input checked="" type="checkbox"/>	<a href="#">Polio</a>		01/25/2016	01/25/2016	03/28/2016				
<input checked="" type="checkbox"/>	<a href="#">Td</a>	Td	01/25/2016	01/25/2016	02/28/2016				
	<a href="#">Varicella</a>		Complete						

WIR does not currently recommend Category B vaccines such as Meningococcal B vaccine.

Those vaccines are 'invoke on use' and will display in the recommendations once the series has started.

Current Age: 12 years, 5 months, 29 days

Vaccines Recommended by Selected Tracking Schedule							Authorize Overrides	Add Selected	
Select	Vaccine Group	Vaccine	Earliest Date	Recommended Date	Overdue Date	Latest Date			
<input checked="" type="checkbox"/>	<a href="#">HepA</a>		01/27/2005	01/27/2005	01/27/2006				
<input type="checkbox"/>	<a href="#">HepB</a>		08/19/2016	08/19/2016	09/22/2016				
<input checked="" type="checkbox"/>	<a href="#">HPV</a>		01/27/2013	01/27/2015	01/27/2030	01/26/2031			
<input type="checkbox"/>	<a href="#">Influenza</a>		08/01/2017	08/01/2017	10/22/2017				
<input checked="" type="checkbox"/>	<a href="#">Meningo</a>		01/27/2006	01/27/2015	01/27/2023	01/26/2026			
<input checked="" type="checkbox"/>	<a href="#">Meningo B</a>	Meningococcal B, Trumenba	07/21/2016	07/21/2016	08/18/2016				
<input type="checkbox"/>	<a href="#">MMR</a>		08/08/2016	08/08/2016	09/11/2016				
	<a href="#">Pertussis/Tdap</a>		Complete						
<input type="checkbox"/>	<a href="#">Polio</a>		08/19/2016	08/19/2016	10/22/2016				
<input type="checkbox"/>	<a href="#">Td</a>	Td	08/19/2016	08/19/2016	09/22/2016				
<input type="checkbox"/>	<a href="#">Varicella</a>		08/08/2016	08/08/2016	08/08/2016	01/26/2017			



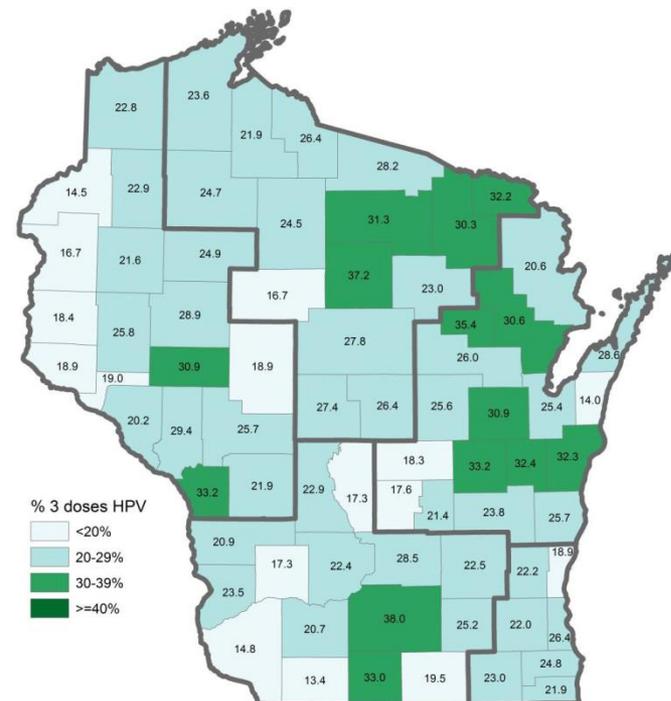
# Other Vaccines



## HPV

- 9vHPV is now recommended for both males and females aged 9 through 26 years

Percent of adolescents aged 13–18 years who have received 3 doses of human papillomavirus (HPV) vaccine, by county of residence, Wisconsin, 2015





# Influenza

- Live Attenuated Influenza Vaccine (LAIV) or FluMist should not be used during the 2016-2017 influenza season.
- Data from the 2015-2016 season indicated no protective benefit could be measured, and follows two previous seasons where it showed poor and/or lower than expected vaccine effectiveness.



## LAIV

- Vaccine manufacturers have projected that as many as 171 million - 176 million doses of flu vaccine will be made available for the 2016-2017 season.
- LAIV accounts for 14 million doses (about 8%) of the total supply of flu vaccine.



## ACIP Vote

- The ACIP vote underscores the importance of ongoing efforts to measure and evaluate the effectiveness of public health interventions, including vaccine effectiveness studies, which can have significant implications for public health policy.
- The change in the ACIP recommendation is an example of using new data to hone public health practice to be most beneficial.

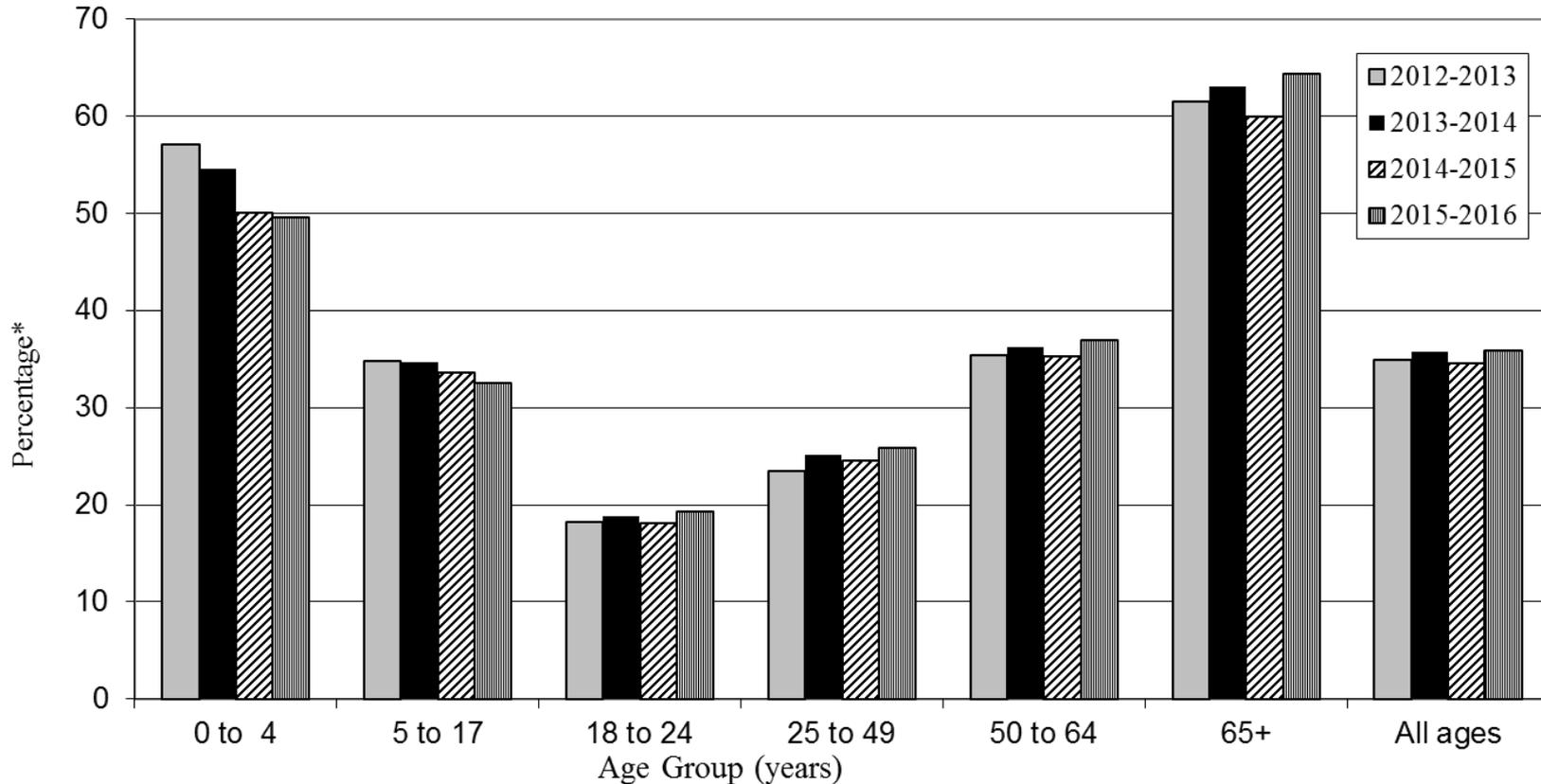


# Influenza Vaccination

- Annual influenza vaccine is recommended for all individuals aged 6 months and older
- Injectable influenza vaccine (IIV) should be used
- Immunization is still the best way to protect against the flu



## Rates of Influenza Vaccination in Wisconsin by Age Group, 2012-2016 Influenza Seasons, Based on Doses Reported to the Wisconsin Immunization Registry (WIR)



\* Numerator: Number of persons recorded in the WIR as having received at least one dose of seasonal influenza vaccine by age group. For 2012-2013 season, doses administered between 8/1/2012 and 7/31/2013, assessed 12/2/2013. For 2013-2014, doses administered between 8/1/2013 and 7/31/2014, assessed 8/15/2014. For 2014-2015, doses administered between 8/1/2014 and 6/11/2015, assessed 6/12/2015. For 2015-2016, doses administered between 8/1/2015 and 6/16/2016, assessed 6/17/2016. Denominator source: 2012, 2013 and 2014 Wisconsin Interactive Statistics on Health (WISH) population estimates, by age group.



# Questions?

