

Department Of Public Health Communicable Disease Section

2018 Immunizations Update

Susan Strong, NP Program Manager April 24, 2018 and May 9, 2018

Objectives

- Identify one change made to the 2018 ACIP immunization schedule.
- Discuss the new zoster vaccine recommendation.
- Identify vaccines recommended during pregnancy.







Importance of vaccinating?

Reduces the risk for serious diseases.

Diseases are becoming rare due to vaccinations.

- Some diseases (like polio and diphtheria) are very rare in the U.S.
- Why? They are rare because we have been vaccinating against them.



What if we stop vaccinating?

- Diseases that are almost unknown would comeback.
- Epidemics of diseases that are nearly under control would occur.

We would see an increase in children sickness and

deaths.

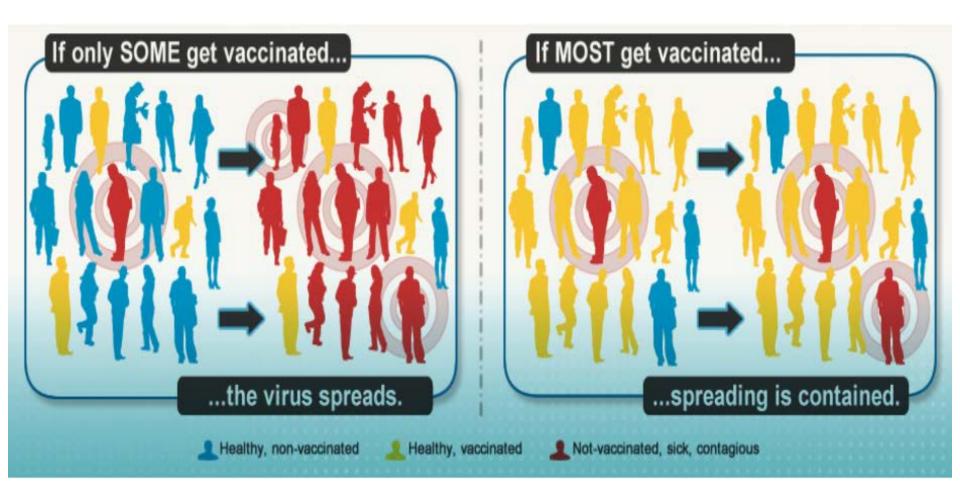




Epidemic Due to Reduction in Pertussis Vaccine

• In 1974, about 80% of Japanese children were getting pertussis (whooping cough) vaccine. That year there were only 393 cases of whooping cough in the entire country, and not a single pertussis-related death. Then immunization rates began to drop, until only about 10% of children were being vaccinated. In 1979, more than 13,000 people got whooping cough and 41 died. When routine vaccination was resumed, the number of pertussis cases dropped again.







The last large outbreak of measles in California was associated with Disneyland and occurred from December 2014 through April 2015, when at least 131 California residents were infected with measles; the outbreak also infected residents of six other states, Mexico, and Canada.



Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger, UNITED STATES, 2018

- Consult relevant ACIP statements for detailed recommendations (www.cdc.gov/vaccines/hcp/acip-recs/index.html).
- When a vaccine is not administered at the recommended age, administer at a subsequent visit.
- Use combination vaccines instead of separate injections when appropriate.
- Report clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) online (<u>www.vaers.hhs.gov</u>) or by telephone (800-822-7967).
- Report suspected cases of reportable vaccine-preventable diseases to your state or local health department.
- For information about precautions and contraindications, see www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html.

Approved by the

Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip)

American Academy of Pediatrics (www.aap.org)

American Academy of Family Physicians (www.aafp.org)

American College of Obstetricians and Gynecologists (www.acog.org)

This schedule includes recommendations in effect as of January 1, 2018.

The table below shows vaccine acronyms, and brand names for vaccines routinely recommended for children and adolescents. The use of trade names in this immunization schedule is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Vaccine type	Abbreviation	Brand(s)
Diphtheria, tetanus, and acellular pertussis vaccine	DTaP	Daptacel Infanrix
Diphtheria, tetanus vaccine	DT	No Trade Name
Haemophilus influenzae type B vaccine	Hib (PRP-T) Hib (PRP-OMP)	ActHIB Hiberix PedvaxHIB
Hepatitis A vaccine	НерА	Havrix Vaqta
Hepatitis B vaccine	НерВ	Engerix-B Recombivax HI
Human papillomavirus vaccine	HPV	Gardasil 9
Influenza vaccine (inactivated)	IIV	Multiple
Measles, mumps, and rubella vaccine	MMR	M-M-R II
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM	Menactra Menveo
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero Trumenba
Pneumococcal 13-valent conjugate vaccine	PCV13	Prevnar 13
Pneumococcal 23-valent polysaccharide vaccine	PPSV23	Pneumovax
Poliovirus vaccine (inactivated)	IPV	IPOL
Rotavirus vaccines	RV1 RV5	Rotarix RotaTeq
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel Boostrix
Tetanus and diphtheria vaccine	Td	Tenivac No Trade Name
Varicella vaccine	VAR	Varivax
Combination Vaccines		
DTaP, hepatitis B and inactivated poliovirus vaccine	DTaP-HepB-IPV	Pediarix
DTaP, inactivated poliovirus and Haemophilus influenzae type B vaccine	DTaP-IPV/Hib	Pentacel
DTaP and inactivated poliovirus vaccine	DTaP-IPV	Kinrix Quadracel
Measles, mumps, rubella, and varicella vaccines	MMRV	ProQuad



U.S. Department of Health and Human Service

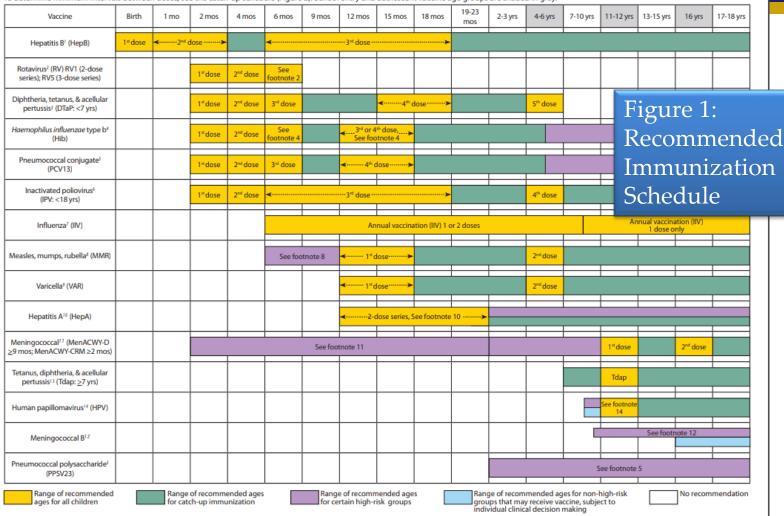
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Figure 1. Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger—United States, 2018.

(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 in gray.



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



FIGURE 2. Catch-up immunization schedule for persons aged 4 months—18 years who start late or who are more than 1 month behind—United States, 2018.

The figure 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. Always use this table in conjunction with Figure 1 and the footnotes that follow.

			Children age 4 months through 6 years				1 480 1
Vaccine	Minimum Age for	Minimum Interval Between Doses					
vaccine	Dose 1	Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5		
Hepatitis B ¹	Birth	4 weeks	8 weeks <i>and</i> at least 16 weeks after first dose. Minimum age for the final dose is 24 weeks.				
Rotavirus ²	6 weeks Maximum age for first dose is 14 weeks, 6 days	4 weeks	4 weeks ² Maximum age for final dose is 8 months, 0 days.				
Diphtheria, tetanus, and acellular pertussis ³	6 weeks	4 weeks	4 weeks	6 months	6 months ³		
Haemophilus influenzae type b ⁴	6 weeks	4 weeks if first dose was administered before the 1* birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months. No further doses needed if first dose was administered at age 15 months or older.	4 weeksf if current age is younger than 12 months and first dose was administered at younger than age 7 months, and at least 1 previous dose was PRP-T (ActHib, Pentacel, Hilbertx) or unknown. 8 weeks and age 12 through 59 months (as final dose) ⁴ • if current age is younger than 12 months and first dose was administered at age 7 through 11 months; OR • if current age is 12 through 59 months and first dose was administered before the 1 st birthday, and second dose administered at younger than 15 months; OR • if both doses were PRP-OMP (PedvaxHIB; Comvax) and were administered before the 1 st birthday. No further doses needed if previous dose was administered at age 15 months or older.	8 weeks (This dose dren age who recei birthday. Catch-	2: up sch	ne	dule
Pneumococcal conjugate ⁵	6 weeks	4 weeks if weeks if it was administered before the 1° birthday. 8 weeks (as final dose for healthy children) if first dose was administered at the 1° birthday or after. No further doses needed for healthy children if first dose was administered at age 24 months or older.	4 weeks If current age is younger than 12 months and previous dose given at <7 months old. 8 weeks (as final dose for healthy children) If previous dose given between 7-11 months (wait until at least 12 months old); OR If current age is 12 months or older and at least 1 dose was given before age 12 months. No further doses needed for healthy children if previous dose administered at age 24 months or older.	8 weeks (as final dose) This dose only necessary for children aged 12 through 59 months who received 3 doses before age 12 months or for children at high risk who received 3 doses at any age.			
Inactivated poliovirus ⁶	6 weeks	4 weeks ⁶	4 weeks ⁶ if current age is < 4 years 6 months (as final dose) if current age is 4 years or older	6 months ⁶ (minimum age 4 years for final dose).			
Measles, mumps, rubella8	12 months	4 weeks					
Varicella ⁹	12 months	3 months					
Hepatitis A ¹⁰	12 months	6 months					
Meningococcal ¹¹ (MenACWY-D ≥9 mos; MenACWY-CRM ≥2 mos)	6 weeks	8 weeks ¹¹	See footnote 11	See footnote 11			
			Children and adolescents age 7 through 18 years				
Meningococcal ¹¹ (MenACWY-D ≥9 mos; MenACWY-CRM ≥2 mos)	Not Applicable (N/A)	8 weeks ¹¹					
Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis ¹³	7 years ¹³	4 weeks	4 weeks if first dose of DTaP/DT was administered before the 1st birthday. 6 months (as final dose) if first dose of DTaP/DT or Tdap/Td was administered at or after the 1st birthday.	6 months if first dose of DTaP/DT was administered before the 1 st birthday.			
Human papillomavirus ¹⁴	9 years		Routine dosing intervals are recommended. ¹⁴	1			
Hepatitis A ¹⁰	N/A	6 months					
Hepatitis B ¹ Inactivated poliovirus ⁶	N/A N/A	4 weeks	8 weeks and at least 16 weeks after first dose. 6 months ⁶ A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months after the previous dose.	A fourth dose of IPV is indicated if all previous doses were administered at <4 years or if the third dose was administered <6 months after the second dose.			
Measles, mumps, rubella8	N/A	4 weeks					
Varicella ⁹	N/A	3 months if younger than age 13 years. 4 weeks if age 13 years or older.					
						- 1	

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



Changes to 2018 Immunization Schedule

- MenHibrix (Hib-MenCy) vaccine has been discontinued in the United States and all available doses have expired. Therefore, it has been removed from the schedule.
- The Hepatitis B vaccine (HepB) footnote was revised to include information regarding vaccination of <2,000 gram infants born to HBsAg-negative mothers.



2018 Recommended Immunization Schedule for Adults Aged 19 Years or Older

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Vaccine	19-21 years	22-26 years	27-49 years	50-64 years	≥65 years				
Influenza ¹	1 dose annually								
Tdap ² or Td ²	1 dose Tdap, then Td booster every 10 yrs								
MMR ³	1 or 2 doses depending on indication (if born in 1957 or later)								
VAR ⁴	2 doses								
RZV5 (preferred)				2 doses RZV (preferred)					
or ZVL <u>5</u>					or 1 dose ZVL				
HPV-Female ⁶	2 or 3 doses depending on age at series initiation								
HPV-Male ⁶	2 or 3 doses depending	on age at series initiation							
PCV13 ⁷				1 dose					
PPSV23 ⁷	1 or 2 doses depending on indication				1 dose				
НерА ^{<u>8</u>}	2 or 3 doses depending on vaccine								
HepB ⁹	3 doses								
MenACWY ¹⁰	1 or 2 doses depending on indication, then booster every 5 yrs if risk remains								
MenB ¹⁰	2 or 3 doses depending on vaccine								
Hib ¹¹	1 or 3 doses depending on indication								



past infection

Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of

recommendation

Recommended for adults with other

indications

Serogroups A, C, W and Y meningococcal vaccine (MenACWY)

- Administer 2 doses of MenACWY at least 8 weeks apart.
- Boost with 1 dose of MenACWY every 5 years if patient is at high risk.
- MPSV4 (4-valent meningococcal polysaccharide vaccine) is no longer available.

Serogroup B meningococcal vaccine (MenB)

- May be given at clinical discretion to 16-23 year olds who are not at increased risk
- Preferred age: 16-18 year olds
- Use Bexsero OR Trumenba
 - not interchangeable!



Meningococcal Vaccine Among College Students

Meningococcal vaccination

Special populations

- Adults with anatomical or functional asplenia or persistent complement component
 deficiencies should receive a 2-dose primary series of serogroups A, C, W, and Y
 meningococcal conjugate vaccine (MenACWY) at least 2 months apart and
 revaccinate every 5 years. They should also receive a series of serogroup B
 meningococcal vaccine (MenB) with either a 2-dose series of MenB-4C (Bexsero) at
 least 1 month apart or a 3-dose series of MenB-FHbp (Trumenba) at 0, 1–2, and 6
 months
- Adults with human immunodeficiency virus (HIV) infection who have not been
 previously vaccinated should receive a 2-dose primary series of MenACWY at least 2
 months apart and revaccinate every 5 years. Those who previously received 1 dose
 of MenACWY should receive a second dose at least 2 months after the first dose.
 Adults with HIV infection are not routinely recommended to receive MenB because
 meningococcal disease in this population is caused primarily by serogroups C, W,
 and Y.
- Microbiologists who are routinely exposed to isolates of Neisseria meningitidis should receive 1 dose of MenACWY and revaccinate every 5 years if the risk for infection remains, and either a 2-dose series of MenB-4C at least 1 month apa 3-dose series of MenB-FHbp at 0, 1–2, and 6 months.
- Adults at risk because of a meningococcal disease outbreak should receive 1 dose of MenACWY if the outbreak is attributable to serogroup A, C, W, or Y, or either a 2dose series of MenB-4C at least 1 month apart or a 3-dose series of MenB-FHbp at 0, 1–2, and 6 months if the outbreak is attributable to serogroup B.
- Adults who travel to or live in countries with hyperendemic or epidemic meningococcal disease should receive 1 dose of MenACWY and revaccinate every 5 years if the risk for infection remains. MenB is not routinely indicated because meningococcal disease in these countries is generally not caused by serogroup B.
- Military recruits should receive 1 dose of MenACWY and revaccinate every 5 years
 if the increased risk for infection remains.
- First-year college students aged 21 years or younger who live in residence halls should receive 1 dose of MenACWY if they have not received MenACWY at age 16 years or older.
- Young adults aged 16 through 23 years (preferred age range is 16 through 18 years)
 who are healthy and not at increased risk for serogroup B meningococcal disease
 (described above) may receive either a 2-dose series of MenB-4C at least 1 month
 apart or a 2-dose series of MenBFHbp at 0 and 6 months for short-term protection
 against most strains of serogroup B meningococcal disease.
- For adults aged 56 years or older who have not previously received serogroups A, C, W, and Y meningococcal vaccine and need only 1 dose, meningococcal polysaccharide serogroups A, C, W, and Y vaccine (MPSV4) is preferred. For adults who previously received MenACWY or anticipate receiving multiple doses of serogroups A, C, W, and Y meningococcal vaccine, MenACWY is preferred.
- Notes: MenB-4C and MenB-FHbp are not interchangeable, i.e., the same vaccine should be used for all doses to complete the series. There is no recommendation for MenB revaccination at this time. MenB may be administered at the same time as MenACWY but at a different anatomic site, if feasible.

Meningococcal vaccination

www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mening.html

Special populations: Serogroups A, C, W, and Y meningococcal vaccine (MenACWY)

- Administer 2 doses of MenACWY at least 8 weeks apart and revaccinate with 1 dose
 of MenACWY every 5 years, if the risk remains, to adults with the following
 indications:
 - Anatomical or functional asplenia including sickle cell disease
 - HIV infection
 - Persistent complement component deficiency
 - Eculizumab use
- Administer 1 dose of MenACWY and revaccinate with 1 dose of MenACWY every 5
 years, if the risk remains, to adults with the following indications:
 - Travel to or live in countries where meningococcal disease is hyperendemic or epidemic, including countries in the African meningitis belt or during the Hajj
 - At risk from a meningococcal disease outbreak attributed to serogroup A, C, W, or Y
 - Microbiologists routinely exposed to Neisseria meningitidis
 - Military recruits
 - First-year college students age 21 years or younger who live in residential housing (if did not receive MenACWY at age 16 years or older)

General Information: Serogroup B meningococcal vaccine (MenB)

- May administer, based on individual clinical decision, to young adults and
 adolescents age 16–23 years (preferred age is 16–18 years) who are not at
 increased risk MenB (2-dose series of MenB-4C [Bexsero] at least 1 month apart or
 2-dose series of MenB-FHbp [Trumenba] at least 6 months apart)
- MenB-4C and MenB-FHbp are not interchangeable

Special populations: MenB

- Administer 2-dose series of MenB-4C at least 1 month apart or 3-dose series of MenB-FHbp at 0, 1-2, and 6 months to adults with the following indications:
 - Anatomical or functional asplenia (including sickle cell disease).
 - Persistent complement component deficiency
 - Eculizumab use
 - At risk from a meningococcal disease outbreak attributed to serogroup B
 - Microbiologists routinely exposed to Neisseria meningitidis

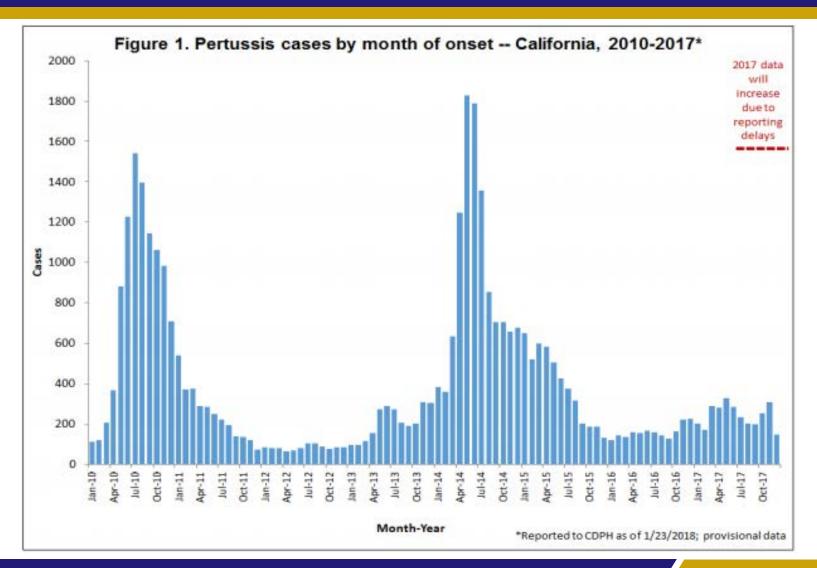


Pertussis Outbreaks

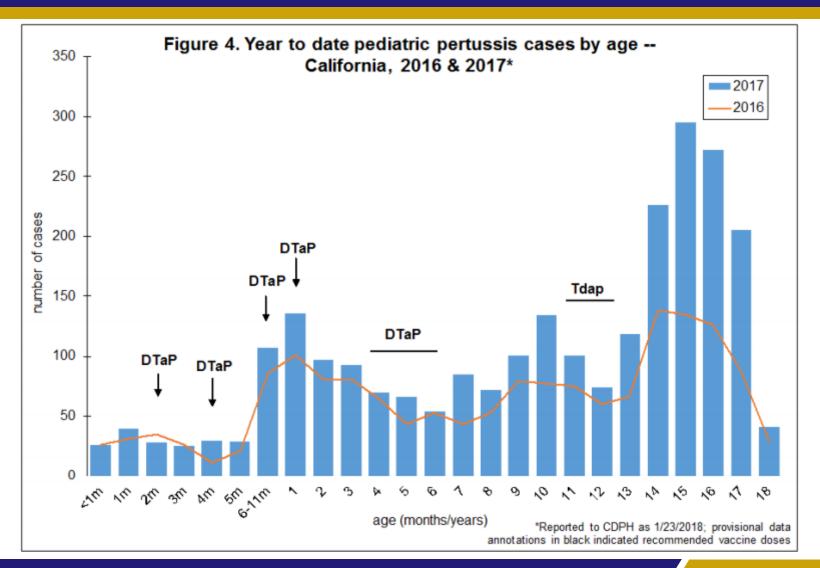
- Over 9,000 cases of pertussis were reported in California during 2010, the most in over 60 years, including 10 infant deaths.
- This is consistent with a peak in incidence every 3-5 years.
- An outbreak is expected this year or in 2019.













- All adults need an influenza vaccine each year.
- Every adult should get the Tdap vaccine at least once if they did not receive it as an adolescent.
 - Td (tetanus, diphtheria) booster shot every 10 years.
- In addition to the flu, Tdap, or Td, HPV vaccine is recommended for:
 - women up to age 26 years
 - men up to age 21 years
 - men ages 22-26 who have sex with men



9-14 years of age at initiation

- 2-dose series at 0, 6-12 months
- If patient is less than 15 years old when series was initiated patient receives 2 doses of HPV

≥ 15 years of age

- 3-dose series at 0, 1-2 months and 6 -12 months
- If patient initiated the series before 15 years of age and is NOW over 15 years old, administer ONE dose to complete the series.





- Shingles vaccine is recommended for healthy adults over 50
- Pneumococcal vaccine is recommended for all adults over 65
 - Vaccine can be administered to adults younger than 65 years who have certain chronic health conditions.
 - Asthma
 - Chronic heart, liver, kidney, or lung disease
 - HIV/AIDS
 - Cancer
 - Smokers





Protects against pneumococcal disease, including infections in the lungs and bloodstream.

Pneumococcal Conjugate Vaccine CDC recommends (PCV13 or Prevnar 13®) for:

- All Children < 2 years old
- All adults 65 or older
- People 2-64 years old with certain medical conditions such as chronic illnesses or conditions that weaken the immune system.

Pneumococcal Polysaccharide Vaccine

CDC recommends (PPSV23 or Pneumovax23®) for:

- All adults 65 years or older
- People 2 through 64 years old with certain medical conditions
- Adults 19 through 64 years old who smoke cigarettes



- RZV (SHINGRIX, GlaxoSmithKline [GSK]) was approved by the FDA for adults aged 50 years or older
- Protects against herpes zoster (shingles) and its complications.
- RZV is recommended for
 - Adults age 50 years or older
 - Adults who previously received ZVL
 - RZV is preferred over ZVL

Zoster Recommendation

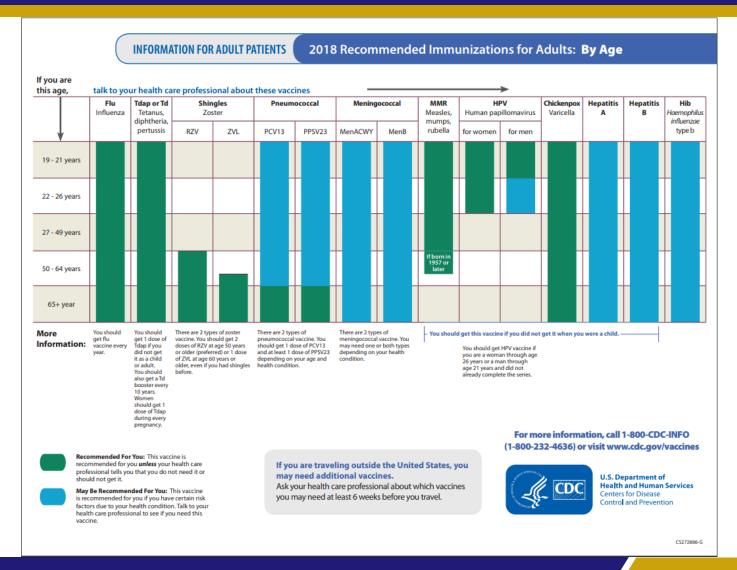
- ACIP recommended the following in the 2018 adult immunization schedule:
 - Administer 2 doses of RZV 2–6 months apart to adults aged 50 years or older regardless of past episode of herpes zoster or receipt of ZVL.
 - Administer 2 doses of RZV 2–6 months apart to adults who previously received ZVL at least 2 months after ZVL.
 - For adults aged 60 years or older, administer either RZV or ZVL (RZV is preferred)



RZV Among Immunocompromised and Pregnant Women

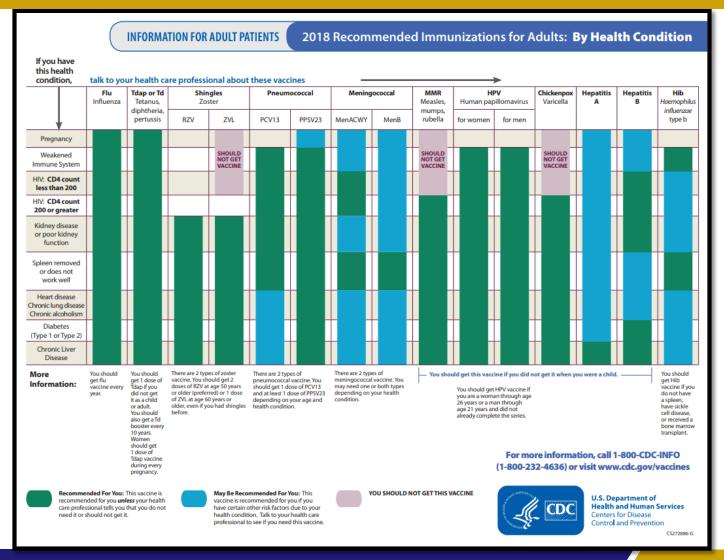
- Currently, there is no ACIP recommendation for the use of RZV among pregnant women
- Health care providers should consider delaying administration of RZV for pregnant women or adults with immunocompromising conditions, including HIV infection.







Recommended Adult Immunizations by Health Condition





Pregnant Women

Two vaccines are recommended for pregnant women.

- Tdap Vaccine to help protect against whooping cough.
 - Recommended time to administer the vaccine: between 27 and 36 weeks of pregnancy. Preferably during the early part of gestation.
- Flu shot to help protect against influenza.











Questions?





Contact the Communicable Disease Section 1(800) 722-4794

