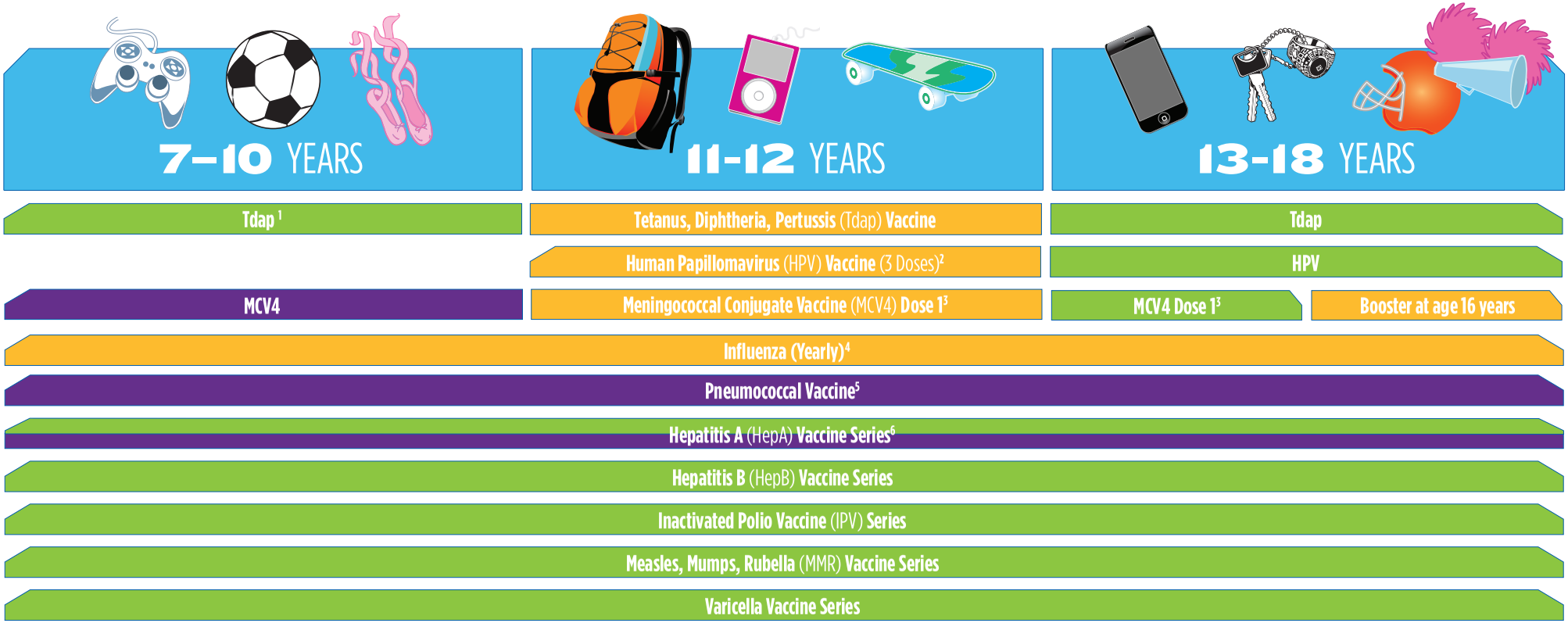
2015 Recommended Immunizations for Children from 7 Through 18 Years Old



These shaded boxes indicate when the vaccine is recommended for all children unless your doctor tells you that your child cannot safely receive the vaccine.

These shaded boxes indicate the vaccine should be given if a child is catching-up on missed vaccines.

These shaded boxes indicate the vaccine is recommended for children with certain health conditions that put them at high risk for serious diseases. Note that healthy children **can** get the HepA series[6]. See vaccine-specific recommendations at www.cdc.gov/vaccines/pubs/ACIP-list.htm.

FOOTNOTES

[1] Tdap vaccine is recommended at age 11 or 12 to protect against tetanus, diphtheria and pertussis. If your child has not received any or all of the DTaP vaccine series, or if you don't know if your child has received these shots, your child needs a single dose of Tdap when they are 7 -10 years old. Talk to your child's health care provider to find out if they need additional catch-up vaccines.

[2] All 11 or 12 year olds – both girls *and* boys – should receive 3 doses of HPV vaccine to protect against HPV-related disease. The full HPV vaccine series should be given as recommended for best protection.

[3] Meningococcal conjugate vaccine (MCV) is recommended at age 11 or 12. A booster shot is recommended at age 16. Teens who received MCV for the first time at age 13 through 15 years will need a one-time booster dose between the ages of 16 and 18 years. If your teenager missed getting the vaccine altogether, ask their health care provider about getting it now, especially if your teenager is about to move into a college dorm or military barracks.

[4] Everyone 6 months of age and older—including preteens and teens—should get a flu vaccine every year. Children under the age of 9 years may require more than one dose. Talk to your child's health care provider to find out if they need more than one dose.

[5] Pneumococcal Conjugate Vaccine (PCV13) and Pneumococcal Polysaccharide Vaccine (PPSV23) are recommended for some children 6 through 18 years old with certain medical conditions that place them at high risk. Talk to your healthcare provider about pneumococcal vaccines and what factors may place your child at high risk for pneumococcal disease.

[6] Hepatitis A vaccination is recommended for older children with certain medical conditions that place them at high risk. HepA vaccine is licensed, safe, and effective for all children of all ages. Even if your child is not at high risk, you may decide you want your child protected against HepA. Talk to your healthcare provider about HepA vaccine and what factors may place your child at high risk for HepA.

For more information, call toll free 1-800-CDC-INFO (1-800-232-4636) or visit http://www.cdc.gov/vaccines/teens

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

American Academy of Pediatrics
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Vaccine-Preventable Diseases and the Vaccines that Prevent Them

Diphtheria (Can be prevented by Tdap vaccine)

Diphtheria is a very contagious bacterial disease that affects the respiratory system, including the lungs. Diphtheria bacteria can be passed from person to person by direct contact with droplets from an infected person's cough or sneeze. When people are infected, the diptheria bacteria produce a toxin (poison) in the body that can cause weakness, sore throat, low-grade fever, and swollen glands in the neck. Effects from this toxin can also lead to swelling of the heart muscle and, in some cases, heart failure. In severe cases, the illness can cause coma, paralysis, and even death.

Hepatitis A (Can be prevented by HepA vaccine)

Hepatitis A is an infection in the liver caused by hepatitis A virus. The virus is spread primarily person-to-person through the fecal-oral route. In other words, the virus is taken in by mouth from contact with objects, food, or drinks contaminated by the feces (stool) of an infected person. Symptoms include fever, tiredness, loss of appetite, nausea, abdominal discomfort, dark urine, and jaundice (yellowing of the skin and eyes). An infected person may have no symptoms, may have mild illness for a week or two, or may have severe illness for several months that requires hospitalization. In the U.S., about 100 people a year die from hepatitis A.

Hepatitis B (Can be prevented by HepB vaccine)

Hepatitis B is an infection of the liver caused by hepatits B virus. The virus spreads through exchange of blood or other body fluids, for example, from sharing personal items, such as razors or during sex. Hepatitis B causes a flu-like illness with loss of appetite, nausea, vomiting, rashes, joint pain, and jaundice. The virus stays in the liver of some people for the rest of their lives and can result in severe liver diseases, including fatal cancer.

Human Papillomavirus (Can be prevented by HPV vaccine)

Human papillomavirus is a common virus. HPV is most common in people in their teens and early 20s. It is the major cause of cervical cancer in women and genital warts in women and men. The strains of HPV that cause cervical cancer and genital warts are spread during sex.

Influenza (Can be prevented by annual flu vaccine)

Influenza is a highly contagious viral infection of the nose, throat, and lungs. The virus spreads easily through droplets when an infected person coughs or sneezes and can cause mild to severe illness. Typical symptoms include a sudden high fever, chills, a dry cough, headache, runny nose, sore throat, and muscle and joint pain. Extreme fatigue can last from several days to weeks. Influenza may lead to hospitalization or even death, even among previously healthy children.

Measles (Can be prevented by MMR vaccine)

Measles is one of the most contagious viral diseases. Measles virus is spread by direct contact with the airborne respiratory droplets of an infected person. Measles is so contagious that just being in the same room after a person who has measles has already left can result in infection. Symptoms usually include a rash, fever, cough, and red, watery eyes. Fever can persist, rash can last for up to a week, and coughing can last about 10 days. Measles can also cause pneumonia, seizures, brain damage, or death.

Meningococcal Disease (Can be prevented by MCV vaccine)

Meningococcal disease is caused by bacteria and is a leading cause of bacterial meningitis (infection around the brain and spinal cord) in children. The bacteria are spread through the exchange of nose and throat droplets, such as when coughing, sneezing or kissing. Symptoms include nausea, vomiting, sensitivity to light, confusion and sleepiness. Meningococcal disease also causes blood infections. About one of every ten people who get the disease dies from it. Survivors of meningococcal disease may lose their arms or legs, become deaf, have problems with their nervous systems, become developmentally disabled, or suffer seizures or strokes.

Mumps (Can be prevented by MMR vaccine)

Mumps is an infectious disease caused by the mumps virus, which is spread in the air by a cough or sneeze from an infected person. A child can also get infected with mumps by coming in contact with a contaminated object, like a toy. The mumps virus causes fever, headaches, painful swelling of the salivary glands under the jaw, fever, muscle aches, tiredness, and loss of appetite. Severe complications for children who get mumps are uncommon, but can include meningitis (infection of the covering of the brain and spinal cord), encephalitis (inflammation of the brain), permanent hearing loss, or swelling of the testes, which rarely can lead to sterility in men.

Pertussis (Whooping Cough) (Can be prevented by Tdap vaccine)

Pertussis is caused by bacteria spread through direct contact with respiratory droplets when an infected person coughs or sneezes. In the beginning, symptoms of pertussis are similar to the common cold, including runny nose, sneezing, and cough. After 1-2 weeks, pertussis can cause spells of violent coughing and choking, making it hard to breathe, drink, or eat. This cough can last for weeks. Pertussis is most serious for babies, who can get pneumonia, have seizures, become brain damaged, or even die. About two-thirds of children under 1 year of age who get pertussis must be hospitalized.

Pneumococcal Disease

(Can be prevented by Pneumococcal vaccine)

Pneumonia is an infection of the lungs that can be caused by the bacteria called pneumococcus. This bacteria can cause other types of infections too, such as ear infections, sinus infections, meningitis (infection of the covering around the brain and spinal cord), bacteremia and sepsis (blood stream infection). Sinus and ear infections are usually mild and are much more common than the more severe forms of pneumococcal disease. However, in some cases pneumococcal disease can be fatal or result in long-term problems, like brain damage, hearing loss and limb loss. Pneumococcal disease spreads when people cough or sneeze. Many people have the bacteria in their nose or throat at one time or another without being ill—this is known as being a carrier.

Polio (Can be prevented by IPV vaccine)

Polio is caused by a virus that lives in an infected person's throat and intestines. It spreads through contact with the feces (stool) of an infected person and through droplets from a sneeze or cough. Symptoms typically include sudden fever, sore throat, headache, muscle weakness, and pain. In about 1% of cases, polio can cause paralysis. Among those who are paralyzed, up to 5% of children may die because they become unable to breathe.

Rubella (German Measles) (Can be prevented by MMR vaccine)

Rubella is caused by a virus that is spread through coughing and sneezing. In children rubella usually causes a mild illness with fever, swollen glands, and a rash that lasts about 3 days. Rubella rarely causes serious illness or complications in children, but can be very serious to a baby in the womb. If a pregnant woman is infected, the result to the baby can be devastating, including miscarriage, serious heart defects, mental retardation and loss of hearing and eye sight.

Tetanus (Lockjaw) (Can be prevented by Tdap vaccine)

Tetanus is caused by bacteria found in soil. The bacteria enters the body through a wound, such as a deep cut. When people are infected, the bacteria produce a toxin (poison) in the body that causes serious, painful spasms and stiffness of all muscles in the body. This can lead to "locking" of the jaw so a person cannot open his or her mouth, swallow, or breathe. Complete recovery from tetanus can take months. Three of ten people who get tetanus die from the disease.

Varicella (Chickenpox) (Can be prevented by varicella vaccine)

Chickenpox is caused by the varicella zoster virus. Chickenpox is very contagious and spreads very easily from infected people. The virus can spread from either a cough, sneeze. It can also spread from the blisters on the skin, either by touching them or by breathing in these viral particles. Typical symptoms of chickenpox include an itchy rash with blisters, tiredness, headache and fever. Chickenpox is usually mild, but it can lead to severe skin infections, pneumonia, encephalitis (brain swelling), or even death.

If you have any questions about your child's vaccines, talk to your healthcare provider.

Last updated on 02/02/2015 • *CS254242-A*

Top Ten Reasons to Protect Your Child by Vaccinating

Here are the top ten reasons to protect your child by vaccinating him or her against serious diseases.

1 Parents want to do everything possible to make sure their children are healthy and protected from preventable diseases. Vaccination is the best way to do that.

2 Vaccination protects children from serious illness and complications of vaccine-preventable diseases which can include amputation of an arm or leg, paralysis of limbs, hearing loss, convulsions, brain damage, and death.

3 Vaccine-preventable diseases, such as measles, mumps, and whooping cough, are still a threat. They continue to infect U.S. children, resulting in hospitalizations and deaths every year.

4 Though vaccination has led to a dramatic decline in the number of U.S. cases of several infectious diseases, some of these diseases are quite common in other countries and are brought to the U.S. by international travelers. If children are not vaccinated, they could easily get one of these diseases from a traveler or while traveling themselves.

5 Outbreaks of preventable diseases occur when many parents decide not to vaccinate their children.

6 Vaccination is safe and effective. All vaccines undergo long and careful review by scientists, doctors, and the federal government to make sure they are safe.

7 Organizations such as the American Academy of Pediatrics, the American Academy of Family Physicians, and the Centers for Disease Control and Prevention all strongly support protecting children with recommended vaccinations.

8 Vaccination protects others you care about, including family members, friends, and grandparents.

9 If children aren't vaccinated, they can spread disease to other children who are too young to be vaccinated or to people with weakened immune systems, such as transplant recipients and people with cancer. This could result in long-term complications and even death for these vulnerable people.

10 We all have a public health commitment to our communities to protect each other and each other's children by vaccinating our own family members.

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Technical content reviewed by the Centers for Disease Control and Prevention

Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

www.immunize.org/catg.d/p4016.pdf • Item #P4016 (11/14)

Vaccinations for Preteens and Teens, Age 11–19 Years

Getting immunized is a lifelong, life-protecting job. Make sure you and your healthcare provider keep your immunizations up to date. Check to be sure you've had all the vaccinations you need.

Vaccine	Do you need it?
Chickenpox (varicella; Var)	If you haven't been vaccinated and haven't had chickenpox, you need 2 doses of this vaccine. Anybody who was vaccinated with only 1 dose should get a second dose.
Hepatitis A (HepA)	You need 2 doses of hepatitis A vaccine if you would like to be protected from this disease or if you have a risk factor for hepatitis A. Check with your healthcare provider to find out if you need this vaccine.
Hepatitis B (HepB)	This vaccine is recommended for all people age 0–18 years. You need a series of doses of hepatitis B vaccine if you have not already received them.
Human papillomavirus (HPV)	All preteens and teens age 11 and older need 3 doses of HPV vaccine. The vaccine protects against HPV, the most common cause of cervical cancer. It also protects against some other types of cancers, such as cancer of the anus and penis.
Influenza (Flu)	Everyone age 6 months and older needs influenza vaccination every fall or winter and for the rest of their lives.
Measles, mumps, rubella (MMR)	You need 2 doses of MMR vaccine if you have not already received them. MMR vaccine is usually given in childhood.
Meningococcal (MCV4)	All preteens and teens age 11–18 years need 2 doses of MCV4. If you are a first-year college student living in a residence hall, you need a dose of MCV4 if you have never received it or received it when you were younger than 16. Check with your healthcare provider.
Pneumococcal (PCV13, PPSV23)	Do you have a chronic health problem? If so, check with your healthcare provider to find out if you need the pneumococcal vaccine.
Polio (IPV)	You need a series of at least 3 doses of polio vaccine if you have not already received them. Polio vaccine is usually given in childhood.
Tetanus, diphtheria, and whooping cough (pertussis; Tdap)	All preteens and teens (and adults!) need a dose of Tdap vaccine, a vaccine that protects you from tetanus, diphtheria, and whooping cough (pertussis). After getting a dose of Tdap, you will need a tetanus-diphtheria (Td) shot every ten years. If you become pregnant, however, you will need another dose of Tdap during the pregnancy, preferably during the third trimester.

If you will be traveling outside the United States, additional vaccines may be needed. For information, consult your healthcare provider, a travel clinic, or the Centers for Disease Control and Prevention at www.cdc.gov/travel.

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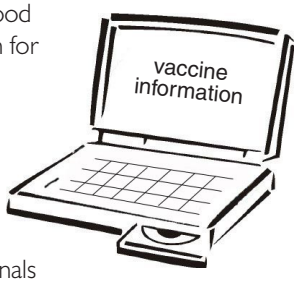
1573 Selby Avenue • Saint Paul, Minnesota 55104 • 651-647-9009
www.immunize.org • www.vaccineinformation.org
www.immunize.org/catg.d/p4020.pdf • Item #P4020 (10/13)

Reliable Sources of Immunization Information: Where to go to find answers!

Websites

American Academy of Pediatrics (AAP)
www.aap.org/immunization AAP's childhood immunization website contains information for both parents and clinicians.



Centers for Disease Control and Prevention (CDC)
www.cdc.gov/vaccines The information on this website ranges from official vaccine recommendations for healthcare professionals to information for the general public about vaccines.

Every Child by Two (ECBT) www.ecbt.org and www.vaccinateyourbaby.org ECBT, founded by Rosalynn Carter and Betty Bumpers, has created these two websites. Each contains a broad array of educational materials and information about vaccines, their safety, vaccine research and science, vaccine misperceptions, and many other topics to help clinicians and parents.

Immunization Action Coalition (IAC)
www.immunize.org and www.vaccineinformation.org IAC is a nonprofit organization that promotes immunization for all people against vaccine-preventable diseases. These websites offer educational materials, photos, and video clips for parents, healthcare professionals, the media, and the general public.

National Network for Immunization Information (NNii) www.immunizationinfo.org NNii provides current, science-based, extensively reviewed information to healthcare professionals, the media, policy makers, and the public.

U.S. Dept of Health and Human Services (HHS)
www.vaccines.gov Vaccines.gov is the federal gateway to information on vaccines and immunizations for infants, children, teenagers, adults, and seniors.

Vaccine Education Center (VEC) www.vaccine.chop.edu The goal of the VEC at Children's Hospital of Philadelphia is to accurately communicate the facts about each childhood vaccine. VEC publishes a monthly vaccine e-newsletter for parents titled "Parents PACK." For more information or to subscribe, visit www.vaccine.chop.edu/parents

Phone Numbers

CDC–INFO Contact Center
A toll-free number for consumers and healthcare professionals who have questions about immunization and vaccine-preventable diseases. Call (800) CDC-INFO or (800) 232-4636. The Center operates 24/7 in English & Spanish. TTY: (888) 232-6348.

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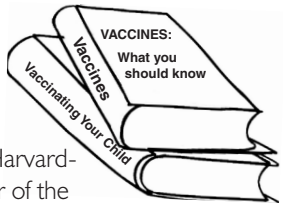
Books for Parents



Baby 411, 4th edition
By Denise Fields and Ari Brown, MD, Windsor Peak Press, 2009. Written by a Harvard-trained pediatrician (Brown) and the author of the best-selling *Baby Bargains* (Fields), this book is the ultimate compilation of frequently asked questions for baby's first year. It includes a special section on vaccines. To purchase, visit your local bookstore or www.windsorpeak.com/baby411

Do Vaccines Cause That?! A Guide for Evaluating Vaccine Safety, 1st edition
By Martin Myers, MD, and Diego Pineda, MS. Published by Immunizations for Public Health, 2008. Get straight, science-based answers to parents' questions about the safety of vaccines. To purchase, visit your local bookstore or www.dovaccinescausethat.com

Parents Guide to Childhood Immunization, 2010
This 68-page booklet from CDC introduces parents to 14 childhood diseases and the 10 vaccines that can protect children from them. Parents can order a free booklet or print their own copy by visiting www.cdc.gov/vaccines/pubs/parents-guide

Plain Talk About Childhood Immunization, 6th edition
Washington State Department of Health, et al., 2008. This 54-page booklet provides parents with accurate information about immunizations and the diseases they prevent, vaccine safety, and other topics of interest to the public. The publication, available in English and Spanish, can be downloaded at http://here.doh.wa.gov/materials/plain-talk-about-childhood-immunizations in either low resolution (for printing on office copiers) or high resolution (for professional printing).

Vaccines and Your Child, Separating Fact from Fiction, 2011 By Paul Offit, MD, and Charlotte Moser, Columbia University Press, 2011. This book answers questions about the science and safety of modern vaccines. In straightforward prose, Offit and Moser explain how vaccines work, how they are made, and how they are tested. Most important, they separate the real risks of vaccines from feared but unfounded risks. To purchase, visit your local bookstore or www.cup.columbia.edu

Videos

"Vaccines and Your Baby" and **"Vaccines: Separating Fact from Fear"** Available for a nominal charge in English and Spanish in DVD format, these videos answer many questions that new parents have. Ordering information is available at www.chop.edu/service/vaccine-education-center/familyOrder.cfm or parents can watch the videos online at www.chop.edu/service/vaccine-education-center/related-information/multimedia.html.

www.immunize.org/catg.d/p4012.pdf • Item #P4012 (5/11)

Information for Health Care Professionals about Adolescent Vaccines

The Centers for Disease Control and Prevention (CDC) recommends four vaccines for adolescents to prevent:

- Tetanus, Diphtheria, Pertussis — ***Note**: Recommendations for catch-up dose and minimum interval*
- Meningococcal disease — ***Note**: A booster shot for teens*
- Human papillomavirus — ***Note**: Added indications for Gardasil; recommendation for boys*
- Influenza — ***Note**: Universal recommendation for everyone 6 months and older*

These recommendations are supported by the American Academy of Pediatrics, the American Academy of Family Physicians, and the Society for Adolescent Health and Medicine.

What can YOU do to ensure your patients get fully vaccinated?

- *Strongly* recommend adolescent vaccines to parents of your 11 through 18 year old patients. **Parents trust *your* opinion more than anyone else's when it comes to immunizations.** Studies consistently show that provider recommendation is the *strongest* predictor of vaccination.
- Use every opportunity to vaccinate your adolescent patients. **Ask about vaccination status when they come in for sick visits and sports physicals.**
- Patient reminder and recall systems such as automated **postcards, phone calls and text messages are effective tools for increasing office visits.**
- **Educate parents about the diseases that can be prevented by adolescent vaccines.** Parents may know very little about pertussis, meningococcal disease, or HPV.
- **Implement standing orders policies** so that patients can receive vaccines without a physician examination or individual physician order.

Direct parents who want more information on vaccines and vaccine-preventable diseases to visit the CDC website at http://www.cdc.gov/vaccines/teens or to call 800-CDC-INFO.

Note about syncope: *For **all** vaccines given during adolescence, syncope has been reported in both boys and girls. To avoid serious injury related to a syncopal episode, adolescents should always be sitting or lying down to receive vaccines, remain so for 15 minutes, AND be observed during this time.*

Overview of Adolescent Vaccination Recommendations

- All 11 or 12 year olds should receive a single dose of Tdap vaccine if they have completed the recommended childhood DTP/DTaP vaccination series and have not received Tdap
- All 11 or 12 year olds should receive a single dose of meningococcal vaccine, with a booster dose at age 16 years
- All girls 11 or 12 years old should get 3 doses of either HPV vaccine to protect against cervical cancer; All boys 11 or 12 years old should get 3 doses of quadrivalent HPV vaccine to protect against genital warts and anal cancer
- All adolescents should receive a single dose of influenza vaccine every year

Age ▸	7–10 YEARS	11-12 YEARS	13-18 YEARS
▾ Vaccine			
Tdap	Childhood Catch-up	Recommended	Catch-Up
HPV		Recommended	Catch-Up
MCV4	High-Risk	Recommended	Recommended
Flu	Recommended		

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Tdap (tetanus toxoid - reduced diphtheria toxoid - acellular pertussis) Vaccine

Because immunity from childhood DTaP vaccines wanes by adolescence, a booster dose is recommended. **Of the nearly 17,000 cases of pertussis reported in the United States in 2009, 4265 occurred among 10- through 19-year-olds.** Increasing immunization rates among adolescents is an important strategy for reducing disease among both adolescents and infants too young to be fully immunized. According to the 2010 National Immunization Survey-Teen (NIS-Teen), about 69% of 13- through 17-year-olds received Tdap.

Recommendations:

- **All 11- through 18-year-olds should receive a single dose of Tdap vaccine (preferably at age 11 or 12 years) if they have completed the recommended childhood DTP/DTaP vaccination series and have not received Tdap.**
- Children aged 7 through 10 years and adolescents aged 11 through 18 years who did not complete the childhood DTaP series or with unknown vaccine history should be given one dose of Tdap as part of the catch-up regimen. Td should be used for any other doses needed.
- Tdap should be administered regardless of interval since the last tetanus or diphtheria toxoid-containing vaccine. While longer intervals between Td and Tdap vaccination could decrease the occurrence of local reactions, the benefits of protection against pertussis outweigh the potential risk for adverse events.
- Tdap vaccine can be administered at the same time as other adolescent vaccines.

Vaccines licensed in the United States:

- Boostrix® (GlaxoSmithKline) is indicated for active booster immunization for the prevention of tetanus, diphtheria and pertussis as a single dose in persons 10 through 64 years of age.
- Adacel® (sanofi pasteur) is indicated for active booster immunization for the prevention of tetanus, diphtheria and pertussis as a single dose in persons 11 through 64 years of age.

Possible side effects:

Pain, redness, swelling at the injection site; mild fever; headache; fatigue; nausea, vomiting, diarrhea, or stomach ache.

Contraindications and precautions:

- Tdap is contraindicated for persons with a history of serious allergic reaction (e.g., anaphylaxis) to any component of the vaccine.
- Tdap is contraindicated for adolescents with a history of encephalopathy (e.g., coma or prolonged seizures) not attributable to an identifiable cause within 7 days of administration of a vaccine with pertussis components. This contraindication is for the pertussis components and these adolescents should receive Td instead of Tdap.

Meningococcal Conjugate Vaccine (MCV4)

Although rates of meningococcal disease are the lowest they have ever been in the United States, about 1000 cases are reported each year in this country. Each case is alarming and potentially deadly. **The incidence of meningococcal disease increases in adolescence and early adulthood.** About 10-15% of adolescents who contract the disease will die, and about 20% will suffer from a long-term disability. According to the 2010 National Immunization Survey-Teen (NIS-Teen), about 63% of 13- through 17-year-olds received MCV4.

Recommendations:

- **All 11- or 12-year-olds should receive a single dose of meningococcal vaccine, with a booster dose at age 16 years.**
- For adolescents who receive the first dose at age 13 through 15 years, a one-time booster dose should be administered, preferably at age 16 through 18 years. Persons who receive their f0irst dose of meningococcal conjugate vaccine at or after age 16 years do not need a booster dose.
- Adolescents with persistent complement component deficiencies (e.g., C5-C9, properidin, factor H, or factor D) and asplenia should receive a 2-dose primary series administered 2 months apart and then receive a booster dose every 5 years.
- Adolescents aged 11–18 years with HIV infection should be routinely vaccinated with a 2-dose primary series.
- Vaccination is also recommended for unvaccinated college freshmen who live in dormitories, and also for unvaccinated military recruits. Older adolescents, including college students, who wish to decrease their risk for meningococcal disease, may elect to receive meningococcal vaccine.
- Meningococcal vaccine can be administered at the same time as other adolescent vaccines.

Vaccines licensed in the United States:

- Menactra® (sanofi pasteur) is indicated for active immunization of persons 9 months through 55 years of age for the prevention of invasive meningococcal disease caused by *N. meningitidis* serogroups A, C, Y and W-135.
- Menveo® (Novartis) is indicated for active immunization of persons 2 through 55 years of age to prevent invasive meningococcal disease caused by *N. meningitidis* serogroups A, C, Y, and W-135.

Possible side effects:

The most commonly reported side effects are redness or pain at the injection site. A small percentage of recipients reported fever.

Contraindications and precautions:

- Meningococcal vaccine is contraindicated among persons known to have a severe allergic reaction to any component of the vaccine, including diphtheria toxoid, or to dry natural rubber latex.

Human Papillomavirus (HPV) Vaccine

Cervical cancer, caused by HPV, is one of the most common cancers in women—every year in the United States, about 12,000 women are diagnosed with cervical cancer, and about 4,000 women die from this disease. HPV types 16 and 18 are the most common high-risk types associated with cervical cancer, while HPV 6 and 11 are the most common low-risk types associated with genital and respiratory tract warts (recurrent respiratory papillomatosis or RRP). High-risk HPV types have also been associated with other, less common cancers and precancers in women, such as vulvar, vaginal, anal, opharyngeal carcinomas and dysplasia. HPV-associated cancers in males include certain anal, penile, and oropharyngeal carcinomas and dysplasia.

According to the 2010 NIS-Teen, about 49% of 13- through 17-year-old girls have started an HPV vaccine series. However, only about 32% received all 3 doses. **Completing the 3-dose HPV vaccine series is very important to ensure protection against cervical cancer and other HPV-related disease.**

Vaccines licensed in the United States:

- Cervarix® is indicated for the prevention of cervical cancer and precancers caused by HPV types 16 and 18.
- Gardasil® is indicated for the prevention of cervical, vulvar, vaginal and anal cancers and precancers, as well as genital warts, caused by HPV types 6, 11, 16 and 18.

Recommendations:

- **All 11 or 12 year olds should receive 3 doses of HPV vaccine to protect against HPV-related disease.**
- **All girls 11 or 12 years old should get 3 doses of HPV vaccine to protect against cervical cancer.** Girls and young women ages 13 through 26 should get all 3 doses of an HPV vaccine if they have not yet received all doses. Both brands of vaccine are highly effective for preventing cervical cancer and precancer caused by HPV types 16 and 18. Gardasil also protects against anal cancer and genital warts.
- **All boys 11 or 12 years old should get 3 doses of quadrivalent HPV vaccine (Gardasil) to protect against genital warts and anal cancer.** Boys and young men 13 through 21 years, who did not get any or all of the three recommended doses when they were younger, should also get the HPV vaccine series. MSM and immunocompromised males should receive the vaccine through age 26 years, if they did not start or complete the vaccine series when they were younger.
- HPV vaccines are administered in a 3-dose schedule. The second dose should be administered 1 to 2 months after the first dose, and the third dose should be administered 6 months after the first dose. There is no maximum interval between doses. If the HPV vaccine schedule is interrupted, the vaccine series does not need to be restarted.
- Whenever feasible, the same brand of HPV vaccine should be used for the entire vaccination series. However, if the vaccine provider does not know which brand of vaccine was previously administered or have it available, either brand of HPV vaccine can be used to complete the series.
- Individuals will get the greatest benefit from the vaccine if it is administered before they have initiated *any* type of sexual activity with another person.
- Studies demonstrate that the risk for HPV infection is high immediately following sexual debut. It is also important to note that 1 in 5 women who have only had one lifetime sex partner have been infected with a high-risk HPV type.
- Vaccination is recommended for patients with HPV-related disease and/or apparent HPV infection because the vaccine can offer protection against infection with HPV vaccine types not already acquired. However, vaccination will not have a therapeutic effect on existing HPV infection or HPV-related disease.
- HPV vaccine can be administered at the same time as other adolescent vaccines.

Possible side effects:

Pain, headache, redness or swelling at the injection site are the most commonly reported side effects.

Contraindications and precautions:

- HPV vaccines are not recommended for use in pregnancy. If a patient is found to be pregnant after initiating the vaccination series, the remainder of the 3-dose series should be delayed until completion of pregnancy. However, if a vaccine dose has been administered during pregnancy, no intervention is needed. Clinicians should report exposure to Gardasil during pregnancy to Merck at 800-986-8999, and exposure to Cervarix during pregnancy to GlaxoSmithKline at 888-452-9622.
- HPV vaccines are contraindicated for persons with a history of immediate hypersensitivity to any vaccine component. Gardasil is contraindicated for persons with a history of immediate hypersensitivity to yeast. Prefilled syringes of Cervarix have latex in the rubber stopper and should not be used in persons with anaphylactic latex allergy. Cervarix single-dose vials contain no latex.

Influenza Vaccine

CDC recommends universal annual flu vaccination for everyone aged 6 months and older. Flu can be serious, and even fatal, for healthy adolescents, but pre-teens and teens with certain medical conditions are more likely to suffer from serious flu complications. Conditions that place people at high risk include chronic lung disease (such as asthma); heart disease; endocrine disorders (such as diabetes); blood disorders; neurological and neurodevelopmental conditions; kidney, liver, and metabolic disorders; and weakened immune systems due to disease or medication. Flu seasons are unpredictable and can be severe. Each year in the United States, more than 200,000 people are hospitalized from flu-related complications.

Annual influenza vaccination is the most effective method for preventing influenza virus infection and its complications since flu viruses are constantly changing. Protective immunity generally develops in 2 weeks after being vaccinated.

Vaccines Licensed in the United States:

- Trivalent Inactivated Influenza Vaccine (TIV) is given as an injection. It can be used for people 6 months of age or older, including healthy people, those with chronic medical conditions, and pregnant women. Brands licensed in the United States include Fluarix®, Fluvirin®, Fluzone®, FluLaval®, and Afluria®.
- Live, Intranasal Influenza Vaccine (LAIV) is given as a nasal spray. It can be used for healthy people 2 through 49 years of age who are not pregnant. FluMist® is the only brand licensed in the United States.

Recommendations:

- **Adolescents should receive a single dose of influenza vaccine *every year*.**
- Influenza vaccine can be administered at the same time as other adolescent vaccines.

Possible side effects:

TIV (injection): Soreness, redness, or swelling at the injection site; hoarseness; sore, red or itchy eyes, cough; fever, aches. If these problems occur, they begin soon after the shot and usually last 1 to 2 days. TIV contains noninfectious killed viruses and cannot cause influenza.

LAIV (nasal spray): Runny nose, nasal congestion, or cough; fever; headache and muscle aches; wheezing; abdominal pain or occasional vomiting or diarrhea. LAIV contains weakened influenza viruses that cannot replicate outside the nasal passages and cannot cause influenza.

Contraindications and precautions:

- Influenza vaccines should not be administered to people who have anaphylactic hypersensitivity to eggs, unless the recipient has been desensitized.
- Moderate or severe acute illness with or without fever is a precaution for vaccination. People who are moderately or severely ill should not be vaccinated until they recover.
- GBS within 6 weeks following a previous dose of influenza vaccine is a precaution for use of influenza vaccines.
- LAIV (nasal spray) should not be administered to pregnant adolescents, adolescents with chronic medical conditions (including asthma, metabolic disease, or hemoglobinopathy) as well as adolescents receiving aspirin or other salicylates.

Catch-Up Vaccines for Adolescents

Pre-teens and teens should receive doses of these vaccines as indicated to complete each series:

- Hepatitis B vaccine (HepB): Complete the 3-dose series if not previously completed. Note: A 2-dose series (separated by at least 4 months) of Recombivax HB® is licensed for children aged 11 through 15 years.
- Varicella vaccine: Complete the 2-dose series if not previously completed, with at least 3 months between doses for persons aged 12 months through 12 years. (If the second dose was administered at least 28 days after the first dose, it can be accepted as valid.) For persons aged 13 years and older, the minimum interval between doses is 28 days.
- Inactivated poliovirus vaccine (IPV): The childhood series is 4 doses. However, only 3 doses are needed for pre-teens and teens who received their third dose after 4 years of age, as well as pre-teens and teens in your care who have not received any doses. In all cases, a minimum interval of 6 months is needed between the last two doses.
- Measles-mumps-rubella vaccine (MMR): Complete the 2-dose series if not previously completed, with at least 28 days between doses.

A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Refer to the CDC Catch-Up Immunization Schedule for more information.

Vaccine Information Statements

Vaccine Information Statements (VIS) are an excellent source of information for patients about the risks, benefits, and side effects of vaccines. **Federal law requires that VIS be given out *before* vaccines are administered.** To download any VIS, visit http://www.cdc.gov/vaccines/pubs/vis/default.htm

Vaccine Adverse Events Reporting System

Doctors and other health care professionals are encouraged to report any adverse events following administration of vaccines to the Vaccine Adverse Event Reporting System (VAERS), which is jointly administered by CDC and the U.S. Food and Drug Administration. Visit http://vaers.hhs.gov for more information or to file a report.

Vaccines for Children

The Vaccines for Children (VFC) program provides vaccines at no cost to professionals who serve eligible children. Children younger than 19 years of age are eligible for VFC vaccines if they are Medicaid-eligible, American Indian or Alaska Native or have no health insurance. Children who have health insurance that does not cover vaccination can receive VFC vaccines through Federally Qualified Health Centers or Rural Health Centers. VFC vaccines cannot be denied to an eligible child if a family can't afford the administration fee. For more information about participating in VFC, visit
http://www.cdc.gov/vaccines/programs/vfc/