

Clinical Watch

FROM CSAC, THE CLINICAL AND SCIENTIFIC AFFAIRS COUNCIL OF THE AAPA

ADULT IMMUNIZATION

The 2009 vaccine schedules

▶WHO SHOULD READ THIS?

Any PA who provides care for adult patients (older than 18 years).

▶WHY IS THIS IMPORTANT?

Every year, more than 40,000 adults in the United States die from influenza, and additional deaths can be directly linked to pneumococcal infections, hepatitis B infection, and other preventable diseases.^{1,3} Diseases that can be prevented by vaccination have been estimated to cost society more than \$10 billion annually.⁴ Calculating the benefits of vaccines beyond the prevention of suffering or direct loss of life has been difficult. According to Rappuoli and colleagues, however, economists have suggested that vaccines are cost-effective because the expense of producing and administering them is lower than the cumulative costs of people being ill and out of work.⁵ For instance, for every \$1 spent on the measles, mumps, and rubella (MMR) vaccine, \$16.34 is saved in direct medical costs.⁵ Rappuoli goes on to say that if policy makers were to include the appropriate factors for avoiding disease altogether, the value currently attributed to vaccines would be seen to be underestimated by a factor between 10 and 100.⁵

Healthy People 2020 features vaccinations prominently in a comprehensive, nationwide health promotion and disease prevention agenda outlined by the US Department of Health and Human Services.¹ Screening and encouraging adult patients to

be up-to-date on their vaccinations will help decrease health-related mortality, societal costs, and overall disease incidence.

▶WHO SHOULD BE SCREENED FOR VACCINATION STATUS?

PAs should assess the immunization status of every adult patient at each office visit, regardless of the patient's reason for being seen. This recommendation includes those working in specialties because many adults are not seen by a primary care provider on a regular basis, resulting in missed opportunities for vaccine screening.

▶WHAT VACCINATIONS ARE CURRENTLY RECOMMENDED FOR ADULTS?

The CDC, the Advisory Council on Immunization Practices (ACIP), and the National Foundation for Infectious Diseases (NFID) have issued the recommendations detailed in this section⁶⁻⁸ (see Figure 1, page 16, and Figure 2, in the online version of this article).

For all adults:

- Tetanus and diphtheria (Td) immunizations should be given at 10-year intervals throughout the patient's life. Adults younger than 65 years should receive substitute tetanus, diphtheria,

acellular pertussis vaccine for one of the Td boosters.

- MMR vaccine is recommended for all adults born after 1956 who are not immune to measles, mumps, and rubella. A second dose of vaccine is required for those who have recently been exposed to measles or mumps or who are in an outbreak area, have been previously vaccinated with killed measles vaccine, have been vaccinated with an unknown type of measles vaccine during 1963-1967, are students in postsecondary educational institutions, work in the health care industry, plan to travel internationally, are female with an unreliable rubella vaccination history, or who have no contraindications and lack laboratory evidence of immunity.
- Varicella vaccine is recommended for all adults who have not had chickenpox, lack laboratory evidence of immunity, or have not been immunized previously against chickenpox.
- Influenza vaccine should be administered annually to adults wishing to reduce their risk of contracting influenza or infecting others. Groups who should be vaccinated include persons 50 years or older, women who will be pregnant during the influenza season, residents of long-term care facilities, persons with certain chronic medical conditions, health care workers, persons providing care for high-risk persons, and those who provide care for or live with children younger than 5 years.

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TAKE-HOME POINTS

- Adult vaccinations are frequently overlooked by health care practitioners.
- Adults often do not realize that they need vaccinations because they assume that vaccines are only given or needed in childhood.
- The Web offers many useful vaccine resources. Accessing these will enhance the PA's practice and the care provided to adult patients. One of the best resources is the CDC's Web site on adult immunizations.
- PAs should make a review of vaccination status a part of all visits for adult patients.

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VACCINE	19-49 years	AGE GROUP 50-64 years	≥65 years
Tetanus, diphtheria, pertussis (Td/Tdap)	1 dose Td booster every 10 yrs		
	Substitute 1 dose of Tdap for Td		
Human papillomavirus (HPV)	3 doses females (0, 2, 6 mos)		
Measles, mumps, rubella (MMR)	1 or 2 doses	1 dose	
Varicella	2 doses (0, 4-8 wks)		
Influenza		1 dose annually	
Pneumococcal (polysaccharide)	1-2 doses		1 dose
Hepatitis A	2 doses (0, 6-12 mos or 0, 6-18 mos)		
Hepatitis B	3 doses (0, 1-2, 4-6 mos)		
Meningococcal	1 or more doses		
Zoster			1 dose



 For all persons in this category who meet the age requirements and who lack evidence of immunity (eg, lack documentation of vaccination or have no evidence of prior infection)
  Recommended if some other risk factor is present (eg, on the basis of medical, occupational, lifestyle, or other indications)

FIGURE 1. Recommended adult immunization schedule, by vaccine and age group

Adapted from Adult immunization schedule. Centers for Disease Control and Prevention Web site. <http://www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm>. Accessed February 10, 2009. Please consult the CDC's online version for footnotes and references accompanying this schedule.

Females up to 26 years should be immunized against human papillomavirus (HPV). The HPV vaccine should be given prior to the initiation of sexual activity to maximize the benefits. However, the vaccine has still been found to be efficacious for use in women who have begun sexual activity, and studies are ongoing to examine its benefits to older populations and males.

Adults 60 years and older should receive two doses of the herpes zoster (shingles) vaccine, according to the ACIP.⁷ The NFID recommends that a single dose of the zoster vaccine should be given to all adults 59 years or older, whether or not the patient reports a prior episode of herpes zoster.⁹ Patients may receive this dose despite having a chronic medical condition unless a contraindication exists. PAs should refer to the vaccine schedule at www.cdc.gov/vaccines/recs/schedules/adultschedule.htm for those contraindications.

Adults 65 years and older should receive the pneumococcal vaccine, and

younger adults who have diabetes or a chronic heart, lung, liver, or kidney disorder should be vaccinated as well. It is unclear at present how often the pneumococcal vaccine should be repeated. A minimum of one dose is recommended for those 65 years and older.⁶

Certain groups of adults should have hepatitis B, hepatitis A, MMR, and meningococcal vaccinations. Hepatitis B immunization is recommended for those in high-risk groups, including health care workers and public safety workers who are exposed to blood on the job, those in contact with persons with chronic hepatitis B infection, sexually active people not in a mutually monogamous relationship, current or recent injection drug users, travelers to countries where the hepatitis B virus is common, persons with end-stage renal disease, and HIV-infected persons.

Hepatitis A immunization is recommended for adults traveling to countries where hepatitis A virus is common, peo-

ple with chronic liver disease, those with blood clotting-factor disorders, men who have sex with men, and users of injection and noninjection illegal drugs.

One dose of MMR is recommended for persons born in 1957 or later who have no serologic proof of immunity or documentation of childhood immunization. Two doses of MMR should also be given to persons in high-risk groups (college students, health care personnel, international travelers, and women of childbearing age who do not have acceptable evidence of rubella immunity).

Meningococcal vaccine is recommended for adults with asplenia or terminal complement deficiencies, those who will be first-year college students living in dormitories, military recruits, certain laboratory workers, and those traveling or living in countries where meningococcal disease is common.

WHAT'S NEW?

PAs should download the adult vaccination schedule after it is updated

each year and review it for any new recommendations. Changes often occur in the recommendations for who should receive a vaccine and when. This year, both asthma and smoking have been added as indications for pneumococcal vaccination, but no new vaccines are being recommended for adults. The schedule is available at www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm.

▶WHAT ELSE IS IMPORTANT TO KNOW?

Despite concerns about long-term adverse effects from vaccines—such as the unfounded “correlations” between MMR vaccine and autism—vaccines overall are very safe for use in most patient populations. While no vaccine is 100% safe or effective, vaccination remains one of our best defenses against infectious diseases. The CDC has information at www.cdc.gov/vaccinesafety/sitemap.htm on the history of vaccine development; how vaccines are tested, monitored, and licensed; and on how adverse events are reported after a vaccine is marketed. If a patient is anxious about receiving a particular vaccine or about vaccination in general, this site is useful for addressing common myths, misconceptions, and side effects that a patient might experience with a particular vaccine. The information is easy to read, useful, and covers most vaccines. Common side effects are also listed.

▶WHAT OTHER RESOURCES ARE AVAILABLE?

The CDC offers a Web-based questionnaire at www2.cdc.gov/nip/



ON THE WEB

• Figure 2. Vaccines that might be indicated for adults based on medical and other indications

Please see the online version of this article at www.jaapa.com for this enhancement.

[adultImmSched/](http://www2.cdc.gov/nip/adultImmSched/) that can help patients to determine what vaccines they might need. The site lists the vaccines that may be indicated for the patient based on the information provided. This form provides information on why a particular vaccine is suggested and suggests additional vaccines that may or may not be useful. Further discussion with your patient will help the two of you to decide whether these additional vaccines are appropriate.

▶WHAT ARE THE BARRIERS TO ADULT IMMUNIZATION?

In their article calling for better integration of adult immunizations into routine health care visits, the NFID found a number of barriers to adult immunization.⁹ These include

- Lack of awareness
- Lack of resources and knowledge
- Lack of infrastructure.

Visit the NFID at www.nfid.org/ for additional information on barriers to immunization. **JAAPA**

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VACCINE	Pregnancy	Immunocompromising conditions (excluding HIV), medications, radiation	INDICATION			Chronic liver disease	Kidney failure, end-stage renal disease, receipt of hemodialysis	Health-care personnel
			HIV infection CD4+ T lymphocyte count	Diabetes, heart disease, chronic pulmonary disease, chronic alcoholism	Asplenia (including elective splenectomy and terminal complement component deficiencies)			
Tetanus, diphtheria, pertussis (Td/Tdap)	1 dose Td booster every 10 yrs							
		Substitute 1 dose of Tdap for Td						
Human papillomavirus (HPV)	3 doses for females through age 26 yrs (0, 2, 6 mos)							
Measles, mumps, rubella (MMR)	Contraindicated		1 or 2 doses					
Varicella	Contraindicated		2 doses (0, 4-8 wks)					
Influenza	1 TIV dose annually							1 dose TIV or LAIV annually
Pneumococcal (polysaccharide)		1-2 doses						
Hepatitis A	2 doses (0, 6-12 mos, or 0, 6-18 mos)							
Hepatitis B		3 doses (0, 1-2, 4-6 mos)						
Meningococcal	1 or more doses							
Zoster	Contraindicated		1 dose					



 For all persons in this category who meet the age requirements and who lack evidence of immunity (eg, lack documentation of vaccination or have no evidence of prior infection)
  Recommended if some other risk factor is present (eg, on the basis of medical, occupational, lifestyle, or other indications)

FIGURE 2. Vaccines that might be indicated for adults based on medical and other indications

Adapted from Adult immunization schedule. Centers for Disease Control and Prevention Web site. <http://www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm>. Accessed February 10, 2009. Please consult the CDC's online version for footnotes and references accompanying this schedule.