Vaccines are among the most successful public health interventions, saving millions of lives and preventing millions of disabilities. While most vaccines are targeted at children and young adults, there are four recommended for routine use in adults aged 65 and older: influenza vaccine, pneumococcal vaccine, herpes zoster vaccine, and a vaccine against tetanus and diphtheria. The latter may include the addition of pertussis protection in a vaccine that combines tetanus toxoid, diphtheria toxoid, and acellular pertussis (Tdap). This issue of Elder Care will discuss these four vaccines.

Other vaccines are also available for older adults, (Table 1) but will not be reviewed in this issue of Elder Care. They include vaccines for older adults with particular health risks (e.g., vaccines against hepatitis A and B and meningococcus) and vaccines for individuals who travel outside of the US. Information on these and other vaccines is available from the Centers for Disease Control and Prevention (CDC).

**Influenza Vaccine**

While the highest rate of influenza infection is among children, the highest rate of serious illness and death occurs among older adults. Indeed, influenza causes an average of 36,000 deaths in the US each year, most of which occur in older adults. Thus, the CDC’s Advisory Committee on Immunization Practices (ACIP) recommends that all older adults receive annual influenza vaccination.

Several influenza vaccines are available in the US and they all contain the same virus strains. But, only two of them are approved for use in older adults – the standard intramuscular killed-virus trivalent influenza vaccine (TIV) and the newer high-dose TIV (Fluzone High-Dose). Neither the intranasal live attenuated influenza vaccine (FluMist) nor the intradermal trivalent killed-virus vaccine (Fluzone) is approved for use in people 65 and older.

The standard intramuscular TIV has been used for years and continues to be recommended. The only alternative to this standard TIV for older adults is a higher antigen product (Fluzone High-Dose®), which is specifically licensed for adults age 65 and older. It contains four times the antigen as the standard vaccine and the hope is that it will lead to a more robust immune response in older adults which, in turn, will translate into less morbidity and mortality. Studies are ongoing to evaluate this product’s effectiveness and adverse reactions in comparison to standard TIV. The ACIP currently does not state a preference for which vaccine should be given to older adults.

Note that a history of egg allergy is no longer an automatic contraindication to influenza vaccine. ACIP now states that individuals who have experienced urticaria

<table>
<thead>
<tr>
<th>Table 1. Vaccines Recommended for Older Adults</th>
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<tbody>
<tr>
<td><strong>Routine Vaccines (for all adults)</strong></td>
</tr>
<tr>
<td>Influenza</td>
</tr>
<tr>
<td>Pneumococcal</td>
</tr>
<tr>
<td>Tetanus, diphtheria pertussis</td>
</tr>
<tr>
<td>Zoster</td>
</tr>
<tr>
<td><strong>Vaccines for Special Situations (based on medical, occupational, lifestyle, or other indications)</strong></td>
</tr>
<tr>
<td>Hepatitis A</td>
</tr>
<tr>
<td>Hepatitis B</td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
</tr>
<tr>
<td>Meningococcal</td>
</tr>
<tr>
<td>Varicella</td>
</tr>
</tbody>
</table>

* If close contact with infants or patient desires pertussis protection


TIPS ABOUT VACCINES FOR OLDER ADULTS

- Immunize all older adults annually against influenza, using the standard intramuscular trivalent vaccine or the new high-dose trivalent vaccine specifically designed for older adults. Either is acceptable.
- Do not automatically withhold influenza vaccine because of a history of egg allergy. Egg allergy, including urticaria, is no longer a contraindication to influenza vaccine. Those with egg-induced anaphylaxis should consult an allergist.
- Assure that patients receive one dose of pneumococcal vaccine at age 65. However, if a patient received the vaccine prior to age 65, at least 5 years should elapse before administering the “post-65” dose.
- Recommend a single dose of zoster vaccine, ideally at age 60.
- Administer diphtheria-tetanus vaccine to older adults every 10 years. One time, however, the booster should also contain acellular pertussis antigen (Tdap vaccine) if there is close contact with infants or need for pertussis protection.
following exposure to egg should still receive influenza vaccine, but only a TIV product and only from a clinician familiar with treatment of severe allergic reactions. People who have a history of anaphylaxis to eggs should be evaluated by an allergist prior to receiving influenza vaccine.

**Pneumococcal Vaccine**

Pneumococcal polysaccharide vaccine (PPSV) is recommended for all adults age 65 and older as a single dose, primarily to protect against invasive pneumococcal disease. If a dose was received before age 65 because of a high-risk medical condition, it is recommended that one more dose be given after age 65, at least five years after the first dose. PPSV is one vaccine where more than the recommended number of doses can actually be harmful by causing an impaired immune response to pneumococcal antigens.

New pneumococcal vaccines are in development, and the 13-valent pneumococcal conjugate vaccine (Prevnar13) was licensed by the FDA in 2011 for administration to adults aged 50. The ACIP, however, has not made recommendations about this new vaccine, and Medicare typically will not cover vaccines unless ACIP has recommended them.

**Herpes Zoster Vaccine**

Herpes zoster vaccine (Zostavax) is recommended as a single dose for adults aged 60 and older to prevent shingles. The vaccine is actually licensed for those age 50 and above but ACIP recommends starting at age 60 due to lower incidence of disease at age 50, uncertainty about duration of protection (and resulting need for revaccination), and limited vaccine supply. The vaccine is 50% effective in preventing shingles, but less effective with increasing age. It is 66% effective at preventing post-herpetic neuralgia in those who develop shingles.

Zoster vaccine contains a modified live virus and is contraindicated in those with immune deficiency. It can, however, be given to individuals who have had shingles; the optimal interval between singles and the vaccine is unknown.

**Td or Tdap Vaccines**

All adults should receive a booster tetanus and diphtheria vaccine at least every 10 years, after a three-dose primary series (which is usually received as an infant or child). A new product that includes tetanus and diphtheria toxoid plus acellular pertussis antigen (Tdap) is available to provide adults protection against pertussis in addition to tetanus and diphtheria. This new product not only provides pertussis protection for the adult, but more importantly, can prevent an adult from passing pertussis to an infant.

While the Tdap vaccine is FDA-approved only up to age 65, the ACIP recommends those over age 65 receive the vaccine if they are in close contact with infants. ACIP also states that it is acceptable for any older person to receive the vaccine should they desire it.

**Payment**

The payment system for adult vaccines is confusing because, as shown in Table 2, some vaccines are covered through Medicare Part B (physician office charges), others are covered through Part D (drug coverage), and in special situations they are covered by Parts B and D. This creates a problem for medical practices in that they may have difficulty arranging reimbursement through part D.

As a result, some practices do not provide zoster vaccine or Td (or Tdap) for Medicare patients. Other locations at which to receive these vaccines include pharmacies, hospitals, and public health departments.

**Family and Intergenerational Aspects of Vaccines**

An often-overlooked benefit of vaccines is the protection afforded against intergenerational transmission of infection. For instance, influenza in children above the age of 4 years is usually not serious, but immunizing them against influenza can prevent transmission of the disease to grandparents who are at much higher risk of complications. Conversely, immunization of older adults against pertussis prevents them from infecting infants, who have much more severe reactions to this infection. Vaccines should thus be seen as both a personal and a family prevention strategy.

### Table 2. Medicare Coverage for Older Adults’ Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Part B</th>
<th>Part D</th>
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<tbody>
<tr>
<td>Influenza</td>
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<tr>
<td>Pneumococcal</td>
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<td>Tetanus-Diphtheria</td>
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<tr>
<td>Zoster</td>
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</table>


References and Resources


ACOVE Quality Indicators

1. If a vulnerable elder with no history of allergy to the pneumococcal vaccine is not known to have already received a pneumococcal vaccine or if the patient received it more than 5 years ago (if before age 65 years), THEN a pneumococcal vaccine should be offered.

2. If a vulnerable elder has no history of anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine, THEN the patient should be offered an annual influenza vaccination.

**Interprofessional care improves the outcomes of older adults with complex health problems**

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