

Group on Immunization Education  
Society of Teachers of Family Medicine



## **CLINICAL SCENARIO SERIES ON IMMUNIZATION**

### Immunization of a 65 Year Old Health Care Worker

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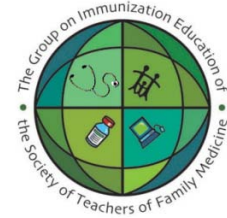
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## Clinical Scenario – Immunization of a 65 year old health care worker

### Learning Objectives

1. State which vaccines are appropriate for adults age 65 years and older.
2. State which vaccines are appropriate for health care workers.

### Scenario

#### Health care worker

Ms. Matthews is a 65 year old nurse manager at a local hospital. Since an employee health physical 15 years ago, she has not received any routine health care. She presents today because her supervisor has told her that she must have her immunizations updated if she wishes to continue in her current position. Ms. Matthews plans to work 3 to 4 more years before retiring. Although most of her duties are administrative, she does have some direct patient contact on a general medical inpatient unit at the hospital. Ms. Matthews has no known chronic health problems, no history of drug or food allergies, and no prior adverse reactions to any immunization. She is married and lives with her husband, who is in good health. Her daughter-in-law is expecting to deliver her second child in 10 weeks.



#### Past immunization history:

- Primary diphtheria-tetanus-pertussis (DTP) series in childhood. Last tetanus-diphtheria (Td) booster 4 years ago after a laceration.
- Rubella vaccination at age 30 years.
- Hepatitis B series 18 years ago. Titers checked at that time showed a good immune response to the vaccine series (hepatitis B surface antibody >10 mIU/ml).

#### Past infectious disease history:

- Natural mumps at age 5 years.
- Natural varicella at age 10 years. No history of herpes zoster.

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### Questions

1. Which routine immunizations are recommended for this healthy 65 year old?
2. If Ms. Matthews receives all recommended vaccines today, which future immunizations will she require? When?
3. Are there other vaccines that Ms. Matthews should receive because she is a healthcare worker?
4. If she were a 35 year old healthcare worker with the same health and infectious disease histories, and prior immunizations as outlined by age and date in Ms. Matthews's history, would she need other vaccines?



5. Should you check hepatitis B titers to see if Ms. Matthews needs a booster dose of hepatitis B vaccine?



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### Answers

1. All health care workers should be vaccinated for: 1) tetanus, diphtheria, and pertussis, 2) measles, mumps, and rubella, 3) hepatitis B, 4) varicella, and 5) influenza annually. Persons over age 65 years should receive herpes zoster vaccine and pneumococcal polysaccharide vaccine (PPV). Thus, looking at her past illnesses, vaccination record, and her age, Ms. Matthews requires tetanus, diphtheria, pertussis (Tdap); influenza vaccine (in season); PPV; and herpes zoster vaccine.

**Tdap vaccine.** Most adolescents and adults lose immunity to pertussis 5 to 10 years after completing childhood vaccination against pertussis. Tdap helps to reduce morbidity in these individuals and to limit the spread of pertussis disease to infants, especially below the age of 6 months, who are too young to be protected by routine childhood pertussis immunization. Adolescents and adults up to age 65 years who have not received Tdap should receive a one-time dose. Persons aged 65 years and older who have or will have close contact with an infant age less than 12 months, like Ms. Matthews who is expecting her new grandchild, should get vaccinated with Tdap. Anyone age 65 years and older may be vaccinated with Tdap if elected. Any health care worker of any age who has close contact with patients, especially infants age 12 months or less, should receive one dose of Tdap. The dose of Tdap is given without regard to the timing of the most recent Td booster. Either commercially available Tdap vaccine is satisfactory.

**Influenza vaccination** is recommended annually for all persons 6 months of age and older who do not have contraindications to the vaccine. High dose influenza vaccine (Fluzone), which has 4 times the antigen load of standard dose influenza vaccine so induces higher antibody levels, is an option for those aged 65 years and older. Studies are underway to determine its clinical effectiveness in institutionalized persons. A recently FDA-approved vaccine (Fluzone Intradermal) utilizes the intradermal route of administration for those who wish to avoid intramuscular injection.

**Pneumococcal polysaccharide vaccine (PPV)** is recommended for all adults 65 years and older. Vaccination before age 65 years is recommended for those with chronic pulmonary disease including asthma; cardiovascular disease; diabetes mellitus; liver disease; chronic renal disease; and immune dysfunction including HIV, malignancies, splenic dysfunction, chemotherapy, and long-term steroid use; and for smokers over the age of 18 years. Those vaccinated before age 65 years may be



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revaccinated once, when at least 5 years have passed since previous vaccination AND if they are age 65 years or older. Earlier revaccination (before age 65) may be indicated in some with specific medical conditions.

**Herpes zoster vaccine** is recommended for those age 60 years and older to reduce the risk of herpes zoster (shingles). It is not indicated for primary varicella vaccination in those who are not varicella immune. Herpes zoster vaccine may be given without regard to a prior history of shingles (i.e., for those who have had a previous episode of shingles as well as those who have never had shingles). Herpes zoster vaccine is given as a single dose. Because it is a live, attenuated virus vaccine, it is contraindicated in persons with some types of immunosuppression (tumors involving bone marrow, lymphoma, leukemia, current chemotherapy, and some cases of AIDS).

Herpes zoster vaccine is now licensed by the FDA for persons age 50 years and older. Currently the ACIP is not planning to change the recommendation to vaccinate at age 60 years and older. For details see the Clinical Scenario on Herpes zoster.

2. She will require annual influenza vaccination and a repeat Td in 10 years or sooner if she sustains a tetanus-prone wound.
3. Based on her immunization and natural disease history, none are needed. Because she was born before 1957, she is presumed to be immune to measles and mumps, but for health care workers titers could be checked to confirm immunity, and MMR vaccine administered if necessary. Unlike mumps or measles, one dose of a rubella containing vaccine is satisfactory to produce immunity to this organism. For detailed guidelines, see recommendations at [www.cdc.gov/vaccines/recs/schedules/#adult](http://www.cdc.gov/vaccines/recs/schedules/#adult). Footnotes to the adult immunization schedule found at this site are explicit in outlining situations such as disease outbreaks in which health care workers require additional doses of MMR vaccine.
4. Tdap is still indicated for a 35 year old health care worker.

A 35 year old health care worker would require evidence of two doses of measles, mumps, and rubella vaccination, or protective antibody titers to prove immunity. Two doses of MMR are necessary to provide measles and mumps protection and one dose of MMR is needed to provide rubella protection. See vaccine schedule footnotes at the site above for detailed



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information about MMR recommendations for health care workers. This 35 year old's lack of history of measles disease or vaccination needs to be explored further. Titers should be checked, and MMR vaccine administered if she is not immune. A 65 year old is likely to have naturally acquired measles immunity.

35 year olds do not require PPV vaccination unless high risk conditions exist. See the adult immunization schedule site cited in answer (3) above for specific indications for PPV.

Herpes zoster vaccination is not indicated in this age group. Varicella titers could be checked to confirm herpes zoster immunity and Varivax given if titers prove to be inadequate.

5. No. Hepatitis B titers wane over time. Titers are not obtained after routine infant/child immunization. Adolescents and adults with increased risk of hepatitis B exposure (health care workers who have contact with patients or blood or are at on-going risk for injuries from sharp instruments or needle sticks, dialysis patients, injection drug users, those with increased risk of sexual exposure to hepatitis B) should have hepatitis B titers checked within 1 to 2 months of completing the hepatitis B immunization series. Those who do not have protective titers should repeat the series and have titers checked again. Those who continue to be non-responders should have hepatitis B surface antigen levels checked to rule out chronic hepatitis B infection. The care of those with chronic hepatitis B is beyond the scope of this discussion. Those who do not have chronic hepatitis B infection but do not respond to vaccination should be counseled on risk avoidance, and the need for hepatitis B immunoglobulin if exposure occurs,

Those with a protective antibody titer in response to immunization should be considered immune even if titers drop below protective levels as time goes on. Evidence shows that on exposure to hepatitis B antigen, these individuals mount an anamnestic antibody response. Hemodialysis patients and other immunocompromised persons at increased risk of infection are exceptions to this rule, and they require boosters if annually tested antibody levels drop below 10 mIU/ml. Healthy persons do not need to have titers rechecked after an initial protective antibody level is confirmed, and they do not require booster doses. An excellent review of hepatitis B immunization, with discussion of health care workers, may be found at [www.cdc.gov/vaccines/pubs/pinkbook/downloads/hepb.pdf](http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/hepb.pdf).