Editorials

Shared Decision-Making for Administering PCV13 in Older Adults

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Streptococcus pneumoniae infection, the most common cause of bacterial pneumonia, leads to significant morbidity and mortality in older people. With the addition of the pneumococcal conjugate vaccine to childhood immunization schedules in 2000, herd immunity has led to a ninefold decrease in invasive pneumococcal disease in adults 65 and older.[1] In 2014, the Advisory Committee on Immunization Practices (ACIP) expanded its recommendations for the 13-valent pneumococcal conjugate vaccine (PCV13; Prevnar 13) from including only children and high-risk groups to also including all patients older than 65 years (with or without risk factors), intending to further reduce pneumococcal disease in adults.[2]

Despite approximately 47% of Medicare beneficiaries older than 65 years receiving PCV13 between 2014 and 2018, invasive pneumococcal disease, noninvasive pneumococcal pneumonia, and mortality from pneumonia have not further decreased.[1,3,4] Consequently, in June 2019, ACIP approved a change from its age-based PCV13 recommendations to a shared clinical decision-making process.[1,3] Clinicians should note that recommendations have not changed for the highest-risk groups *(Table 1[1,3-7])*, and ACIP still recommends that all patients older than 65 years receive the 23-valent pneumococcal polysaccharide vaccine (PPSV23; Pneumovax 23) because of strong evidence of effectiveness against invasive pneumococcal disease from covered strains. Also, in instances when PCV13 is recommended, it should be administered first, followed by PPSV23 typically one year later.

Why shared decision-making?

When making the change to shared decision-making for PCV13 vaccination, ACIP reviewed disease burden, vaccine effects, acceptability, resource use, and feasibility of recommendation changes.[4] ACIP noted that the burden of disease from the strains covered by PCV13 is now low, causing only 4% of pneumonia and 20% of invasive pneumococcal disease.[1] Since ACIP began recommending PCV13 for all older adults in 2014, the incidence of invasive pneumococcal disease has remained unchanged at five per 100,000 individuals.[1] Because of this low prevalence, the numbers needed to vaccinate to prevent illness are 2,600 for pneumonia and more than 26,000 for invasive pneumococcal disease. The cost per quality-adjusted life-year exceeds $200,000 and may be as high as $560,000.[1] Although a population-level effect has not been demonstrated, trials published in 2008

TABLE 1

Risk Factors for Pneumonia and PCV13 Recommendations

Highest-risk groups who should receive PCV13 (Prevnar 13), independent of age
Chronic diseases:
Chronic cerebral spinal fluid leak
Chronic renal failure
Nephrotic syndrome
Treatment with immunosuppressant medications/iatrogenic immunosuppression
Immunocompromising conditions with congenital or acquired immunodeficiency:
B and T cell lymphocyte deficiency
Complement deficiencies
HIV infection
Phagocytic disorders
Malignancies:
Generalized malignancy
Leukemia
Lymphoma, including Hodgkin disease
Radiation therapy
Other:
Anatomic or functional asplenia, including sickle cell disease and other hemoglobinopathies
Cochlear implants
Multiple myeloma
Solid organ transplantation
Additional risk factors for pneumonia (PCV13 vaccination may be considered with shared decision-making)
Certain medical conditions (i.e., chronic heart, liver, or lung disease [including asthma]; diabetes mellitus; history of aspiration, dysphagia, or esophageal motility disorders; inflammatory bowel disease)
Group living situation, such as nursing homes, assisted living facilities, jails, shelters, or homelessness
Prior pneumonia
Racial/ethnic groups with higher burden of illness (African Americans, Alaska Natives, and American Indians)
Residing in or traveling to settings with low rates of childhood PCV13 immunization
Substance abuse, including alcohol, smoking, crack cocaine, and opioids
The "oldest old" or other individuals who have immunosenescence, frailty, or decreased functional status
Use of medication that may increase pneumonia risk, such as proton pump inhibitors, antipsychotics, opioids, or sedatives

PCV13 = 13-valent pneumococcal conjugate vaccine.

Information from references 1, and 3-7.

and 2010 with postlicensure studies showed that the vaccine is safe and effective at an individual level, reducing overall pneumonia by 6% to 11% and reducing invasive PCV13-type pneumococcal disease by approximately one-half.[1,8,9]

In the end, by recommending shared decision-making for PCV13 instead of completely eliminating age-based recommendations, ACIP acknowledged that individual patients might benefit, even in the absence of population benefits. Some adults older than 65 not included in the highest-risk group recommended to receive PCV13 have other conditions that increase their risk of pneumonia *(Table 1*[1,3-7]*)*. Just as in healthy adults, the indirect protective effects (herd immunity) are present in these higher-risk groups, but because the PCV13-type disease burden is higher in these groups, PCV13 should be considered.[1] In addition, the age of 65 is an arbitrary cutoff, and further study is needed to examine differences in immunization effectiveness between individuals in their 60s and 70s and those in their 80s, 90s, and 100s, in whom frailty and immunosenescence may increase the risk of pneumococcal disease.

Persons residing in nursing homes or other long-term care facilities may also benefit from PCV13.[1] The herd immunity currently protecting older adults is threatened by decreasing childhood immunization rates, as evidenced by the increase of other vaccine-preventable illnesses such as measles.[10] Certain communities may experience lower childhood vaccination rates because of health inequities, inadequate access to care, or lack of a childhood PCV13 program. It is reasonable to recommend PCV13 for adults older than 65 who reside in or who will be traveling to such communities.[1]

How can shared decision-making about PCV13 vaccination be done efficiently?

Clinicians should understand the factors that ACIP considered to make this decision and, in discussion with the patient, apply them to the patient's values and preferences. We recommend first clarifying that the vaccine is safe and effective at an individual level but has less impact at a population level because of the decreased burden of pneumococcal disease from the tremendous success of childhood vaccination. Clinicians should then assess and advise patients by taking into account the considerations listed in *Table 1*,[1,3-7] individualizing risk, and then apply these considerations to the patient's preferences and views toward vaccinations.

To more efficiently have this conversation during time-limited office visits, clinicians may wish to start the conversation with their initial recommendation based on individual patient and community factors, followed by asking the patient his or her level of agreement. Health maintenance and best-practice alerts in the electronic health record may need to be reconfigured from the previous recommendation of PCV13 followed by PPSV23 a year later for all patients older than 65 years. Alternatively, it may be beneficial to leave these alerts in place and add an option to document if a patient declines vaccination after a shared decision-making discussion. Finally, if Medicare and other insurers remove coverage for PCV13 for average-risk older adults because of the ACIP recommendation change, vaccination cost (about $200[11]) will also need to be part of the shared decision-making conversation.

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