

Reevaluating pneumococcal vaccine guidance: An analysis

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If mitigating racial disparities in those who contract pneumococcal diseases, such as meningitis and pneumonia, is a top public health priority, then recommending that all adults get a pneumococcal vaccine at age 50 would likely be effective guidance, according to a University of Pittsburgh School of Medicine analysis published today in the journal

Vaccine.

However, the U.S. Centers for Disease Control and Prevention does not make race-based [vaccination recommendations](#), and, unless lowering the age for universal vaccination prompts double-digit increases in vaccination rates or the vaccine protects against more types of pneumonia than it has been proven to, it isn't going to be cost-effective to change the current recommendation, the researchers found.

"It's a nuanced issue, but nuanced vaccine recommendations typically don't result in high immunization rates," said senior author Kenneth J. Smith, M.D., M.S., professor of medicine and clinical and translational science in Pitt's Division of General Internal Medicine. "Since there isn't any major danger to getting the pneumococcal vaccine, a simple recommendation that everyone get it at age 50 is going to be easiest to implement. The main barrier then becomes cost."

There are two types of pneumococcal vaccine. Currently, the CDC recommends that all children under age 2 be immunized with [pneumococcal conjugate vaccine](#) (Prevnar 13®) in four doses spread out over slightly more than a year. All adults over age 65, all adult smokers and those with certain [chronic medical conditions](#)—including heart or [lung disease](#), cancer, HIV/AIDS and diabetes—are urged to receive one dose of pneumococcal polysaccharide vaccine (Pneumovax23®), with those over 65 and the immunocompromised additionally advised to receive Prevnar 13.

Underserved minorities are considerably more likely to have the kinds of chronic medical conditions for which the CDC recommends they get pneumococcal vaccination before age 65. However, only 23 percent of people ages 50 to 64 with these chronic illnesses get the vaccination.

"In a busy medical practice, it is easy for an early pneumococcal

vaccination for someone with a chronic disease to fall through the cracks when you're also dealing with the patient's high blood pressure and other health issues," said Smith. "That is why a simple age-based recommendation—where every patient at age 50 receives the vaccination—is much more likely to be adhered to."

Smith and his colleagues ran several computer models to forecast the effect of changing the [pneumococcal vaccine](#) recommendation to include all people at age 50. In all models, that recommendation would likely reduce the annual number of pneumococcal disease cases in the U.S. by several thousand and save a few hundred lives, disproportionately among minorities.

To calculate the cost-effectiveness of lowering the age recommendation for pneumococcal vaccination, Smith's team used the benchmark of \$100,000 per quality-adjusted life-year. This is a measure that is generally accepted as representing reasonable value for health in the U.S. The current recommendation that all people receive pneumococcal vaccination at age 65 carries a \$42,000 quality-adjusted life-year cost, which is under that benchmark.

The researchers found that, if a simple recommendation that all people get the pneumococcal polysaccharide [vaccine](#) at age 50 drives vaccination rates in 50- to 64-year-olds up to 33 percent, from the current rate of 23 percent, then the cost would be \$144,000 per quality-adjusted life-year in the general population, above the benchmark. But it would be \$80,000 per quality-adjusted life-year in the black population, a reasonable value.

"Vaccinating the [general population](#) against pneumococcal disease at age 50 doesn't quite reach the U.S. benchmark for cost-effectiveness, but it's not too far off," Smith said. "It isn't unreasonable to assume that [vaccination rates](#) will climb even higher than 33 percent—and each

percent gained will improve the cost-effectiveness. If the priority is to mitigate racial disparities, then changing the recommendation to include all people at age 50 seems to be a good strategy. If controlling costs is key though, such a [recommendation](#) doesn't quite meet the threshold."

More information: Cost-effectiveness of adult pneumococcal vaccination policies in underserved minorities aged 50-64 years compared to the US general population, *Vaccine*, [DOI: 10.1016/j.vaccine.2019.01.002](#)

Provided by University of Pittsburgh

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