

Reduced-dose schedule for pneumococcal vaccine in infants shows effectiveness

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Infants who received two or three primary doses of the 7-valent pneumococcal conjugate vaccine (PCV-7) both had a decreased rate of carrying pneumococcal microorganisms that can cause pneumonia and other infections, compared to infants who were not vaccinated, according to a study in the July 8 issue of *JAMA*.

Crowded infant vaccine schedules and less favorable cost-effectiveness calculations have prompted exploration of reduced-dose vaccine schedules other than the currently recommended 3 + 1-dose schedule of PCV-7, which consists of 3 primary doses before age 6 months followed up by a booster vaccination in the second year of life, according to background information in the article. Difficulty in implementing the 3 + 1-dose schedule in developing countries is another reason for exploring reduced schedules. The effects of reduced-dose schedules of PCV-7 on pneumococcal carriage in children are largely unknown.

Elske J. M. van Gils, M.D., of the University Medical Center Utrecht, the Netherlands, and colleagues examined the effects of a 2-dose and 2 + 1-dose PCV-7 schedule on nasopharyngeal (upper part of the throat behind the nose) pneumococcal carriage in young children. The randomized trial included 1,003 healthy newborns and 1 of their parents in a general community in the Netherlands, with follow-up to age 24 months. Infants were randomly assigned to receive 2 doses of PCV-7 at 2 and 4 months; 2 + 1 doses of PCV-7 at 2, 4, and 11 months; or no dosage (control group).

No significant differences in vaccine serotype (a strain of [microorganisms](#) having a set of antigens in common), nonvaccine serotype, and overall pneumococcal carriage were observed at 6 months in both vaccine groups compared with the control group. At 12 months, vaccine serotype carriage rates were significantly lower in both vaccine groups compared with the control group, with 25 percent in the 2-dose schedule group, 20 percent in the 2 + 1-dose schedule group, and 38 percent in the control group. A further decrease of vaccine serotype carriage was found at 18 months after 2 + 1-dose schedule and at 24 months after 2 primary doses compared with the control group.

In analysis comparing the 2-dose and 2 + 1-dose schedules, the researchers observed a significant difference in vaccine serotype carriage at 18 months with 24 percent vaccine serotype carriage in the 2-dose schedule group compared with 16 percent in the 2 + 1-dose schedule group. At 24 months, the estimates for vaccine serotype carriage in both vaccine groups were at the same level with 15 percent in the 2-dose schedule group and 14 percent in the 2 + 1-dose schedule group, compared with 36 percent in the control group.

"In conclusion, both 2-dose and 2 + 1-dose schedules of PCV-7 significantly reduce vaccine serotype pneumococcal carriage in children. This study supports future implementation of reduced-dose PCV-7 schedules," the authors write.

More information: *JAMA*. 2009;302[2]:159-167.

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