



Pneumococcal Vaccines

Keith Klugman

Department of International Health
Emory University, USA

Attempts to reduce antibiotic resistance in the community by reducing the inappropriate use of antibiotics are to be encouraged, but have not been associated to date with clear evidence of efficacy in the reduction of antibiotic resistance. On the other hand a number of studies of the impact of pneumococcal conjugate vaccine on carriage of pneumococci have documented the reduction in resistance amongst strains carried by children who had received the vaccine.^{1,2}

Recently, a large prospective clinical trial of pneumococcal conjugate vaccine has been completed in a community in which antibiotic resistance is common, namely Soweto, South Africa. The vaccine not only reduced invasive pneumococcal disease and pneumonia among vaccine recipients, but also significantly reduced antibiotic resistant invasive pneumococcal infections. These are the first data from a randomized trial to establish an impact of pneumococcal conjugate vaccines on resistance in invasive strains. The 7-valent conjugate pneumococcal vaccine has been available in the United States for the past few years. Surveillance conducted by the CDC has documented a reduction in the incidence of antimicrobial-resistant pneumococci infecting children and adults in the United States. It is likely that pneumococcal conjugate vaccine will be a powerful new tool to reduce the incidence of resistance amongst community-acquired isolates of pneumococci. The potential threat exists that antibiotic resistance genes will move into other lineages of pneumococci, not included in the conjugate vaccines. It is thus probable that introduction of the vaccine will reduce antimicrobial resistance, but it is extremely unlikely that resistance will be eliminated and the use of vaccines should be seen as an important adjunct to continued efforts to use antibiotics in a more appropriate way.

References

1. Dagan R, Melamed R, Muallem M, *et al.* Reduction of nasopharyngeal carriage of pneumococci during the second year of life by a heptavalent conjugate pneumococcal vaccine. *J Infect D.* 1996;6:1271-8.
2. Mbelle N, Huebner RE, Wasas AD, *et al.* Immunogenicity and impact on nasopharyngeal carriage of a nonavalent pneumococcal conjugate vaccine. *J Infect D.* 1999;4:1171-6.