Babies and young children with middle ear infections (acute otitis media or AOM) can be the bane of parents’ existence, leading to sleepless nights and frustration when a child is suffering. Antibiotics are typically used to treat the condition and are effective as long as the causative agent is sensitive to a particular drug or combination of them.

Dr. Ravinder Kaur and colleagues from the Rochester General Hospital Research Institute in Rochester, NY, studied the epidemiology of AOM — in particular how the prevalence of responsible bacteria had altered since the introduction of vaccines against *Streptococcus* pneumonia (Sp) in 2010: one was a 7-valent vaccine, and the other was a 13-valent vaccine. Their report [1] was published in *Pediatrics*. (1)

These investigators compared the prevalence of AOM because of 3 causative bacteria* before and after the introduction of the vaccine against Sp. They enrolled 615 children between the ages of 6 and 36 months and followed them for up to 10 years. When a child developed AOM, samples were taken of the fluid in the middle ear and analyzed for the presence of the three bacteria.

They found significant changes in the prevalence of the three pathogens over the time period studied, with Sp decreasing, as might be expected, while that of *H. influenzae* increased sharply, as shown in the graph below.
When they broke the prevalences of these bacteria down into periods before any vaccine, after the 7-valent and 13-valent vaccines, they found that the changes were significant for two of them, as shown below.
In addition to tracking the prevalences of these bacteria, the researchers also determined the most common risk factors for developing AOM. The strongest risk factor was day care attendance, followed by a family history of AOM, and non-Hispanic white race. Conversely, they found that breastfeeding was significantly associated with a decreased risk of AOM — a result that fits with other literature on this subject.

While the results of this study don’t provide any new suggestions for parents, they do indicate that vaccines can have multiple effects on common infections. It also provides useful information for care providers on which antibiotics would be most effective in treating AOM, and how such utility can change with respect to the introduction of various vaccines.


* Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis*