

Pneumococcal disease: More cases but fewer deaths

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The vaccine given to children to immunise against serious pneumococcal disease does not offer full protection, reveals research from the Sahlgrenska Academy at the University of Gothenburg, Sweden, finding that the number of cases diagnosed has tripled over the past 50 years.

Each year an estimated 1 million children worldwide die as a result of pneumococcal [disease](#). Worst affected are those in [poor countries](#), but pneumococcal bacteria cause disease and [suffering](#) in all [age groups](#) and in all countries, including Sweden.

There are currently two types of active [vaccine](#): polysaccharide vaccines, which protect against more types of [pneumococcal bacteria](#) but cannot be given to children under the age of two, and conjugated vaccines, which can be given to infants but protect against fewer types.

In his thesis, Erik Backhaus, infection specialist at Skövde Hospital and doctoral student at the University of Gothenburg's Sahlgrenska Academy, looks at all cases of serious pneumococcal disease in children and adults in the Västra Götaland region of Sweden between 1998 and 2001. His studies show that the latest conjugated vaccines theoretically offer protection against around 70% of infections. "But around 95% of infections are caused by serotypes covered by the polysaccharide vaccine," says Backhaus. "This vaccine cannot be administered to children under two years of age, which means that it cannot be used in those who need it most."

Risk of death is age-related

In the worst case, the bacteria cause serious disease from which around 10% of patients die within a month of diagnosis. Erik Backhaus shows in his thesis that the risk of dying depends partly on age and partly on underlying medical conditions, but also that the risk is higher for men than women. Interestingly there are also geographical variations: fewer serious pneumococcal infections are diagnosed in the over-80s in the Gothenburg area than in other parts of the Västra Götaland region.

"This may be due to different routines for admitting patients from nursing homes to hospital and how often blood cultures are performed," he explains.

More cases, fewer deaths

Over the past 45 years the number of cases of severe pneumococcal disease diagnosed in the Gothenburg area has tripled from 5 to 15 cases per 100,000 inhabitants per year. This is probably because many more blood cultures are performed these days, meaning that more cases are detected. Erik Backhaus' thesis shows that the risk of dying as a result of serious [pneumococcal disease](#) has fallen sharply since the 1960s, especially among children and young adults.

It is hoped that the recently introduced pneumococcal vaccination as part of the standard child immunisation programme will reduce the number of infections among both [children](#) and adults.

More information: The thesis "Invasive Pneumococcal Infections" was successfully defended at the Sahlgrenska Academy's Institute of Biomedicine on 13 January.

Provided by University of Gothenburg

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