

Flu helps spread pneumonia

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Bacteria that cause pneumonia and meningitis are only able to spread when individuals are infected with flu, says a scientist reporting at the Society for General Microbiology's Spring Conference in Harrogate. The work could have implications for the management of influenza pandemics and could help reduce incidence of pneumococcal infections in very young children, who are more susceptible to disease.

[Streptococcus pneumoniae](#) normally lives harmlessly in the nasal passage. Up to 80% of young children carry the [bacterium](#) in their nose. It is already known that if a colonized individual is infected with [influenza virus](#), the bacterium is more likely to spread to other parts of the body and may cause potentially life-threatening infections such as pneumonia, sepsis or meningitis. Young children, the elderly and the immunocompromised are most vulnerable to these secondary bacterial infections. *S. pneumoniae* kills more than one million children under the age of five each year.

Dr Dimitri Diavatopoulos from the Radboud University Nijmegen Medical Centre in The Netherlands explains how infection with the flu virus is also necessary for transmitting *S. pneumoniae* between individuals. His work has shown that in infant mice, all mice had to be infected with flu for pneumococcal bacteria to efficiently spread between them. Blocking influenza infection in these mice effectively prevented the spread of the bacterium.

Viral infection is likely to encourage the spread of pneumonia through a combination of factors, suggested Dr Diavatopoulos. "We think that the

flu virus increases the bacterial load in the nose of colonized individuals but also makes uncolonized individuals more susceptible to pneumococcal infection by altering host immunity."

Dr Diavatopoulos believes that learning how [viral infections](#) affect not only the development but also the spread of bacterial pathogens will be clinically beneficial. "If we know that the [flu virus](#) - and potentially other respiratory viruses – allows the transmission of *S. pneumoniae*, then targeting these viruses may represent a novel therapeutic strategy to reduce pneumococcal diseases," he said. "During influenza pandemic planning, when a high proportion of the population is infected with the virus, this is important. The findings are particularly relevant to childcare centres as up to 80% of children are asymptomatic carriers of *S. pneumoniae* and are more vulnerable to developing serious infections such as [pneumonia](#) or meningitis."

Provided by Society for General Microbiology

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