

# **Does prior respiratory viral infection provide cross-protection against subsequent respiratory viral infections? A systematic review and meta-analysis**

## **ABSTARCT**

The epidemiology of different respiratory viral infections is believed to be affected by prior viral infections in addition to seasonal effects. This PROSPERO-registered systematic review identified 7388 studies, of which six met our criteria to answer the question specifically. The purpose of this review was to compare the prevalence of sequential viral infections in those with previously documented positive versus negative swabs. The pooled prevalence of sequential viral infections over varying periods from 30–1000 days of follow-up was higher following a negative respiratory viral swab at 0.15 than following a positive swab at 0.08, indicating the potential protective effects of prior respiratory viral infections. However, significant heterogeneity and publication biases were noted. There is some evidence, albeit of low quality, of a possible protective effect of an initial viral infection against subsequent infections by a different virus, which is possibly due to broad, nonspecific innate immunity. Future prospective studies are needed to validate our findings.