

# Major differences in the risk of transmission in measles outbreaks

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Credit: Nicklas Sundell

Research that may come to affect contact tracing and infection control measures in future measles outbreaks has now been presented. A study of an outbreak of measles in Gothenburg, Sweden, a year ago shows large differences in the risk of transmission from one patient to another.

During the [measles outbreak](#) in Gothenburg, Sweden, 2017–18, the majority of cases (16 of 28) had 'breakthrough infections'—that is, measles in previously immunised individuals, many of them being healthcare workers.

The study concerned, published in the journal *Eurosurveillance*, shows that cases with 'breakthrough measles' had lower virus levels (a relatively low 'viral load') in the [upper respiratory tract](#), and had less cough, than measles in unvaccinated individuals. Moreover, the former did not cause any onward transmission.

"Breakthrough infections' seem to be much less contagious, and we could not identify any onward transmission from individuals with a breakthrough [infection](#)," states Nicklas Sundell, the first author of the study, a researcher at Sahlgrenska Academy and infectious disease doctor at Sahlgrenska University Hospital (SU).

A regular clinical investigation yields no reliable answer about the type of measles a person has: the breakthrough type of measles infection or the highly infectious 'naïve' ('first-time' or primary measles) type. However, the study shows that it is feasible, with routine laboratory methods, to distinguish breakthrough infections from 'naïve' infections.

According to the researchers, the results should help to rapidly identify who has which type of measles during an outbreak, thereby facilitating infection control measures by limiting contact tracing around breakthrough infections.

"To identify breakthrough infections at an early stage, we propose a fast provisional classification to support decisions on contact-tracing measures during a measles outbreak," says Associate Professor Lars-Magnus Andersson, the senior researcher behind the study, and also Senior Consultant and Head of the Department of Infection Prevention

and Control at SU.

Of 28 measles cases identified the Gothenburg [outbreak](#), 16 were breakthrough infections and 12 naïve infections. In addition, six 'vaccine infections' (caused by the vaccine itself) were also diagnosed. In the study, patient records were reviewed retrospectively and all cases of [measles](#) infection were classified as either naïve, breakthrough or vaccine infection.

Comparisons of clinical data and viral load were carried out between naïve and breakthrough infections.

**More information:** Nicklas Sundell et al. Measles outbreak in Gothenburg urban area, Sweden, 2017 to 2018: low viral load in breakthrough infections, *Eurosurveillance* (2019). [DOI: 10.2807/1560-7917.ES.2019.24.17.1900114](#)

Provided by University of Gothenburg

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