



# Covid-19: Number of Germans infected could be 10 times higher than official estimates

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The number of people in Germany infected with covid-19, could be 10 times higher than official government estimates, according to a new study by University of Bonn researchers.<sup>1</sup>

The Heinsberg study is based on an investigation in Gangelt, a town of around 13 000 people in the North Rhine-Westphalia district of Heinsberg. Following the annual carnival celebration in February, the district became the first area in Germany with a massive covid-19 outbreak.

The study, which has been uploaded to a preprint server, found that about 15% of Gangelt residents had been infected with covid-19, compared with the official infection rate at the time of only 3%. The higher infection rate for the area translated into an infection fatality rate after the coronavirus outbreak of 0.37%.

If the 0.37% fatality rate for Gangelt is applied to a “theoretical model” for Germany, the estimated number of infected would be more than 1.8 million, or about 2.2% of the population, the study’s authors calculated. They arrived at the estimate by applying Gangelt’s 0.37% fatality rate to official Robert Koch Institute (RKI) covid-19 data for 2 May.<sup>2</sup>

On 2 May the RKI reported that there were 161 703 confirmed covid-19 cases in Germany and 6575 deaths, giving a fatality rate of 4.1%. But if Gangelt’s 0.37% fatality rate is applied to the 6575 deaths, then the number of infected people would be 10 times higher at around 1.8 million.

In other findings, the study found that 22% of those infected in Gangelt were asymptomatic and that loss of smell and taste were the most striking symptoms of the infection.

The research team, lead by Hendrik Streeck, director of the Institute for Virology at University Hospital Bonn, and Gunther Hartmann, director of the Institute for Clinical Chemistry and Clinical Pharmacology at University Hospital Bonn, randomly selected 600 households in Gangelt and wrote letters asking them to participate in the study.

Some 919 people from 405 households were interviewed and tested from 30 March until 6 April. Researchers took throat

swabs and performed both polymerase chain reaction (PCR) and enzyme linked immunosorbent assay (ELISA) tests.

“By combining PCR and ELISA tests we are able to detect acute as well as elapsed infections,” Hartmann said, adding, “The results can be used to improve further models on the transmission behaviour of the virus. Until now, basis for such data has been relatively uncertain.”

The study’s analysis of multiperson households showed that the risk of infecting another person was low and that there is no significant difference between sex. The infection rate in children, adults, and the elderly was similar and apparently not dependent on age.

Hartmann told *The BMJ* that he considered five findings from the study important for decision making authorities:

That 30% of those infected had no or one symptom, meaning that social distancing should not be based on symptoms

The fact that virus transmission within households is relatively low

That the infection appeared to be worse if the virus was acquired at gatherings, such as sporting events, where people are in close contact

That there is no difference in infection risk between age groups (except for children where it is lower, but not significantly) or in people with different underlying diseases

That even people who are asymptomatic develop antibody titres and have similar immunity to those with symptoms.

- 1 Infection fatality rate of SARS-CoV-2 infection in a German community with a super spreading event. [www.ukbonn.de/C12582D3002FD21D/vwLookupDownloads/Streeck\\_et\\_al\\_infection\\_fatality\\_rate\\_of\\_SARS\\_CoV\\_2\\_infection2.pdf/%24FILE/Streeck\\_et\\_al\\_infection\\_fatality\\_rate\\_of\\_SARS\\_CoV\\_2\\_infection2.pdf](http://www.ukbonn.de/C12582D3002FD21D/vwLookupDownloads/Streeck_et_al_infection_fatality_rate_of_SARS_CoV_2_infection2.pdf/%24FILE/Streeck_et_al_infection_fatality_rate_of_SARS_CoV_2_infection2.pdf).
- 2 RKI daily covid-19 reports. [www.rki.de/DE/Content/InfAZ/N/Neuartiges\\_Coronavirus/Situationsberichte/Archiv.html](http://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Situationsberichte/Archiv.html).

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