

# Flu-COVID-19: European Researchers Say Flu Contributes To Increased Spread Of COVID-19

**Flu-COVID-19:** German researchers from the Max Planck Institute for Infection Biology in Berlin and French scientists from the Institut Pasteur in Paris used a mathematical model to study the first months of the COVID-19 pandemic in Europe. They found that the decrease of COVID-19 cases in spring was not only related to countermeasures but more importantly due to the end of the flu season. Influenza may have increased transmission of the SARS-CoV-2 coronavirus by an average of 2.5-fold.



The study findings suggest that the coming flu epidemic will have an amplifying impact on the COVID-19 pandemic.

The study results were published on a preprint server and have yet to be peer-reviewed. <https://analytics.google.com/analytics/web/#/realtime/rt-location/a124638666w189367924p185762462/>

The study team also emphasizes the potential importance of flu vaccinations as a possible extra protection against COVID-19.

Studies, findings and data from earlier research led the study team to the mathematician Matthieu Domenech de Cellès to investigate the effects of a co-infection with coronavirus and flu.

The well-known French mathematician focuses on the effectiveness of vaccination programs and the seasonality of infectious diseases such as influenza.

Initially, when the first COVID-19 cases occurred in Europe at the beginning of the year, he wanted to apply his knowledge in epidemiological models to the new pandemic. Together with researchers from Paris and Lyon, he developed a mathematical model of coronavirus transmission and mortality to decipher the influence of the flu season on the COVID-19 pandemic.

The study team modeled the course of the pandemic in Belgium, Norway, Italy and Spain. Four European countries in which the pandemic was differently pronounced during the first half of the year. To approach the real infection events, the model was based on known disease parameters like the "generation interval," i.e. the time needed for an infected person to infect another person.

The team also took non-pharmaceutical countermeasures into account, since lockdowns and social distancing had an extensive impact on the pandemic. This was measured by the so-called Stringency Index, a value developed by Oxford University, which indicates the "strictness" of government anti-coronavirus measures.

Upon recreating the pandemic mathematically, the study team was able to test various assumptions about the impact of the flu season.

The team checked if the model was more realistic under the assumption that influenza either reduces increases or does not influence the transmission rate of coronavirus.

Significantly, the study team showed that influenza may have increased coronavirus transmission at the population level by 2 to 2.5 times, on average during the period of co-circulation.

The team checked their model against data on daily deaths in the four countries. This enabled them to demonstrate that their model is consistent with the observed

and pandemic mortality data. Without the amplifying impact of influenza, the model explained the observed data substantially less well—with significantly lower COVID-19 infection rates.

However it remains open whether influenza patients are more likely to transmit coronavirus to others or whether flu makes people more susceptible to corona—though the latter seems more probable according to the researchers.

There are other studies recently that showed that flu viruses may increase susceptibility to COVID-19 in patients: Influenza viruses cause a higher production of the receptors that are used by the coronavirus to dock to human respiratory cells.

The study findings have consequential implications ie vaccinating against influenza may be essential in the coming flu season. Not only to relieve hospitals, but also to contain the potential effect of influenza on the transmission of coronavirus.

This has already been emphasized by health professionals and numerous researchers alike and it is something that especially the vulnerable groups like the old, young and those with existing comorbidities should not avoid or delay.