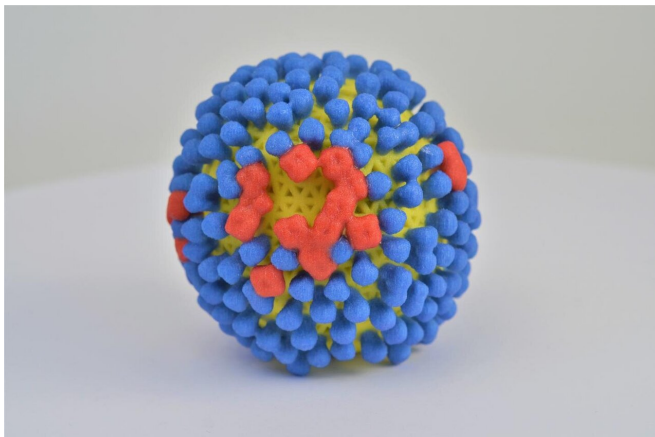


COVID-19 causes more severe disease than seasonal influenza: comparison of data from over 130,000 hospitalized patients

18 December 2020



Influenza viruses, like the model shown here, display several kinds of surface proteins on their exteriors.
Credit: NIAID

Nearly twice as many people were admitted to hospital for COVID-19 at the height of the pandemic than were for influenza at the peak of the 2018/2019 flu season, a study of French national data published today in *The Lancet Respiratory Medicine* journal has found (COVID-19, 89,530 patients vs influenza, 45,819 patients).

The study compared data from COVID-19 patients admitted to hospital over a two-month period in spring 2020 with [influenza](#) patients admitted over a three-month period during the seasonal flu outbreak of 2018/2019.

Researchers found that the death rate among COVID-19 patients were almost three times higher (number of deaths: COVID-19 15,104/89,530 [16.9%] vs influenza 2640/45,819 [5.8%]). In addition, a greater proportion of COVID-19 patients experienced a [severe illness](#) requiring intensive

care than those with influenza (number admitted to ICU: COVID-19, 14,585/89,530 [16.3%] vs influenza, 4926/45,819 [10.8%]).

The authors note that the difference in hospitalization rate may be partly due to existing immunity to influenza in the population, either as a result of previous infection or vaccination. In contrast, COVID-19 is a new virus where very few people would be expected to have any previous immunity. Nevertheless, they say their findings reinforce the importance of measures to prevent the spread of both diseases and are particularly relevant as several countries prepare for the COVID-19 pandemic to overlap with outbreaks of seasonal influenza.

Professor Catherine Quantin, from the University hospital of Dijon and from L'Institut National de la Santé et de la Recherche Médicale (Inserm), France, who jointly led the study, said: "Our study is the largest to date to compare the two diseases and confirms that COVID-19 is far more serious than the flu. The finding that the COVID-19 death rate was three times higher than for seasonal influenza is particularly striking when reminded that the 2018/2019 [flu season](#) had been the worst in the past five years in France in terms of number of deaths."

The study is based on data from the French national administrative database (Programme de Médicalisation des Systèmes d'Information, PMSI). This database includes details for all patients admitted to either public or private hospitals in France, including information about why they were admitted and the care they received during their stay. The researchers compared hospital admissions with COVID-19 between 1 March and 30 April 2020 with seasonal flu hospital admissions between 1 December 2018—28 February 2019.

Overall, disease was more severe for patients with COVID-19 compared with seasonal influenza. Patients with COVID-19 were twice as likely as flu patients to require invasive mechanical ventilation during their hospital treatment (number of patients: COVID-19, 8,684/89,530 [9.7%] vs influenza, 1,833/45,819 [4.0%]). In addition, the average length of stay for COVID-19 patients in intensive care was nearly twice as long as for seasonal influenza patients (mean length of ICU stay: COVID-19, 15 days vs influenza, 8 days).

More than one in four patients with COVID-19 experienced acute respiratory failure, where the lungs are unable to get oxygen into the body, compared with less than one in five patients with influenza (number of patients: COVID-19, 24,317/89,530 [27.2%] vs influenza 7977/45,819 [17.4%]).

In line with previous reports, the most common underlying medical conditions among patients admitted with COVID-19 were [high blood pressure](#) 29,622/89,530 [33.1%], being overweight or obese (10,116/89,530 [11.3%]) and diabetes (17,050/89,530 [19.0%]).

Dr. Pascale Tubert-Bitter, research director at L'Institut National de la Santé et de la Recherche Médicale (Inserm) and from the University Paris-Saclay, France, who jointly led the study, said: "Taken together, our findings clearly indicate that COVID-19 is much more serious than seasonal influenza. At a time when no treatment has been shown to be effective at preventing severe disease in COVID-19 patients, this study highlights the importance of all measures of physical prevention and underlines the importance of effective vaccines."

The researchers observed that fewer children aged under 18 years were hospitalised with COVID-19, compared to flu (1227/89,530 [1.4%] vs influenza 8942/45,819 [19.5%]). However, among those aged under 5 years, a larger proportion of COVID-19 patients required [intensive care](#) support than did those with influenza (14 [2.3%] of 613 vs 65 [0.9%] of 6973). The case fatality rate in the COVID-19 group was not higher than for influenza in this age group and remained very low (number of deaths

COVID-19: 3/613 [0.5%] vs influenza: 13/6973 [0.2%]).

In patients aged 11-17 years, the death rate appeared to be ten times higher in those admitted with COVID-19 compared with those admitted with flu, however the authors caution that the numbers are too small to draw meaningful conclusions (number of deaths COVID-19 5/548 [1.1%] vs 1/804 [0.1%]).

The authors note several limitations to their study. Notably, testing practices for influenza are likely to have been variable across hospitals whereas testing for COVID-19 may have been more standardised. This may account for some of the increased numbers of [patients](#) admitted to hospital with COVID-19 compared with seasonal influenza. Additionally, it is not possible to say whether the 2018/2019 flu season is representative of all seasonal influenzas, although the authors note that it was the most severe season in the past 5 years in France.

Writing in a linked Comment, Dr. Eskild Petersen, who was not involved in the study, from the University of Aarhus, Denmark, said: "The large sample size is an important strength of the study and it is assumed that the indication for [hospital](#) admission in the two periods were the same and thus does not bias the results. The results clearly demonstrate that COVID-19 was more serious than seasonal influenza."

More information: Comparison of the characteristics, morbidity, and mortality of COVID-19 and seasonal influenza: a nationwide, population-based retrospective cohort study, *The Lancet Respiratory Medicine*, DOI: [10.1016/S2213-2600\(20\)30527-0](https://doi.org/10.1016/S2213-2600(20)30527-0) , www.thelancet.com/journals/lanres/article/202005270305270/fulltext

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