

# Fears of Catching COVID-19 in a Hospital Likely Unfounded

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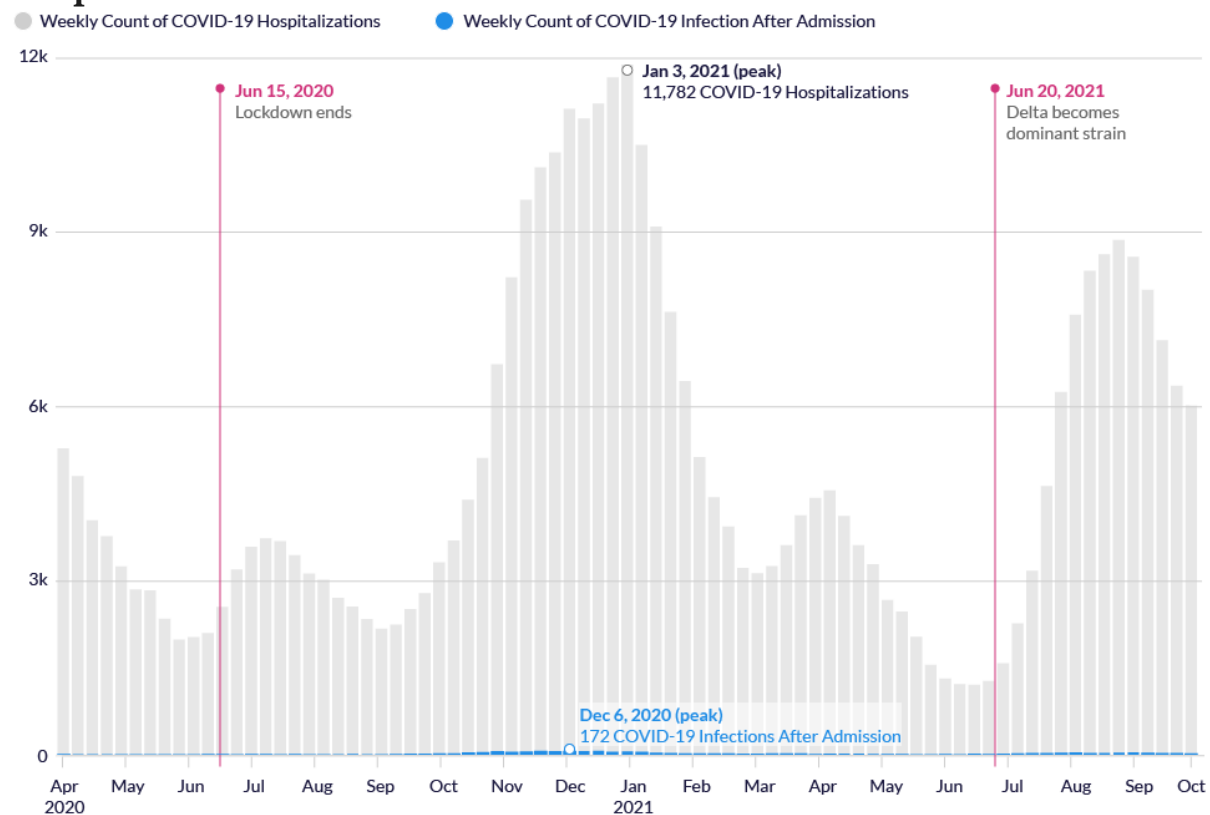
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*Abstract: Hospital-developed COVID-19 rates remain low and are decreasing.*

Throughout the pandemic, some people have been reluctant to go to the hospital or ED due to concerns about contracting COVID.<sup>1</sup> We wanted to investigate the frequency with which patients developed COVID-19 while hospitalized. As a proxy for this, we looked at patients who tested negative on the day of or day after admission and then tested positive six or more days later.<sup>2</sup> We chose this timeframe to try to exclude patients who might have been positive on admission but tested negative at that time due to a lower viral load.

Throughout this brief, we refer to cases that meet these inclusion criteria as cases of “hospital-developed COVID.” We excluded positive COVID-19 tests or COVID-19 diagnoses within 90 days prior to admission. Our data show that rates of acquiring COVID-19 during a hospital stay are low, with only about 1.8% of patients, equating to 172 patients at the highest peak in December 2020.

## Weekly Rates of Hospital-Developed COVID Compared to Total COVID-19 Hospitalizations



"Weekly Rates of Hospital-Developed COVID Compared to Total COVID-19 Hospitalizations," 2022. Epic Research (EpicResearch.org)

Figure 1. Rates of COVID-19 positive tests for admitted patients who tested negative at admission. The gray

When we looked at the data over time, we found that these cases of COVID-19 rose and fell in similar patterns to the number of patients admitted due to COVID-19 infection. However, in the last half of 2021, the rate of patients who tested negative and then positive after admission rose only about half as much as overall COVID-19 admissions. We speculate that increased vaccination rates among hospital staff, patients, and visitors have contributed to a further limiting of the spread of COVID-19.

Our proxy for hospital developed COVID-19 might be an overcount because the test at admission might have been a false negative. It might also be an undercount because some patients might have been discharged before they tested positive for COVID-19 that they contracted during their hospitalization.

*These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 126 million patients from 156 Epic organizations including 889 hospitals and 19,420 clinics, serving patients in all 50 states. This study was completed by two teams, each composed of a clinician and research scientists who worked independently. The two teams came to similar conclusions.*

## References

1. Krumholz, H M. Where Have All the Heart Attacks Gone? The New York Times. April 6, 2020. Accessed: January 24, 2022. <https://www.nytimes.com/2020/04/06/well/live/coronavirus-doctors-hospitals-emergency-care-heart-attack-stroke.html>
2. SA Lauer, KH Grantz, Q Bi, FK Jones, et al. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. Annals of Internal Medicine. May 5, 2020. doi: [/10.7326/M20-0504](https://doi.org/10.7326/M20-0504)

## Data Definitions

Term	Definition
<b>Study period</b>	The study period includes admissions started between March 1, 2020 and October 9, 2021. Home health admissions were excluded.
<b>PCR-based SARS CoV-2 test</b>	A final result for one of the lab tests for SARS-CoV-2, with a lab value that could be interpreted definitively as Positive or Negative. LOINC codes include: 943068, 943076, 943084, 943092, 943100, 943118, 943126, 943134, 943142, 943159, 943167, 945006, 945022, 945097, 945105, 945113, 945311, 945329, 945337, 945345, 945584, 945592, 945659, 946392, 946400, 946418, 946426, 946434, 946442, 946459, 946467, 946475, 946608, 947457, 947465, 947564, 947572, 947580, 947598, 947606, 947630, 947648, 947655, 947663, 947671, 948190, 948224, 948455, 952093, 954065, 954099, 954248, 954255, 955211, 955229, 956086, 956094, 958231, 958249, 958264, 959700, 959718, 959726, 959734, 959742, 960914, 960948, 961193, 961201, 961219, 961227, 961235, 964486, 967414, 967513, 967521.
<b>COVID-19 Admission</b>	A hospital admission in which the patient tested positive for COVID-19 at the time they were admitted.