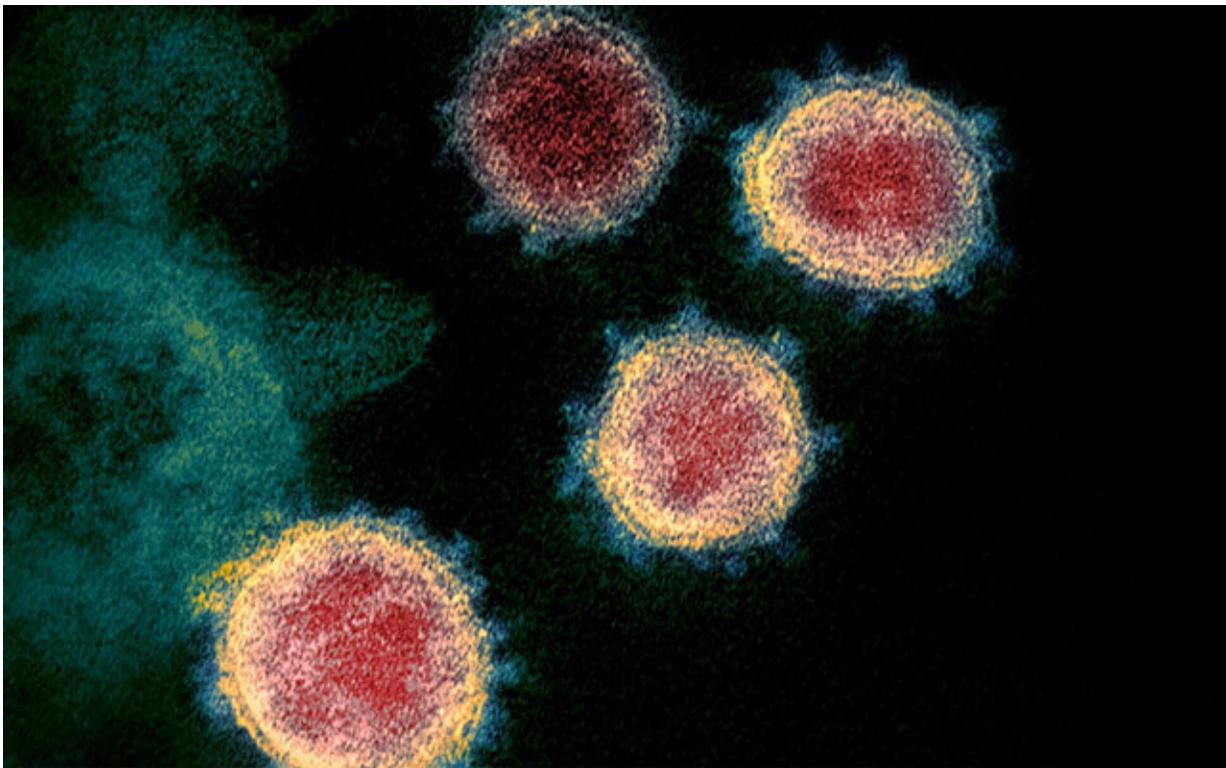


Analysis shows high level of SARS-CoV-2 contamination in patient toilets, staff and public areas in hospitals

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A colorized scanning electron micrograph of the SARS-CoV-2 virus. Credit: NIAID

A systematic review of evidence being presented at this week's ESCMID Conference on Coronavirus Disease shows that air around patients with

COVID-19, as well as patients toilets, and staff and public areas in hospitals are all show significant levels of contamination with SARS-CoV-2. The study is by Dr. Gabriel Birgand, University Hospital Centre Nantes, France, and colleagues.

Controversy remains worldwide regarding the transmission mode of SARS-CoV-2 virus in [hospital](#) settings. In this study, the authors reviewed the current evidence on the air contamination with SARS-CoV-2 in hospital settings, the [viral load](#) and the [particle size](#), and the factors associated to the contamination.

The authors searched the MEDLINE, Embase, Web of Science databases for original English-language articles detailing COVID-19 air contamination in hospital settings between 1 December 2019 and 21 July 2020.

The positivity rate of SARS-CoV-2 viral RNA and culture were described and compared according to the setting, clinical context, air ventilation system, and distance from patient. The SARS-CoV-2 RNA concentrations in copies per m³ of air were pooled and their distribution were described by hospital areas.

Among 2,034 records identified, 17 articles were deemed eligible and included in the review. Overall, 27.5% (68/247) of air sampled from close patients' environment were positive for SARS-CoV-2 RNA, with no difference between settings (ICU: 27/97, 27.8%; non-ICU: 41/150, 27.3%). Just 1/67 (1.5%) of samples in the air less than 1 metre from the patient tested positive for SARS-CoV-2, and just 4/67 (6%) of samples 1-5 metres away. (see results in abstract and poster)

In other areas, the positivity rate was 23.8% (5/21) in patient toilets, 9.5% (20/221) in clinical areas, 12.4% (15/121) in staff areas, and 34.1% (14/41) in public areas (see table in abstract). A total of 78 viral

cultures were performed, and 3 (4%) were positives (meaning the virus was viable and capable of reproduction), all from close patients' environment (3/39, 7.7%) in non-ICU settings.

The median SARS-CoV-2 RNA concentrations were found to be 10 times higher in patient toilets than in the patients' rooms.

The authors conclude: "In hospital, the air near COVID-19 patients is frequently contaminated with SARS-CoV-2 RNA, with however, poor proof of its infectivity—meaning we detected the viral RNA, but when trying to culture (grow) these samples, there was little evidence of viable virus. High viral loads found in toilet/bathrooms, staff and public hallways means these areas require strong compliance with cleaning measures and personal protective equipment."

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