

SYNOPSIS

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(ARCHIVED) 2019-nCoV - What We Know So Far About...Bloodborne Transmission

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Preamble

“What We Know So Far About...” documents are intended to provide a brief overview of some of the published and unpublished reports related to emerging issues with respect to the 2019 Novel Coronavirus (2019-nCoV). The reports are found through ongoing scanning of the published literature and scientific listservs (e.g., [ProMED](#), [CIDRAP](#), [Johns Hopkins Situation Reports](#)), as well as media reports. It is recognized that there may be additional information not captured in this document. As this is a rapidly evolving outbreak, the information will only be current as of the date the document was written. Should you want to provide any additional information or have any questions, please contact cd@oahpp.ca.

Background

Among humans, coronaviruses are transmitted most readily through respiratory droplets produced when an infected individual coughs or sneezes and possibly through fomites (inanimate objects, including surfaces or objects contaminated with infectious droplets) [1].

What We Know So Far about Bloodborne Transmission

- To date, there has been no evidence in the peer-reviewed literature to suggest that 2019-nCoV can be spread through bloodborne routes of transmission; however, the detection of 2019-nCoV RNA in plasma and serum in a few patients (see below) suggests there is potential for the virus to be present in the blood and thus raises the theoretical possibility of bloodborne transmission.
- The current outbreak of 2019-nCoV is rapidly evolving and as such, the body of evidence on the epidemiology of the virus, including transmission routes, continues to grow.

Studies

- One [study](#) [2] isolated 2019-nCoV RNA from plasma samples in 6/41 (15%) of the initial patients infected, which the authors termed “RNAemia,” as the RNA was not isolated from whole blood.
- One [study](#) [3] collected respiratory samples during admission of seven patients within seven to 18 days of symptom onset and convalescent respiratory and blood samples from five patients 11 days after their initial specimens. There was no RNA detected in the five convalescent blood specimens or in any of the respiratory specimens; therefore, even if RNA was in the blood at the time of illness (which was not measured), it was no longer detected at the same time as respiratory specimen clearance.
- One [study](#) [4] of a family cluster found one out of five family members who were positive on nasopharyngeal swab was also positive for 2019-nCoV RNA in a serum sample. This individual was the most severely ill of the five patients.

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References

1. Schneider E, Bermingham A, Pebody R, Watson JM. SARS, MERS, and other coronavirus infections. In: Heymann, DL. editor. Control of communicable diseases manual. 20th ed. Washington, DC: American Public Health Association; Washington, DC; 2016.
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. Available from: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30183-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30183-5/fulltext).
3. Zhou P, Yang X, Wang X, Hu B, Zhang L, Zhang W et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin, Nature. 2020 02/03 [Epub ahead of print]. Available from: <https://doi.org/10.1038/s41586-020-2012-7>.
4. Chan JFW, Yuan S, Kok KH, To KKW, Chu H, Yang J et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission a study of a family cluster. Available from: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30154-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30154-9/fulltext).

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