

Asymptomatic Transmission of SARS-CoV-2 • 2

Key Messages from the Evidence Summary

1. Evidence thus far has not adequately defined or assessed "asymptomatic" individuals who test positive for SARS-CoV-2 by RT-PCR, making much of the current data unreliable. A single positive RT-PCR without current symptoms could be classified as 1) Presymptomatic, 2) Asymptomatic (or paucisymptomatic), or 3) Positive after infection (regardless of symptoms) or rarely, a false positive result (which cannot transmit infection.) Transmission might occur from only the first two types of individuals (pre and asymptomatic infected persons).

- Interpretation of existing data (including that used in modeling studies) is clouded by a lack of clarity in 1) definition of "asymptomatic" (whether defined by Influenza Like Illness screening (absence of cough and fever) or a more comprehensive symptom list was used) and 2) lack of reporting of symptoms for 4 weeks prior to, and 2 weeks after the test
- There is evolving data on viral kinetics in asymptomatic, pre-symptomatic, and paucisymptomatic SARS-CoV-2 infection. One series documented higher viral loads (by 60 fold) and a longer time to RT-PCR clearance in patients with severe illness, and a median of 24d to become RT-PCR negative (with 32.1% still positive at 1 month post onset). Importantly, other studies have shown that SARS-CoV-2 RT-PCR can remain positive for 4 weeks in patients with milder outpatient managed COVID-19 as well.
- Therefore a RT-PCR positive result in a currently asymptomatic person is of unclear significance and RT-PCR positive status cannot be used to infer potentially infectious status.

2. Studies suggest that levels of SARS-CoV-2 can be high by RT-PCR and detected by virus cultivation early in infection, prior to symptom onset, with replication in upper respiratory (nasal lining) and respiratory cells. This is distinct from SARS-CoV and would support the potential importance of presymptomatic transmission. Two publications demonstrate a lack of viable virus detected after day 8 of symptoms, with another suggesting a possible longer duration of shedding of viable virus in severe illness.

In addition, the RT-PCR CT (threshold cycle) value may eventually become useful as a proxy for cultivatable virus - one source suggested <24 is associated with cultivatable virus. However development of validated methodologies to use SARS-CoV-2 CT as a quantification assay would be required.

3. To define the role of asymptomatic transmission, processes to rule out post infectious and presymptomatic RT-PCR positive states are required, as the proportion of people with truly asymptomatic infection cannot be accurately inferred from studies that report "asymptomatic" status at the time of testing. Prevalence studies carried out after epidemics in high risk closed populations are potentially more likely to include post infection RT-PCR positives, and overestimate the proportion of people who may transmit infection.

To establish asymptomatic SARS-CoV-2 infection:

- Post symptomatic PCR positivity should be ruled out by documentation of a negative 4 week symptom history and potentially with concurrent serologic testing, where available, for the presence of SARS-CoV-2 antibodies. Current evidence suggests that a positive PCR with positive antibody test would suggest past infection and low likelihood of current transmission potential.
- Presymptomatic PCR positivity should be ruled out by documenting absence of compatible symptoms over a 14 day period from test collection.
- If an asymptomatic person who is RT-PCR positive is seronegative, documentation of seroconversion at 3-4 weeks after the initial test should be considered.

4. The best individual studies of the true asymptomatic proportion in high risk populations suggest a range of 15 to 20%, in studies of individuals who were close contacts isolated in centralized quarantine facilities. Similarly, a well conducted RT-PCR and serology based study of US service members aboard an aircraft carrier reported an asymptomatic proportion of 18.9%, raising the possibility that younger

This is Exhibit "J" referred to in the Affidavit of:

David Thomas Dickson

Sworn before me this

18th day of October, 2021

Redacted _____

Commissioner for Oaths, Justice of the Peace,

or Notary Public in and for Alberta
in and for the Province of Alberta

Redacted _____
A Commissioner for Oaths
whose commission expires 22/07/22