

Sullivan, Michelle A HLTH:EX

From: Krajden, Mel [BCCDC] <Mel.Krajden@bccdc.ca>
Sent: September 15, 2020 6:38 PM
To: s.22
Cc: Henry, Bonnie HLTH:EX; Hoang, Linda [BCCDC]; Ashton.MLA, Dan LASS:EX; Dix.MLA, Adrian LASS:EX
Subject: RE: Covid testing question

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Dear s.22

I would like to reply to your question related to the New York Times article with regard to the cycle threshold number used to diagnose COVID-19. Although these may vary based on the test used we typically use a cutoff of 35 cycles and simultaneously detect two targets (the RDRP and E gene) and certain assays use cutoffs of 40 or even more cycles.

As you are aware the cycle threshold represents how many rounds of amplification are required to detect COVID-19 RNA in a sample. More cycles mean less copies of virus in the sample hence there are concerns about being overly sensitive.

However, this is a very complex issue. There is good evidence that when more than 24 to 30 cycles are required to detect virus the virus concentration is so low that it becomes difficult to cultivate the virus. However the cells used in the laboratory to cultivate the virus aren't equivalent to the cells in the nasopharynx or the lungs in people. So just because one can't culture the virus in a laboratory that does not mean that it won't transmit. Many, including myself, believe that with low copy numbers (high CT) values the virus is not likely to be transmitted.

But it is also important to understand that it is not that the test sensitivity is being inflated, rather having a very sensitive test helps address missing infected people because of poorly collected samples (collecting adequate samples is difficult, and samples such as saliva typically have less virus especially in outpatients).

In the literature and first hand we have seen a number of cases COVID-19 in British Columbians where the person is early on during their infection course and the initial sample had a very high CT value ~35 (low virus RNA concentration) and the next day the CT was ~14 (high virus RNA concentration). Setting the detection threshold to low seems appealing until one misses that early case that can transmit infections to multiple people.

Not test is perfect, and testing nuances are difficult to explain in newspapers.

Hope this info is helpful.

Mel

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From: s.22

To: "Dan Ashton MLA" <Dan.Ashton.MLA@leg.bc.ca>, "adrian dix MLA" <adrian.dix.MLA@leg.bc.ca>, "HLTH Minister" <HLTH.Minister@gov.bc.ca>

Sent: Friday, September 11, 2020 2:50:40 PM

Subject: Covid testing question

Dear Mr. Ashton and Minister Dix,

I'm trying to find more details on some COVID testing in BC generally, but also in Okanagan in particular, and wonder if you could help me.

The question is how many cycles do BC PCR tests use for identifying viral components?

This is in light of the revelation that if PCR tests use too many cycles, they may inflate positive counts, as described in this New York Times article: <https://www.nytimes.com/2020/08/29/health/coronavirus-testing.html>

Ideally, we would have detailed health statistics showing how many cycle thresholds were used for every test we report, but I cannot find that information either.

Any thoughts you can share would be greatly appreciated.

Thank you,

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