

EMAIL TO NHAIS LISTSERV FROM LORI FISHER, ASSISTANT STATE LIBRARIAN

Subject: REALM question - viral load & objects

Date: 9/9/2020

Hi,

I've copied the response (below) received last night from the OCLC project director for REALM regarding a question of the viral load on surfaces during their testing protocols...a number of you will find this interesting and informative, and I will include this as a discussion point on the Director's call tomorrow to see if there are further questions that I can pose to the REALM project team. The two main points I took away from this response:

1. We do not know yet how much COVID-19 virus creates an infection in a human.
2. The testing method for the REALM project tracks live virus, not inactive virus.

Looks like there is still a lot of scientific study to go before we fully understand COVID-19. As I've stated previously, each library has to assess their own risk and determine policies and procedures that are best for their staff and community. That is what we have done here at NHSL regarding ILL and the requirement to quarantine materials for 72 hours prior to pick up by our van drivers – this is our risk assessment based on our employees, knowing that ILL is a statewide service that deals with varying levels of COVID in NH communities, and the information available from the REALM project.

Dear Lori,

In response to your question to REALM:

I've had a trustee and a handful of librarians reach out to me with a variation of this question, given the latest 4th round of test results: what is the definition for "recoverable virus" that is mentioned in the REALM report? We know that there are distinct differences between the levels of transmissivity of various samples of the virus. In some cases, the virus may have degraded and there is enough RNA to identify the sample as COVID but it is so weak that it is not a substantive threat. The report did not seem to address this issue- ie. is the virus that was recovered on day 5 or 6 as strong and virulent as that which was placed on the item at the beginning of the study? Thank you for any reply you can send that I can then share with our NH library community. If possible, I'd like to hear back by next Thursday 9/10, since that is when we have a statewide Director's Webex call.

The lab tests are tracking the amount of viable virus on the items at each time point examined; i.e., virus that is capable of infection. The testing method involves the lab scientists taking virus found on the material and mixing it into a cell culture and sees whether the virus kills the cells. They do this at each of the designated time points for the study. Once there are fewer than 13.1 virus particles quantified through that method, it is described as "below the level of quantitation (LOQ)." Below that threshold, the researchers look at the materials under a microscope and note simply the presence or absence of virus for the remaining timepoints tested and assign a placeholder number to indicate there is more than 0 particles. When they do not see anything left, it is considered no longer detectable (below the level of detection, or LOD). There is another form of lab research that only detects ***presence*** of the virus – which can include inactive RNA. That is not the type of study that is being conducted in the

REALM project. This [Forbes article](#) explains the difference between the two types of testing; Battelle is using the method recommended by the virologist quoted in the article.

However, the amount of virus needed to infect someone is not yet known; nor how much virus is in a typical sneeze, or how likely that someone will get infected if they touch a material that has been contaminated and then, say, touch their face or mouth. Because the infectious dose in humans remains unknown, it is not yet possible to form a definitive answer whether the amount of virus surviving on a surface is "safe" or "unsafe." We could look at this in the context of other coronaviruses (SARS or MERS), which have an infectious dose around 100 to 1000 particles; or, COVID-19 could be similar to the flu, which is infectious around 10 particles. We simply don't know yet.

Some scientists are drawing conclusions from studies of other viruses and/or feel that the lack of documented cases that definitively trace a reported COVID-19 case back to an object as the source of transmission is enough evidence to assert that the likelihood of transmission via an object is not happening with COVID-19. Others may be less ready to dismiss the risk without more definitive proof. Battelle is finishing up a review of the scientific literature that we expect to publish in early October – we're alert to any updated information about the amount of infectious virus shed by people and the possibility of transmission via objects and surfaces.

With kind regards,
Sharon Streams
OCLC Project Director, REALM

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