

## RESPONSE TO SCIENTIFIC/TECHNICAL REQUEST

# Evidence for quarantine period for paper products

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### Background

COVID-19 has been observed to persist on various surfaces for days in controlled experimental conditions. The potential for survival on paper, and subsequent potential for viral transmission, has been raised as a concern.

### Request and Scope

Wellington-Dufferin-Guelph Public Health is inquiring about whether there is any new evidence or guidance to support how paper items should be handled in schools/libraries during COVID-19.

Specifically:

- Is there any evidence to support the requirement to “remove all items that cannot be cleaned (paper, books, etc.) and store them in a sealed container for a minimum of 7 days”?
- Is there a distinction to be drawn between scenarios where an individual is suspected of having COVID-19, vs. scenarios with ‘baseline risk’ (i.e. risk based on background levels of COVID-19 in the community)?

### Key Findings

- Although transmission of COVID-19 through touching of contaminated surfaces (known as fomites) such as books (paper, etc.) is possible (based on viral survival data from experimental studies), there is currently limited<sup>1</sup> evidence to assess the degree to which fomite transmission occurs. It is not considered the predominant mode of transmission.
- While various organizations have suggested books/paper materials be quarantined in a dedicated space prior to handling (e.g., 24 to 72 hours), there is a lack of evidence on the effectiveness of these measures to mitigate COVID-19 transmission, or to support a specific duration of quarantine (or to suggest it is necessary at all).

## Methodology

A rapid review of the literature was executed using LitCovid (a literature hub for articles related to COVID-19 indexed on PubMed) and Google Scholar to identify scholarly articles that addressed COVID-19/SARS-CoV-2 in terms of the questions above. Emphasis was given to peer-reviewed articles that directly discussed COVID-19/SARS-CoV-2 in terms of its survivability on surfaces, effective prevention and decontamination measures, and how the virus could spread through fomites. References of included papers were checked for other relevant papers.

## Considerations

- [Current evidence](#)<sup>1</sup> indicates that COVID-19 is primarily transmitted by close contact with respiratory droplets from infected individuals.
- In experimental studies, looking at survival on different surfaces showed COVID-19 was undetectable after ~3 hours on printing paper<sup>2</sup>, ~2 days on cardboard<sup>3</sup>, ~4 days on glass<sup>2,4</sup>, ~4<sup>3</sup> to ~7<sup>2</sup> days on plastic, and ~4<sup>3,4</sup> to ~7<sup>2</sup> days on stainless steel.
- It should be noted that these studies were laboratory studies that used a high concentration of virus particles (inoculum) on a small surface and thus may not necessarily represent levels of virus deposition in real-life situations by an infected individual (i.e., may suggest an exaggerated risk of fomite transmission).<sup>5</sup>
- Fomite transmission is therefore possible, but there is little empirical [evidence](#)<sup>1,5</sup> demonstrating actual disease transmission via this route. The WHO explains this may be due to the difficulty of distinguishing between respiratory and fomite transmission.<sup>6</sup>
- A comprehensive review of the evidence on transmission of COVID-19 concludes that “on the basis of currently available data, we suspect that the levels of viral RNA or live virus transiently remaining on surfaces are unlikely to cause infection, especially outside of settings with known active cases”.<sup>7</sup>
- To date, the infectious dose of this virus for humans remains unknown for all routes of exposure.
- Some guidelines in Canada have suggested books and materials be left in a dedicated space for [24](#)<sup>8</sup> to [72](#)<sup>9</sup> hours in order to reduce the risk from potential contamination. The Ontario Ministry of Education uses a period of 7 days where the materials are suspected to be contaminated by an infected individual.<sup>10</sup>
- These time frames are not health based, in that currently there is very limited [evidence](#) to assess the degree of transmission through shared surfaces, and the effectiveness of these quarantine periods for reducing transmission is not known. Any recommendation for the length of “quarantine” of library materials is based on the assumption that transmission via this route may possibly occur.<sup>1</sup>
- Additional research into how long the virus remains infectious on surfaces, and the virus’ infectious dose (i.e., the minimum viral load that results in infection) is needed to establish if and to what degree attenuation and decontamination is necessary to significantly reduce the

risk of transmission via this route. Such research could be used to better inform guidelines for establishing a “quarantine period”.

- A variety of protective measures could be implemented to reduce the risk of transmission of COVID-19 in the context of school/library materials. This may include [cleaning and disinfection](#)<sup>11</sup> of non-porous library materials (e.g., plastic protective book covers and DVD/CD cases) and frequent hand washing (e.g., before and after handling returned materials). Wearing a mask may reduce hand-mouth contact. As paper based items are difficult to disinfect compared to non-porous/non-textured items (e.g. digital tools such as DVD, CD), these latter items could be considered in some situations where available and appropriate.

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