

Testing high-touch surfaces in grocery stores for COVID-19

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Testing flow for SARS-CoV-2 virus on high-touch grocery surfaces. Author provided.

As the COVID-19 pandemic wears on, and [the virus continues to circulate](#), the [transmission risks](#) of everyday interactions may become an ongoing concern.

A recent study at the University of Guelph looked at [the risk of COVID-19 exposure from high-touch surfaces within grocery stores](#), and found that the risk is low if physical distancing guidelines and recommended cleaning protocols are followed.

SARS-CoV-2 primarily spreads through [direct personal contact](#),

[respiratory droplets and bodily fluids](#). Recent evidence suggests that [indirect transmission](#), that is, becoming infected by touching inanimate objects or surfaces (fomites) that have come into contact with the virus and then touching eyes, nose or mouth, is low but feasible.

When lockdown and quarantine protocols restricted activities, concerns about transmission were channeled towards the spaces that the public could still visit, such as retail food stores. In these settings, there were concerns about the potential transfer of the virus to customers through high-touch surfaces. Information about the presence, survival and infectivity of SARS-CoV-2, the virus that causes COVID-19, on surfaces was limited, particularly outside laboratory settings.

Selecting and testing surfaces

We tested 957 samples at four Ontario food retailers over a period of a month, during the second wave of the virus. Due to the reported survival of the SARS-CoV-2 virus on various surfaces, we tested a range of high-touch [surface](#) areas accessible to both employees and customers.

SARS-CoV-2 presence has been reported on surfaces in environments with high viral loads, such as hospital wards and patients' rooms. Viral persistence and ability to remain active are contingent on numerous factors such as airflow, temperature and relative humidity within an indoor facility.

The type of material that the virus is in contact with can also affect persistence. Studies have found that SARS-CoV-2 was viable for [four hours on copper, 24 hours on cardboard and 72 hours on plastic and stainless steel](#). Another coronavirus—human coronavirus strain HCoV-229E, which causes common cold symptoms—could survive on various surfaces such as metal, glass or plastic for two hours to nine days. Temperatures within 30-40 C reduced [viral persistence and](#)

[survival](#).

Based on these data, the high-touch surface areas in retail stores were identified in four zones: the payment station, the deli counter, the refrigerated food section and carts and baskets, as well as on a variety of surface types including glass and plexiglass separations, metal bumpers, plastic and metallic handles.

Samples were collected in the store before daily operations and at the end of the working day to evaluate the public's potential contribution to the contamination of the surfaces. Collected samples were stored in a cooler and transported for further processing and detection of the viral RNA. A commercially available detection system and reagent kit [approved by Health Canada](#) for environmental testing of SARS-CoV-2 was used to assess the presence or absence of viral RNA.

Presence of SARS-CoV-2 on the selected surfaces

This study found that, regardless of the store's location (urban versus suburban), the sampling day or time, the location of the surface within the store or the surface material, all the samples tested negative for SARS-CoV-2 RNA, meaning that values were below the detection limit of the method, which was also validated by control tests.

These results suggest that the risk of exposure from high-touch surfaces within a grocery store is low. This is contingent on retail stores' enforcement and implementation of physical distancing measures, regular sanitizing routines and the systematic monitoring of the [store](#) personnel's health.

These results emphasize the importance of preventive measures to reduce the probability of encountering SARS-CoV-2 on surfaces commonly found and frequently touched in retail stores. This finding is

consistent with a recent study on the presence of SARS-CoV-2 on inanimate objects in hospitals. The study found that [transmission of the virus through fomites](#) is unlikely if cleaning procedures and precautions are maintained.

Next steps: So what?

We believe that wearing masks, maintaining physical distancing and cleaning and disinfecting contact surfaces significantly minimize the risk of transmission from surfaces in grocery stores to humans. These measures should persist even after vaccinations are administered because it's not known how infectious new emerging variants are, and the extent of vaccination varies from place to place. It may be that variants are less susceptible to disinfection or may transmit more easily.

As it may not be possible to know the number of infected people in stores, the use of personal protective equipment and enhanced cleaning procedures may be required to ensure that future variants do not cause unforeseen problems.

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Citation: Testing high-touch surfaces in grocery stores for COVID-19 (2021, October 5) retrieved 18 April 2024 from <https://medicalxpress.com/news/2021-10-high-touch-surfaces-grocery-covid-.html>

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