



**1. Is COVID-19 likely to be transferred from food, including fresh produce, or water?**

As of now, there is no evidence to suggest that COVID-19 is transferred by food. According to United Fresh Produce Association (4), the CDC and FDA have not made a definitive statement regarding transmission, but the Food Safety Authority in Ireland (3) concluded that there was no evidence to support foodborne transmission. Food manufacturers and produce growers, especially for commodities for which skin-to-produce contact occurs during harvest, should continue to follow the same practices they already use to reduce the risk of foodborne pathogens as they will also be effective against COVID-19. This includes sending sick workers home, frequent hand washing and glove use, and wearing clean clothing and appropriate PPE to work.

**2. What sanitizers can be used against COVID-19?**

Several sanitizers are effective against the virus. If a product's label says it is effective against coronaviruses or norovirus (which is generally a more difficult virus to inactivate), it should be effective against COVID-19. Always follow the EPA label for instructions concerning contact time, concentration, and appropriate surfaces for use. Bleach (Sodium hypochlorite, Clorox), 70% isopropyl alcohol in 30% water, povidone iodine and Lysol are all active against coronavirus on non-porous surfaces. **Bleach** may be mixed at rate of 1/3 - 1/2 cup to 1 gallon of water to disinfect surfaces (with a contact time of 10 minutes). When used on food contact surfaces, a potable water rinse should be used to remove excess chlorine after the appropriate contact time. Keep in mind this product will stain some materials, especially at higher concentrations. Studies with **Povidone Iodine** (4% and 7.5%) in a skin cleanser and surgical scrub inactivated similar members of the coronavirus family (SARS-coV and MERS-coV) within 15 seconds. An optimal exposure time of 2 min was suggested.

- Washing clothing and bedding with detergent in hot water (~140 °F) is the most effective way to inactivate the virus as sanitizers are not effective on these surfaces. Use gloves and extreme caution when handling clothing or bedding used by COVID positive or suspected positive individuals.
- Products that are not EPA labeled may not be effective against viruses and may be hazardous to humans and animals. Many individuals are resorting to homemade sanitizers, including products containing essential oils. Essential oils are skin, mucous membrane, and eye irritants, and many are toxic to our pets. Extreme caution should be used when applying these, either directly on surfaces or via aerosolization, around people or animals as serious complications do occur.

**3. How do I properly sanitize against COVID-19?**

Sanitizing is a multi-step process. First, surfaces with visible soil should be wiped clean, either with a clean, damp cloth, paper towel, or wipe. A soap may be applied for surfaces with significant soil, and then wiped or rinsed off. Once a surface dries, a sanitizer may be applied and should be allowed to AIR DRY. Sanitizers require 5-10 minutes of contact time to inactivate microorganisms, so immediately wiping the surface will not allow sufficient time for virucidal activity. Wipes, including Clorox Wipes, are useful for cleaning, but as the surface treated does not remain wet for more than few seconds, are



not likely very useful as sanitizers. If spraying surfaces with sanitizer, it's considered polite to warn other individuals in the shared space as to why the door handles are wet.

**4. Can I use hand sanitizer instead of washing my hands?**

Hand sanitizer is not effective on its own against bacteria and viruses on the skin. When applied to unwashed hands, the sanitizer is absorbed by dirt and dead skin cells and is unable to contact microorganisms on the skin surface. Washing hands for 20 seconds under soap and water is the most effective way to remove bacteria and viruses from hands. If desired, hand sanitizer may be applied after hands are dried to further reduce pathogens on hands. Hand sanitizer may also be used frequently between regular hand washing activities, or when there is no access to adequate hand washing facilities.

**5. Am I likely to get COVID-19 from packages that are shipped to my house?**

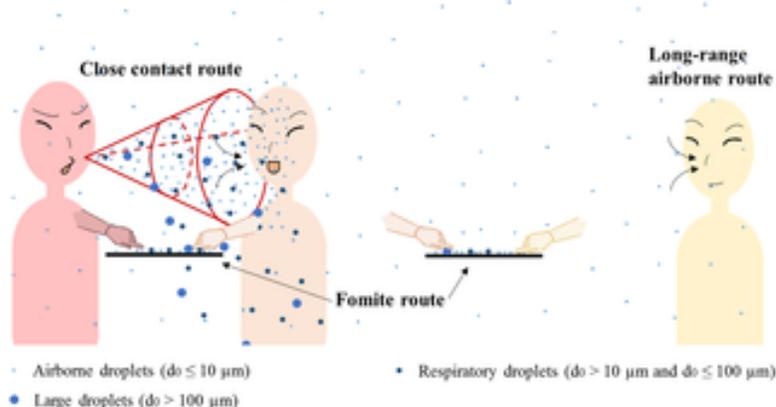
A study published this week found that the virus does not appear to remain longer than 24 hours on cardboard, but can survive up to three days on stainless steel or plastic. However, large quantities of the virus were used in these studies, and the quantity of the pathogen present on surfaces did diminish over time (1). For this reason, it appears that the likelihood of virus transmission from packages is likely low; however, as transmission of the virus from contaminated objects has been documented (5), individuals may consider sanitizing all items that are delivered or brought into the home and wash hands after handling boxes or shipments they receive.

**6. What is the best way to protect myself from COVID-19?**

Avoiding people and areas accessible to the general public is the best way to reduce the likelihood of infection. Transmission occurs predominantly via aerosolization, such as when a sick individual coughs and spreads droplets into the air or onto surfaces that will be touched by other individuals. At this point in time, the CDC (2) recommends that immunocompromised or elderly individuals (and probably also people that care for these individuals) should reconsider activities that put them in close contact with groups of people, including air travel, dining out, sporting events, or most social gatherings. All people should take precautions to limit close contact with each other, including handshakes and hugs, and should consider reducing the amount of time they spend around outside the home. All activities that include large groups of people gathering should be reconsidered as this disease appears to be transmissible before an individual begins to show signs of illness. Frequent hand washing is critical before and after spending time in public, and frequently throughout the day. Hand sanitizer should NEVER replace hand washing, but may be used to increase the effectiveness of hand washing.



## 7. How is COVID-19 spread?



(Figure from Xiao, Shenglan, et al. 2017. "Role of fomites in SARS transmission during the largest hospital outbreak in Hong Kong." PloS one 12.7)

There are three major transmission routes: Long-range airborne, close contact droplets, or from contaminated surfaces, called fomites. The person in red has COVID (or a respiratory illness in general). They may spread the disease while coughing or talking in close contact with healthy individuals- as they cough or talk, large droplets ( $d_0 > 100 \mu\text{m}$ ) containing the virus are spread and come in contact the mucous membranes or eyes, where the virus replicates. An alternate route is through contamination of inanimate objects- the sick individual may have viral particles on their hands and spread the virus when handling shared objects, like door handles, or if the individuals coughs or sneezes around shared these shared surfaces, allowing virus-containing droplets to settle out of the air onto them. Finally, COVID-19 appears to be viable in aerosols for more than 3 hours (5), meaning respiratory droplets expelled during coughing may remain airborne and infectious hours after a sick individual has been in the area (long-range airborne route).

## 8. What exactly is a Coronavirus?

Coronaviruses, members of the family Coronaviridae and subfamily Coronavirinae, are enveloped positive-stranded RNA viruses. Projections of the glycoprotein spikes result in a halo like appearance that has contributed to their description as "corona" viruses. Previously the viruses were associated with birds, but have shifted to animals and humans. The transmission of the COVID-19 virion to a host could result through droplets or surfaces containing droplets. The decontamination of contact surfaces and hands through hand washing as well as distancing efforts between individuals could reduce the risk of virion transmission. The EPA has a list of disinfectants that could be used to disinfect surfaces (<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>)(6). These include the use of Quaternary Ammonium Compounds (QAC) and the use of QAC's and hydrogen peroxide. Literature reviews of studies using similar but less infectious coronaviruses such as the SARS (severe acute respiratory syndrome) and MERS coV (Middle east respiratory syndrome coronavirus) have indicated that the use of 70% ethanol as well as povidone iodine could be effective against the viruses in fairly short duration of exposure (15 seconds to 4 minutes; 7).

This situation will continue to change, so everyone needs to continue to be sure they follow [CDC](#), [FDA](#) and Georgia Department of Public Health (DPH) updates. [Georgia DPH](#) has a list of cases and the counties they are in that is updated daily at noon (<https://dph.georgia.gov/covid-19-daily-status-report>). As cases are continuing to increase, individuals with medical concerns or in high risk demographics should consider having sufficient supplies on hand to last several weeks, should consider identifying an individual who can assist with shopping/errand running in the coming weeks, and should begin reducing the amount of time spent outside the home. Individuals not in high risk demographics should be aware that they can transmit the disease even when they are still feeling healthy, and should take special precautions to protect the health of susceptible individuals, including limiting face-to-face contact, increasing social distancing, and increasing hand washing. Sick individuals and individuals who suspect they have been exposed should stay home and avoid contact with other people for 14 days- this virus has a long incubation period and again, illness may be spread before an individual begins to experience symptoms.

### References

1. Cai J., Sun W., Huang J., Gamber M., Wu .J, He G. 2020. Indirect virus transmission in cluster of COVID-19 cases, Wenzhou, China, 2020. *Emerg Infect Dis*. <https://doi.org/10.3201/eid2606.200412>
2. Centers for Disease Control and Prevention (CDC). 2020. People at risk for serious illness from COVID-19. <https://www.cdc.gov/coronavirus/2019-ncov/specific-groups/high-risk-complications.html> (Accessed 14 March 2020)
3. Food Safety Authority of Ireland. 2020. COVID-19 (Coronavirus). <https://www.fsai.ie/faq/coronavirus.html> (Accessed 14 March 2020)
4. United Fresh Produce Association. 2020. <https://www.unitedfresh.org/coronavirus-fresh-produce-industry-resources/> (Accessed 14 March 2020)
5. van Doremalen N., Bushmaker T., Morris D., Holbrook M., Gamble A., Williamson B., Tamin A., Harcourt J., Thornburg N., Gerber S., Lloyd-Smith J., 2020. Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1. *medRxiv*.
6. List N: Disinfectants for use against SARS-CoV-2 <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>
7. Kariwa, Hiroaki, Nobuhiro Fujii, and Ikuo Takashima. "Inactivation of SARS coronavirus by means of povidone-iodine, physical conditions and chemical reagents." *Dermatology* 212.Suppl. 1 (2006): 119-123.
8. Xiao, Shenglan, et al. 2017. "Role of fomites in SARS transmission during the largest hospital outbreak in Hong Kong." *PloS one* 12.7

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