INTRODUCTION/GOALS

In this paper, we recommend protective measures for the general public and identify misinformation in the “fact vs. fiction” section. MITRE experts in infectious diseases, microbiology, and virology have researched this scientifically accepted and verified information to date regarding COVID-19.

PROTECTIVE MEASURES IN PUBLIC

While the Centers for Disease Control (CDC) and the World Health Organization (WHO) suggest staying at home as much as possible, we realize this may not be possible for all. If you must venture to work, obtain household supplies, or visit a healthcare facility, here are some tips to keep yourself and others safe and healthy during this pandemic.

• Avoid mass transit (e.g., trains, taxis, buses, etc.).

• Keep a 6-ft. distance between you and others to minimize aerosolized droplet transmission.

• Cover your mouth and nose with a tissue when you cough or sneeze, or use the inside of your elbow. Immediately throw used tissues away and sanitize or wash your hands.

• Wash your hands after touching common surfaces such as doorknobs, elevator buttons, and touch screens. Washing your hands with soap and water for at least 20 seconds is very effective in eliminating the virus.

• Hand sanitizers can also be used if soap and water are not available and your hands are not visibly dirty. Just ensure they contain at least 60% ethanol. Cover all surfaces of your hands and rub them together until they feel dry.

• According to the 2015 American Journal of Infection Control, people touch their face 20+ times/hour. Please make every effort to avoid touching your face, especially your mouth, eyes, and nose.

• It is not necessary to wear a mask in most instances if you are healthy. Surgical masks do not offer complete protection against becoming infected by the virus.

The CDC does not recommend the general public wear N95 respirators to protect themselves from respiratory diseases, including this coronavirus. Additionally, masks and other protective equipment, which are in very short supply, should be reserved for healthcare professionals that may be exposed to any number of diseases.

• Do not wear gloves in public! They may protect you but they can spread microbes to others. As mentioned before, they are protective gear that should be reserved for healthcare professionals who are actively treating and caring for patients.

• If you are not feeling well and must seek medical attention, surgical masks are acceptable to prevent the spread of aerosolized particles from you to others.

• Be sure to check out the latest data and recommendations from the CDC.

PROTECTIVE MEASURES AT HOME

To emphasize the importance of proactive household measures, research has confirmed that this coronavirus can persist on common household surfaces for extended periods of time. This might be another route of infection, beyond aerosolized droplets. If no intervention occurs, the virus is detectable at ambient temperatures and common household humidity for up to:

• 4 hours on copper

• 2-3 days on plastic and stainless steel

• 24 hours on cardboard (please note that WHO has confirmed the likelihood of contracting the virus on shipped goods is very low)
Of note, this study was performed in a controlled environment and does not take into consideration other factors such as ultraviolet light (from the sun), changes in altitude, humidity, temperature, and other features.

This study reveals how and what percentage of certain common household chemicals are necessary to combat viruses akin to SARS-CoV-2.

1. **Not all household chemicals are created equally.**
   Ensure your household disinfectants are on the [EPA registered](https://www.epa.gov) list or specifically state effectiveness against coronaviruses. Many bleach wipes do not actually contain bleach, so please read the label to ensure they are effective against bacteria and viruses.

2. **Good cleaning practices matter.** Previous research shows that efficient inactivation of similar viruses require one of the following chemicals to be in contact with the contaminated surface for at least one minute:
   a. at least 71% isopropanol, or
   b. 0.5% hydrogen peroxide, or
   c. 0.1% sodium hypochlorite (i.e., bleach)

3. **More glitter does not make a better hand sanitizer.** Hand rubs (as opposed to hand sanitizers) must contain at least 80% ethanol to be effective. For maximal efficacy, the hand rub must be applied for 30 seconds. Like household cleaning chemicals, hand rubs have comprehensive activity against different types of viruses.

4. **Wear disposable latex gloves when cleaning.** To protect yourself from direct contact with chemicals, as well as from microorganisms, always clean with laboratory-grade gloves. These should be discarded after using once. If you are allergic to latex, alternatives are available.

5. **Check the CDC website on protecting yourself and others.** Best practices are continuously evolving, so please check the [CDC website recommendations](https://www.cdc.gov) regularly. This website also contains recipes for how to safely mix your bleach or other chemicals to keep them effective against viruses.

### FACT VS. FICTION

There is a lot of COVID-19 information being distributed. To ensure you have the most accurate information, here are the opinions of scientific experts.

**You can get COVID-19 twice:** HIGHLY UNLIKELY

Like many other infectious diseases, once you are infected, your body develops a highly effective immune response that prevents reinfection, or a second infection. This is the basis of vaccines. They initiate the development of a long-lasting, robust immune response. However, there is the possibility that the pathogen can mutate and your immune response will then no longer recognize the new mutated pathogen after the viral part that is targeted by the immune system has changed.

There are some reports circulating that people can catch COVID-19 again. Scientists believe these reports may stem from erroneous testing or from people whom have not completely recovered. As of now, there is no evidence from the research community that the virus has mutated. One study performed by researchers from a medical university in China evaluated the similarities of 95 full-length sequences from this virus’s strains and determined they were **99% similar at the amino acid level**.

**Clearing the virus with water:** FALSE

There is an article circulating that claims people should take a few sips of water every 15 minutes at least, because if the virus gets into your mouth, drinking water or other liquids will wash them down through your throat and into the stomach. Once there, your stomach acid will completely kill the virus. This is FALSE! While it is good to keep hydrated, the main route of infection is through inhalation of respiratory droplets. Drinking water to wash down the virus into the stomach will not prevent infections via the lungs.

**Holding your breath for 10 seconds:** FALSE

Similarly, this claim was shared widely through the internet and by TV personalities. There is no scientific literature to support this. If you notice a dry cough, trouble breathing, or shortness of breath in conjunction with a fever, seek medical attention.
Young people don't get sick: FALSE
Data from CDC indicates that adults aged 20-44 are still susceptible and require hospitalization, some needing intensive care. Thus, if you think COVID-19 will not impact you, think again! Additionally, keep in mind that protecting yourself also means protecting the older generations who may be more susceptible. Preventing your illness will also help to “flatten the curve,” which means slowing down the speed of new cases through dampened infection rates. This slowed rate of new cases will also protect our healthcare system from becoming overwhelmed.

Blood Type O patients have improved outcomes against COVID-19: POSSIBLY
A new study from China of 2,173 patients has revealed that patients with blood type O experience lower risk for COVID-19 infection compared to patients with other blood types. In contrast, patients with blood type A were the most susceptible to acquiring COVID-19.

The exact mechanism for this phenomenon is still under investigation by the scientific community.

Homemade cloth masks using layers of cloth sewed together are effective against COVID-19: FALSE
According to the CDC, homemade masks are not considered personal protective equipment (PPE) and are not recommended for use by the general public. For healthcare professionals, homemade masks should ideally be used in combination with a face shield that covers the entire front (that extends to the chin or below) and sides of the face.

To stay up to date with changing COVID-19 information and recommendations, refer to the CDC and WHO websites on the COVID-19 outbreak.

*By Yaakov Weinstein, Carl Giller, Lauren Quattrochi, Tiffany Tsang, Kathy Huynh*

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