

COVID-19 Teacher Workshop - Questions and Answers

Webinar Date: May 29, 2020

This document includes responses to questions that were asked during our virtual COVID-19 Teacher Workshop. We hope these answers serve as additional information to inspire you to take action and improve the health of your communities.

⇒ Transmission Questions

Q: Can COVID-19 be transmitted through sweat?

A: No, since sweat is not a fluid from the respiratory tract, it cannot transmit COVID-19. We know that COVID-19 is transmitted from one person to another through respiratory secretions, such as mucus or saliva, from a COVID-19 positive person. These secretions are expelled as droplets into the air from the nose or mouth when a person with COVID-19 coughs, sneezes, or speaks. Other people can catch COVID-19 if they breathe in these droplets or if they touch a surface containing these droplets and then touch their eyes, nose, or mouth.

Q: There are many viruses around the world, but SARS-CoV-2 is spreading so quickly and it is so powerful that it's killing a lot of people in a short period of time. How is this virus different from others?

A: There are a number of factors that cause a virus to spread more quickly than other viruses. Epidemiologists measure how likely a virus is to spread in a population by calculating a value called R0 - the reproduction number of viruses - which is an approximation of the average number of people who will catch the disease from a single infected person. It has been found that one person with COVID-19 is likely to infect two to three other persons without any control measures. This number is higher than other viruses, such as the flu.

Additionally, since it is also possible for someone to have COVID-19 and not show any symptoms, they could be unintentionally spreading the virus without knowing. This is different from other viruses, where people infected always show symptoms.

There is still a lot for us to understand about the virus that causes COVID-19, which scientists will continue to discover and share.

Q: Can COVID-19 be transmitted from a mother to her child via pregnancy or delivery ?

A: No, there is no evidence to suggest that a mother can transmit COVID-19 to her child during pregnancy or delivery. If a woman who has just given birth is positive for COVID-19, they should make sure to take appropriate precautions to protect their newborn.

Q: Can cats or other animals get the virus?

A: Based on the available information to date, the risk of animals spreading COVID-19 to people is considered to be low. Although there is some evidence that animals, such as cats, can become infected with COVID-19, this is only possible in very specific situations. At this time, there is no evidence that animals play a significant role in spreading the virus that causes COVID-19.

Q: Can fruits transmit the virus?

A: No, fruits cannot get infected with SARS-CoV-2 and therefore cannot transmit the virus.

Q: Can the virus that causes COVID-19 spread through air or be blown by wind when outside the cell?

A: The virus is spread by attaching itself to droplets which are emitted when an infected person sneezes, coughs, or speaks. We are not entirely sure how long these droplets stay in the air; it was previously believed that they would fall to the ground within a few minutes. There is [recent information](#) to suggest that the virus can stay in the air for 3 hours. The WHO does not consider the transmission of the virus to be airborne.

Q: If a person is allergic to dust, is it easy for them to get the virus that causes COVID-19, even if they are taking all of the precautions?

A: Yes, it is possible. Someone who has an allergy to dust, or any other respiratory condition, should take as many precautions as possible. There is a better chance of someone having more severe disease if they have pre-existing allergies or respiratory health problems.

⇒ Prevention Questions

Q: How can we make sure that children stay safe as they are going back to school?

A: Based on current evidence, children do not appear to be at higher risk for COVID-19 than adults. In order for children to be really safe in a school environment, they should follow prevention advice such as staying physically distanced as much as possible, regularly washing their hands, cleaning surfaces, and avoiding touching their face. If wearing masks, children should take them home and wash them at the end of every day.

One main concern for children is that if they do become sick, it is more likely that they will take the illness back to their houses, putting their parents and grandparents at a significantly higher risk. It is important to also support the mental health of children by encouraging them to stay active, take breaks, and communicate with friends and family as much as possible (while using safety measures!).

Q: Why did China do a lot of fumigation, even if the WHO said that fumigation doesn't kill the viruses?

A: What China was actually trying to do in this case was clean and disinfect environmental surfaces. The virus can be killed on surfaces by using soap and water or by spraying an alcohol-based sanitizer. The WHO does not recommend fogging or misting for indoor areas, however this might be an effective technique for outdoor areas.

Q: Can you talk more about the concept of herd immunity? Is staying home working against herd immunity?

A: Herd immunity is when most of a population is immune to an infectious disease, thereby granting indirect protection to those who are not immune to that disease. Individuals get immunity either from being exposed to the disease, or from getting vaccinated against that disease.

For example, let's imagine there is a room with 100 people. If no one in the room is immune to the disease, and one person comes in with that disease, each person has the chance to get infected. However if 80 out of 100 people have already been exposed and they have recovered, it makes it much more difficult for a person to come into a room and infect these people.

Herd immunity is not an effective strategy for overcoming COVID-19 because of the high risk of severe disease and death, as well as the pressure this would put on hospital systems to take care of people. Of course, if we are staying home and protecting ourselves from getting the virus, it is not likely that we will get herd immunity through exposure. Instead, we will wait until a protective vaccine is available in order to have large-spread immunity.

Q: We have heard of someone taking all of the precautions such as washing hands, social isolation, and wearing masks, however that person still got infected. Is this possible?

A: It could be possible that a person takes many precautions and still gets sick with COVID-19. It could be that this person came into contact with someone who didn't seem to be sick (did not have any symptoms), but was still COVID-19 positive. Unless we are living inside of a bubble, with no contact with the outside world, it is possible that the prevention methods we could might not work 100% of the time.

Q: What is the effect of using sanitizer?

A: Sanitizer, particularly alcohol-based sanitizer, is incredibly effective for killing viruses on hands, tables, stools, doorknobs, etc. Sanitizers, as well as soap, help break down the virus and make it impossible for that virus to infect a person. It is important that someone uses sanitizers externally - they are not for drinking and will not work on the inside of someone's body!

Q: How can a mother protect their child from COVID19 during breastfeeding

A: As far as we know, the virus that causes COVID-19 is not present in breastmilk. The way to protect your child while breastfeeding would be to wear a mask so as to not breathe into the child's face, which could increase the chance of transmission through respiratory secretions.

Q: How can couples prevent themselves from COVID-19 during sexual intercourse?

A: Although COVID-19 is not a sexually transmitted infection, it can be passed on through kissing and close contact, including having sex, because of the potential transmission of respiratory secretions. If you or your partner has COVID-19, you should not kiss or have sex. However, if you are currently living with an intimate partner (as in, you are not physically distancing from them), having sexual intercourse does not pose a larger risk than other activities that you would do regularly. In other cases, it might be best to engage in low-risk activities or take a break from sexual intercourse with partners you do not live with. There are a number of ways to have sexual pleasure without physical contact, including lone masturbation.

You can find more information about protecting yourself and your loved ones from COVID-19 during sexual intercourse [here](#).

Q: Apart from wearing masks, washing hands, and social distancing, what else is being done to get rid of this virus?

A: Scientists are working tirelessly on testing new treatments and developing a vaccine to protect people. It is important that we utilize the prevention methods mentioned above in order to give scientists time to test new medicines and vaccines. If you want to know more about what scientists are working on, you can check out our Resources for Teachers document.

Q: Why are we practicing social distancing with this virus? Why don't we do the same thing with viruses that cause the flu?

A: Although the flu and other infectious diseases infect many people each year, the reality is that the flu does have as high of a mortality rate as COVID-19. Based on what we have seen, it is also more likely that someone infected with the virus that causes COVID-19 will progress to more severe disease. Since this is a new disease, it is important for us to take all precautions possible until we know more about how to manage, treat, and vaccinate individuals.

Although not practiced at a country-wide level, one way to prevent getting the flu is by distancing from other individuals who are sick.

⇒ Biology Questions

Q: Are the cells in the lung different from cells in other parts of our body?

A: The cells in our lungs contain an enzyme molecule called ACE2, which helps to connect the inside of our cells to the outside via the cell membrane. Although ACE2 is present on many cell types in the lung, heart, blood vessels, kidneys, liver and gastrointestinal tract, it is more abundant in certain cells in the lungs. Since the virus that causes COVID-19 is

breathed in by someone, it is highly likely that it will affect the cells in the respiratory tract and lungs.

Q: Is it true that the symptoms for white people differ from the symptoms for black people?

A: No, this is not correct. SARS-CoV-2 can cause disease in everyone on earth regardless of race and we believe that the symptoms are similar regardless of race.

Q: Is there an immunological explanation as to why the number of Black Americans dying from COVID-19 is higher than white people?

A: There is no immunological difference between black and white Americans that explains higher death rates in the black community. The difference we are observing has to do with comorbidities. We know that individuals with heart disease, high blood pressure, and diabetes are more likely to develop severe COVID-19 and die. Unfortunately in America, the black population is more at risk for these co-morbidities and has less access to healthcare services.

Q: Does SARS-CoV-2 change form?

A: SARS-CoV-2, like most other viruses, has a different form when it is outside of the body versus when it is inside a cell. Outside of the body, a virus is just complex chemicals that are unable to reproduce. When they get inside of a body, they are able to force the cells to reproduce the virus and make someone sick. We often consider viruses to be nonliving, however they may take on a “living” form when they are inside of a cell.

Q: Why do some people become infected with COVID-19 but do not show any symptoms?

A: Scientists have discovered that it is possible to be infected with the virus that causes COVID-19 without showing any symptoms. It is not entirely clear why some individuals infected with the virus show symptoms while others do not. One idea is that individuals with strong immune systems - such as young, healthy people - are able to fight off the virus more effectively. This could prevent the infection from taking hold, reduce the actual quantity of virus in the body, and prevent it from getting to the lungs.

Q: Do the symptoms of COVID-19 change?

A: Yes, they do change as the disease progresses. Early symptoms look like any virus infection and include fever, cough, runny nose, muscle aches, and tiredness. In about 8/10 people, the symptoms do not get worse than this. In about 2/10 people, the symptoms become much worse; the lungs of these individuals become filled with fluid and it becomes difficult to breath.

Q: I had symptoms such as failure to smell anything (even perfume) and not being able to taste food. I heard that is one of the symptoms of COVID-19. Has this been proven?

A: Yes, it seems that the loss of smell and taste is one of the early symptoms of COVID-19 in some patients. While this might indicate COVID-19, the loss of taste or smell is also seen in other viral infections.

Q: What does it mean if you get symptoms such as loss of smell and taste? Will the disease progress to severe form?

A: There is no way of knowing if someone with a loss of smell or taste will progress to more severe disease, however this symptom is a potential sign of early infection.

Q: You mentioned that this virus also affects the small intestines. Why can't stomach acid destroy the virus?

A: Although our stomach acid has a low pH (it is very acidic) and can kill some pathogens, not all viruses are affected by stomach acid in the same way. SARS-CoV-2 seems to be more resistant to stomach acid than other viruses and pathogens, meaning that it is not typically killed and can make its way through to our small intestines, where there are cells with ACE2 receptors that can become infected. If you are interested, check out [this article about stomach acid and coronavirus](#).

Q: Can you please explain how someone who gets infected with COVID-19 and recovers is able to have immunity and not get it for the second time?

A: We hope this is the case, however scientists do not actually know for sure if we become immune to COVID-19 after recovery. In general, whenever someone gets infected with a virus, our body learns to fight that virus with the help of our immune system. Our immune system learns to recognize that virus and is able to attack before the virus makes us sick. In this way, someone is considered "immune" because they are less likely to get infected in the future from the same virus or pathogen. This is also how we try to make vaccines - we trick the body into thinking that it has been infected so that the body can build defenses against the virus.

Q: Is there any evidence that a person can get COVID-19 and unknowingly get cured without showing any symptoms?

A: Yes, this is possible. As mentioned before, it is possible for someone to be infected with the virus that causes COVID-19 and not show any symptoms. They can still spread the disease to other people in this case, which is why social distancing and other prevention methods are so important.

Q: What are the differences between HIV and coronavirus in terms of structure and effect on the immune system?

A: Although SARS-CoV-2 and HIV are both viruses that cause disease in humans, they are transmitted differently, replicate differently, and cause disease differently. There is some evidence that SARS-CoV-2 can infect T lymphocytes (white blood cells) in the human body, which are a target for the HIV virus, however they do not replicate inside of those cells like HIV does. In addition, we know that HIV integrates itself into the host cells' genome (their DNA), making it very difficult to recognize HIV infected cells and develop an immune response. SARS-CoV-2 does not do this. Finally, HIV mutates very rapidly and SARS-CoV-2

does not. This means that the body is able to develop an immune response more easily to SARS-CoV-2.

Despite the differences, many scientists have relied on the learnings from the ongoing HIV epidemic to develop vaccines and find ways to protect and support communities around the world.

Q: How long does it take before the virus reaches the lungs?

A: On average, symptoms showed up in the newly infected person about 5 days after contact, meaning that the virus has an incubation period of 5 days on average (can be between 2-14 days). The time between being exposed to SARS-CoV-2 and having an infection (in the lungs or elsewhere) seems to average about 2 days.

Q: Does being exposed to more viruses affect the severity of the disease?

A: Yes, there is a high chance that the more virus that someone is exposed to initially (which we call the “infectious dose”), the higher the chance of getting the severe form of COVID-19. There is evidence suggesting this from a [study done in China](#), and we know that this is true for other viruses as well. This is very important for healthcare workers as they are often exposed to higher doses of a virus given the nature of their work.

Q: Is there a possibility that this virus will mutate and the new strain will come to infect us?

A: We know that this happens with other viruses, such as HIV and influenza, however we don't believe that this will happen with SARS-CoV-2. Coronaviruses do not mutate very rapidly, so it is unlikely that we will need to worry about mutation as we do with other viruses.

⇒ Treatment & Vaccine Questions

Q: Can you drink konyagi as a way to kill the virus? If you drink enough to kill the virus, will you die?

A: Drinking konyagi will not kill the virus inside of your body. Please take precautions when and if you are drinking to stay safe.

Q: Will drinking hot water treat COVID-19?

A: No, hot water is not one of the ways to prevent COVID-19. Drinking hot water might be helpful for digestion, but it has not been proven effective at removing virus particles from one's throat.

Q: Does "kujifukiza" or “herbal steam inhalation” work? Can this affect our breathing system?

A: There is no evidence that steam inhalation treats COVID-19. The virus replicates inside of cells, meaning that steam cannot reach the virus. Although there is some evidence that the high temperatures might make the virus unable to replicate *outside* of the body, these

temperatures are way too high for an individual to inhale. Experts have warned that the practice of steam inhalation is dangerous and can damage the epithelium cells in someone's nose.

Q: If the virus can be killed by hand sanitizers and soap, why do we not have a vaccine for it?

A: Remember, viruses that are outside of the body are just complex chemicals. We know that we can destroy complex chemicals outside of someone's body using alcohol-based sanitizers and soap. The challenge is, when the virus gets inside of the body, we have to figure out how to kill the virus without killing the person. This takes time - our bodies are incredibly complicated and require that we understand how they work to fight off viruses such as this one in order for us to make vaccines or treatments that will also work.

Q: COVID-19 has no vaccine to date, but people still recover from the disease. How is this possible?

A: The body has natural ways of fighting viral infections through an immune response. When a foreign pathogen, such as the SARS-CoV-2 virus, gets inside of our body, our immune system recognizes that it shouldn't be there and sets out to get rid of it. Through this natural process, our body is sometimes able to handle the infection all on its own. What we hope to be able to do with a vaccine is build up people's defenses before they come into contact with the virus so that they will be able to better fight off the virus in case of a future exposure.

Q: Chloroquine - does it show any effectiveness against COVID-19?

A: Hydroxychloroquine is a drug that is safe for treating malaria, and conditions like lupus or arthritis. So far, no clinical trials have recommended it for use against COVID-19. There are currently ongoing trials to understand the effectiveness of hydroxychloroquine and other drugs, such as Remdesivir.

It is not recommended to take any drugs or medications that have not been proven to work. Please consult medical advice before taking any medication that you have not been prescribed by a doctor.

Q: Does using citrus fruits, ginger, or allium cepa (onions) help to kill the virus?

A: No, there is no evidence that any of these can prevent or treat COVID-19, although it is recommended to consume fresh fruits and vegetables as a part of a healthy diet.

There is a lot of misinformation that is shared through social media. It is important to check facts with trusted sources such as the WHO and the CDC.

Q: Is this medicine from Madagascar to treat COVID-19 really recommended?

A: Since the Madagascar medicine contains artemisium, there is a chance that it might work *in the lab* to treat SARS-CoV-2, however we do not know if the medicine is effective in people. An Artemisia compound has long been used as a treatment for malaria, but it has

not been proven effective against COVID-19, and therefore should not be considered a cure or recommended as a viable treatment option.

There is more research that is needed to better understand the effect of artemisia plants, as well as neem trees, on different viruses and pathogens, including SARS-CoV-2. The WHO and other groups around the world have started research studies looking at the effectiveness of this medicine.

Q: What is one place that the vaccine for SARS-CoV-2 will target?

A: Many vaccines are looking to target the spike protein on the surface of the virus. Spike proteins are what the coronaviruses use to bind to the membrane of the human cells that they infect. The binding process is activated by certain enzymes, and are a good target for vaccines.

⇒ General Questions

Q: Why does COVID-19 seem to kill more men than women?

A: Reports from around the world show that although men and women are equally likely to get COVID-19, men are more likely to die from the disease. There are a couple of ideas behind that. The first could be that men are more likely than women to have other health problems, such as hypertension and diabetes, which could raise the risk for severe COVID-19 disease. In addition, women tend to have stronger immune responses, which might protect them against the deadliest complications of COVID-19 (however it raises their chance of developing autoimmune diseases).

If you want to know more about this, you can read [here](#).

Q: Why are so many of the people who have lost their lives to this disease from cold areas?

A: There is [evidence](#) showing that colder temperatures are associated with a higher risk of respiratory infections in general. We know that the flu virus goes through cycles of infection - also called seasonality - and typically infect more people during cold seasons. Unfortunately, when COVID-19 began spreading, the northern hemisphere (North Africa, Europe, North America, and many parts of Asia) was in the middle of winter. We have seen more deaths in these locations. Although not entirely attributable to the season, it is likely that this has had an impact on the number of COVID-19 cases and the severity of those cases.

Q: At the beginning of the epidemic, there were projections that many African countries would have high caseloads, however we haven't really seen that. What is going on?

A: There are a number of theories as to why this might be. One is that COVID-19 might have similar seasonality to other respiratory tract infections. If that is the case, then there is a high chance that we will see more infections throughout the southern hemisphere, including

Tanzania, now that it is winter. Another reason for the lower caseloads overall could be a result of testing infrastructure. Many countries have not tested enough people to know what the true number of cases are. The theory that Africans are immune to the disease already is not likely to be a reason why infections are low.

Q: This whole situation has been very scary for some of us and we are just locking ourselves inside. How do you advise that we deal with this?

A: There is no doubt that this is an incredibly scary time for everyone. The uncertain nature of what we are experiencing can cause feelings of sadness, frustration, fear, and anxiety. It's important to talk about how you are feeling and listen to those around you. We have to remember that we are all in this together; we have to work together and support each other. The WHO and other health stakeholders recognize the importance of mental health during times of a pandemic. You can find more resources about mental health and COVID-19 on the [WHO website](#) and from the [African CDC](#).

Q: What are the chances we are weakening our immune systems against other potential infections by isolating ourselves?

A: There is a very small chance that we are negatively impacting our immune systems to fight off other infections by practicing isolation. We are only isolating for a short period of time, and our adult bodies have already built up an immune response to many of the infectious diseases that could potentially infect us. Compared to the impact of COVID-19 on our bodies, social isolation and physical distancing are a good measure to take. There is also some evidence showing that social distancing is reducing the incidence of other infectious diseases, such as influenza.

Q: Don't you think isolating people is a problem because they might end up with depression, which can weaken the immune system and make them more susceptible to COVID-19.

A: Social and physical distancing are incredibly important when diseases can be easily spread from one person to another via respiratory droplets. In order to keep people safe from COVID-19, their interaction needs to be limited for a short period of time. That does not mean that social isolation or social distancing is an easy thing to do. Even if we are physically distanced from one another, it is important for our mental health that we stay connected through any possible communication methods and that we seek help and support when it is needed. Only when we work together are we able to get through these difficult times and ensure that we stay mentally and physically healthy.

Q: Here are a lot of mysteries behind COVID-19. How exactly did it start?

A: SARS-CoV-2 appears to have been a zoonotic infection that has adapted to humans. Zoonotic means that the virus "jumped" from animals into humans. According to [Hopkins Guide](#) from the Johns Hopkins School of Medicine, analysis of the genetic material of SARS-CoV-2 shows great similarity to a SARS-like coronavirus that is found in bats. It is likely that a coronavirus from a bat met with a coronavirus from a pangolin, and then recombined to infect humans.

Q: Is there any possibility that COVID-19 is a man-made disease?

A: Almost all of the evidence that we have supports the idea that the virus causing COVID-19 came from animals into the human population. Scientists have shown that there are viruses similar to SARS-CoV-2 present in bats in China, which makes this theory very likely.

During the webinar, Dr. Jacobs shared that he gets similar questions about the origins of HIV/AIDS. He wanted to remind everyone that the most important thing we can do is figure out how to protect our communities from this disease by using prevention methods and supporting scientific efforts to find treatments and develop a vaccine. Only after we have found ways to prevent and treat the disease can we meaningfully spend time understanding where it came from.