COVID-19 FAQ
ONE HEALTH WORKFORCE
NEXT GENERATION
Questions from March 23-24, 2020 ECHO session participants

Please note: The information provided below reflects the current understanding of this rapidly changing global pandemic as of 31 March 2020. Answers below may be subject to change based on the evolving situation and as updates to the current knowledge available are shared from around the world. Throughout this document hyperlinks to more information can be found in each response as underlined blue text. Also, a list of abbreviations used can be found at the end of this document.

CURRENT SITUATION & EPIDEMIOLOGY

Q: What is the burden of COVID-19 across the world?

• The World Health Organization (WHO) situation reports provide up-to-date information on COVID-19 around the world.
• Another useful website for numbers on COVID-19 is by worldometers.
• And the Johns Hopkins University Global tracking page.

Q: Where can I access COVID-19 case data and current research?

For a database on worldwide COVID-19 related research, visit the WHO Global research on coronavirus disease (COVID-19).

A COVID-19 database for accessing data for further analyses is presented in a paper by Xu et al. The paper and their corresponding data files are available at:
• Epidemiological data from the COVID-19 outbreak, real-time case information
• beoutbreakprepared/nCoV2019: Location for summaries and analysis of data related to n-CoV 2019, first reported in Wuhan, China
• nCoV2019/latest_data at master · beoutbreakprepared/nCoV2019

For data on US COVID-19 cases, visit The COVID-19 Tracking Project - Homepage.
ETIOLOGY

Q: What is the origin of this virus and how did it spillover into people? Do we know the species of animal that the SARS-CoV-2 virus originated from?

The exact animal origin of the virus that causes COVID-19, SARS CoV-2, is unknown at this point, but is strongly suspected to have originated in bats and is an active area of research. The virus likely “spilled over” either directly from bats into people, or possibly first from bats into another intermediate animal host and then to people.

The term “spillover” describes what happens when a virus that is naturally present in an animal host species, where it causes little to no disease, is transmitted to a new host animal or a person. This spillover can occur when people contact the host animal’s blood, tissues, saliva, urine or feces containing the virus. Contact can occur in many ways including by touching, eating, inhaling small droplets from respiratory secretions, or any other activity that brings the virus into contact with the mucous membranes of another animal or a person.

The current hypothesis that SARS CoV-2 originated from bats is based on the fact that bats are also the source of other coronaviruses in this group, including the first Severe Acute Respiratory Syndrome (SARS), which emerged in China in 2002. Other coronaviruses very closely related to the coronaviruses that cause SARS have been detected in bats, and recent research has documented the tremendous diversity of coronaviruses in bats worldwide.

Early reports that SARS CoV-2 may have been transmitted by snakes or pangolins do not at this time appear to be correct. To date, SARS CoV-2 has not been detected in pangolins or snakes.

For more information on coronaviruses and their origins see:


Q: Is the virus that caused the epidemic in China the same virus that is currently circulating in Europe, the Americas and Africa, or has it mutated? If it has mutated, what is the mechanism by which this mutation occurs?

Yes, the SARS-CoV-2 virus (previously known as 2019-nCoV) that was first detected in China is the same virus that has spread globally to cause the current pandemic. As of March 30, 2020 there have been over 2,000 complete virus genomes submitted to public databases for analyses. Here is a graphical summary of the world-wide genomic data.

This is a situation that is being closely monitored and is an active area of research. Data on virus variants and global spread are being updated on a daily basis. See the main WHO website here for more technical information. The SARS-CoV-2 virus, like other RNA viruses, is evolving through the accumulation of random mutations that are “copying errors” introduced into the virus genome as it is copied by the virus polymerase. The accumulation of these random mutations to date is to be expected and create unique signatures that can be used to trace the virus as unique variants spread globally through the movement of people. So far, no single virus lineage or group of viruses appears to have any increase in disease severity or transmissibility.

Q: Is the virus natural or man-made? Is there any evidence that COVID-19 is a tool for biological war?

There is no evidence that SARS CoV-2 was synthesized in a laboratory or weaponized for purposes of bioterrorism. All evidence points to the likelihood that the virus is naturally carried by bats, and spilled over into the humans following mutation through contact between people and wildlife. Where people and wildlife come into close contact through hunting, consumption, shared dwellings, shared water and food sources, the risk for a virus like SARS CoV-2 to be transmitted or spill-over from its natural reservoir host into a new host is increased.
TRANSMISSION

Q: There have been discussions that COVID-19 can be spread through aerosol transmission. Is this true?

SARS CoV-2, the virus that causes the illness COVID-19, is spread through direct contact and short-distances by infectious droplets and fomites. The primary route of infection is via close direct contact with respiratory droplets from an infected patient who coughs or sneezes. These respiratory droplets land in the nose or mouth of people who are near the patient (within 6 feet), or may be inhaled into the lungs.

SARS CoV-2 can also spread if someone touches a surface that has been recently contaminated with the virus (so-called fomites), but this is not thought to be as common a route of infection.

It is not thought that the virus can readily become aerosolized or truly “air-borne” and transmitted over long distances and time. The virus, once in the environment and not associated with respiratory droplets, loses its infectivity over a period of hours to a few days (reference link here). Earlier reports that SARS CoV-2 could be aerosolized were based on misrepresentations of WHO information.

Further technical source information and additional resources can be found at the WHO (Q&A on coronaviruses (COVID-19)) and US CDC (How Coronavirus Spreads) websites.

Q: Is this a food-borne illness? Is there an understanding of the safety of possibly contaminated food following ingestion (as was reported from the Wuhan market)?

SARS CoV-2 is not known to be a food-borne illness. It is transmitted through contact with virus in respiratory droplets from infected people. That said, to reduce the possibility of spread within a household, people with COVID-19 should not be preparing and serving food to others.

Hand-washing prior to food preparation is critical, and contaminated surfaces can be disinfected with simple disinfectants (e.g. 60-80% ethanol or isopropyl alcohol or 10% household bleach solution).

Q: What is the risk of transmission in terms of sharing eating and cooking utensils?

SARS CoV-2 can spread if someone touches a surface that has been recently contaminated with the virus, e.g. an eating utensil or table or cookware. At this time, this route of transmission is not thought to be common.

Q: Has a fecal-oral route of transmission been confirmed?

Fecal-oral transmission of SARS CoV-2 has not been confirmed as a common route of infection. However, the virus has been detected in feces from COVID-19 patients. Generally speaking, coronaviruses are known to infect gastrointestinal tissues and be shed in feces.

ASYMPTOMATIC INFECTIONS & CARRIERS

Q: Can someone be a carrier for COVID-19? How infectious are asymptomatic people who are infected but do not show any signs or symptoms?

Based on information from a publication by Lauer et al., SARS CoV-2 infected people may or may not show clinical signs of respiratory illness. The median incubation period for the virus (“incubation period” means the time between infection and appearance of clinical signs) is thought to be five days, but can range from 1-14 days.

It is assumed that the virus is shed by infected people regardless of whether they develop COVID-19, and that people who eventually develop COVID-19 shed the virus before onset of clinical signs. The periods of time during which viral shedding occurs are not yet known. For more information, visit US CDC (Healthcare Professionals: Frequently Asked Questions and Answers | CDC). Additionally, article by Shaman et al. hypothesizes that transmission by individuals who did not exhibit any symptoms was a driver of the outbreak in Wuhan, China.

Q: How is SARS-CoV-2 virus / COVID-19 affected by temperature? Will COVID-19 disappear in the hot/dry season? What is the current known prevalence in northern vs southern hemisphere?

While it is true that, generally speaking, respiratory virus outbreaks in people are more common in colder and wetter seasons, there are many factors contributing to such trends, including the fact that people tend to be in closer contact with one another (e.g. indoors) in cold, wet weather. Currently, it is assumed that COVID-19 can be transmitted between people living in all climates, including hot and humid regions, and that the virus can be transmitted in all seasons and environmental conditions. For source and further technical information, visit page by WHO Facts on SARS-CoV-2 and COVID-19.

3
**PATHOGENESIS, CLINICAL OUTCOME, & IMMUNITY**

**Q: What is the pathogenesis of COVID-19?**

COVID-19 symptoms typically appear approximately 2 to 14 days after infection with the SARS-CoV-2 virus, but the incubation period can range up to 41 days with an overall median of 14 days. See [US CDC COVID-19 signs and symptoms](https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) and [WHO Technical Interim Guidance for Case Management](https://www.who.int/publications/i/item/2019-novel-coronavirus-(2019-ncov)-case-management) for more information. The incubation period may vary based on multiple factors including the age of the patient and the status of their immune system.

COVID-19 disease is caused by SARS-CoV-2 virus infection and appears to primarily target the respiratory system where severe pneumonia, respiratory distress and systemic shock can develop including acute cardiac injury. For source and further technical information, visit [GlobalRPh](https://globalrph.com) and this reference article by Rothan and Byrareddy.

**Q: What are the risk factors for progression to severe disease?**

Based upon [available information from the US CDC](https://www.cdc.gov/coronavirus/2019-ncov/sexual-health/veggie.html), those at highest risk for severe illness from COVID-19 include: people 65 years or older, particularly those who live in a nursing home or long-term care facility/ chronic lung disease or moderate to severe asthma/ serious heart conditions/ immunocompromised including cancer treatment/ severe obesity (body mass index [BMI] >40) or certain underlying medical conditions (diabetes, renal failure, or liver disease ). But people of most age groups have become infected and died.

**Q: What is the survival rate for COVID-19?**

Globally, the average survival rate based on currently available data is about 96.6%, with approximately 3.4% of overall reported COVID-19 cases developing fatal disease. Source information can be found at [this page](https://www.who.int) by WHO.

**Q: Does the infection confer immunity to reinfection?**

Although most infectious disease experts believe COVID-19 patients will develop immunity, research is still ongoing to scientifically prove this and to determine how long antibodies will last and provide protection. Current long-term reinfection data in humans is lacking, but a recent study in macaques showed that following primary SARS-CoV-2 infection they were protected following subsequent exposures; and has important implications for vaccine design and development. For source and additional information, see [this reference article](https://www.baoetal.com) by Bao et al.

**Q: Are patients exposed to malaria protected from the SARS-CoV-2 virus?**

To date there is no data indicating that previous exposure to malaria reduces the risk of SARS-CoV-2 virus infection or development of COVID-19 illness.

**Q: How does HIV/AIDS status impact COVID-19 progression and clinical outcomes?**

People with HIV/AIDS may have higher risk of developing severe forms of COVID-19 disease, but at this time no detailed correlation of HIV/AIDS status and severe COVID-19 outcome has been established. This is an area of intense and ongoing research, please see the US CDC website here for more information: [US CDC Interim Guidance for HIV patients and others requiring extra precautions](https://www.cdc.gov/hiv/patient/caregiver/interim-guidance.html).

**Q: What are the complications of COVID-19 in tuberculosis patients and how can we manage them safely? What is the effect of COVID-19 on people Living with Hepatitis B and C? How best to treat cancer patients safely during the COVID-19 outbreak? Should Coronavirus infection change the schedule of reverse-transcriptase inhibitor therapy?**

People living with medical conditions or who are immunocompromised, but not infected with COVID-19 should follow their regular treatment protocol. However, they should take extra protection measures to avoid COVID-19 infection as they are at risk for developing severe disease. If they are infected with COVID-19 they should consult with their doctors as this a case by case treatment. This is an area of active research and interim guidelines for health care providers regarding tuberculosis and COVID-19 patient management can be found [here](https://www.cdc.gov) and [here](https://www.cdc.gov) for other patients with underlying conditions including cancer and viral hepatitis that may complicate the progression of COVID-19 signs and symptoms.
Q: What are the risks for pregnant women?
Women who are pregnant should be monitored since they are at risk for exposure to illness from all viral infections. To date, no direct correlation of COVID-19 and poor pregnancy outcomes has been documented. More information can be found at the US CDC website here.

Q: How can mothers be supported to breastfeed in the context of COVID-19?
The US CDC and the International Lactation Consultant Association (ICLA) provides guidance on breastfeeding and lactation in the context of COVID-19. More information can be found here and here at ICLA’s website.

Q: What are the best nutrition recommendations before, during, and after COVID-19?
As a general health recommendation staying hydrated and eating balanced meals with equal proportions of proteins, carbs and fat and diets including fruits and vegetables as they are rich in vitamins and minerals are beneficial and necessary to support and boost our immune system.

LABORATORY TESTING

Q: What laboratory tests are available currently?
As of 25th March 2020 multiple laboratory tests are available including several molecular and serological assays. For more detailed information on the assays, visit WHO guidance for laboratories, or the US FDA Emergency Use Authorization page. Regarding serological tests, the US FDA provides a list of serological tests that are available. All laboratories are highly recommended to consult with their respective Ministries of Health or other national authorities to ensure appropriate test and target selection for these critical assays.

Q: What about the newly US FDA approved Cepheid® Gene Xpert assay?
From the US FDA, “the Xpert Xpress SARS-CoV-2 test is a rapid, real-time RT-PCR test intended for the qualitative detection of nucleic acid from the SARS-CoV-2 in either nasopharyngeal swab and/or nasal wash/aspirate specimens collected from individuals suspected of COVID-19 by their healthcare provider.” More information on this test can be found on the US FDA’s Xpert Xpress SARS-CoV-2 document page.

Q: Is there any information on the sensitivity and specificity of available rapid tests for COVID-19?
Each test has a different sensitivity and specificity. For each commercially available test, product information sheets provided by the manufacturer may contain this information. More details can be found at the US FDA Emergency Use Authorization website Emergency Use Authorizations of medical devices and diagnostics related to COVID-19.

Q: What samples are collected for testing?
The US CDC and WHO recommendations vary slightly on preferred specimens, but both recommend collecting nasopharyngeal swabs or oropharyngeal swabs for testing purposes. Where these are not possible, nasal mid-turbinate swabs, or anterior nares specimen, sputum and oral swabs may be collected. For full interim guidelines visit this page for US CDC clinical specimen guidelines and this technical document by WHO.

Q: What type of laboratories can do COVID-19 testing?
The laboratories approved to test for COVID-19 is updated on a near daily basis. In general, WHO Laboratory guidelines suggests BSL-2 and BSL-3 laboratories can safely perform work on SARS-CoV-2 virus and COVID-19 patient specimens, depending on the nature of work or testing performed, for example according to the WHO:

- Non-propagative diagnostic laboratory work (for example, sequencing, nucleic acid amplification test (e.g. PCR) should be conducted at a facility using procedures equivalent to Biosafety Level 2 (BSL-2).
- Propagative work (for example, virus culture, isolation or neutralization assays) should be conducted at a suitable containment laboratory with inward directional airflow that meets international standards for BSL-3 engineering biosafety controls.

Visit WHO Laboratory guidelines for detailed guidance for laboratory testing of COVID-19 virus.
Q: What if the test result is negative?
Negative results do not preclude SARS-CoV-2 infection and should not be used as the sole basis for patient management decisions among suspected COVID-19 patients. Negative test results should be combined with other clinical observations, patient history, and epidemiological information for comprehensive patient case management decisions. See the WHO interim guidance for healthcare workers for more information.

Q: Are there any specific guidelines on laboratory waste management?
The US CDC recommends handling laboratory waste from testing suspected or confirmed COVID-19 patient specimens as you would other biohazardous waste in the laboratory. Currently, there is no evidence to suggest that this laboratory waste needs any additional packaging or disinfection procedures. For detailed laboratory and biosafety guidelines, visit this website for US CDC Interim Guidance for Laboratories working on COVID-19.

Q: How can we differentiate regular flu from COVID-19 without testing?
From currently available data, it is not possible to differentiate influenza from COVID-19 based only on symptoms. From the National Foundation for Infectious Diseases, the symptoms of influenza and COVID-19 are similar and include fever, cough, and shortness of breath; some patients with COVID-19 patients may also have gastrointestinal problems or diarrhea. Regardless of clinical signs, a diagnostic test is needed to differentiate between these diseases including the ability to rule-out influenza virus infection if COVID-19 tests are unavailable.

INFECTION PREVENTION & CONTROL

Q: How sustainable are ‘flattening the curve’ interventions?
‘Flattening the curve’ refers to slowing down the rate of new COVID-19 infections, so healthcare systems are not overwhelmed with the number of cases at a given time, and have the necessary resources to care for sick patients. The 1918 Spanish flu Pandemic exemplifies how interventions such as social distancing, restricted travel, and improved handwashing hygiene will aid in reducing the number of cases at a given time. ‘Flattening the curve’ is a result of early nonclinical interventions to support the healthcare system capacity.

Q: If many unidentified mild/asymptomatic cases contribute to 80% of identified cases, how do we contain the outbreak?
Best practices to protect yourself and your families include frequent hand washing, maintaining physical distance, and avoiding touching your eyes, nose, and mouth prior to handwashing. It is also recommended to clean and disinfect frequently touched surfaces in the household and workplace to reduce fomite (contaminated surface) based transmission risks. For source information and more details, visit this page by WHO and this website on protecting yourself from COVID-19 by US CDC.

Q: What are the health risks associated with handling the bodies of persons who have died of COVID-19? Are there special requirements for burial services or contact with bodies?
It is important to ensure that personnel who interact with the body apply precautions before and after interaction with the body, the environment, and use proper PPE. Those who died from COVID-19 can be cremated or buried, but funeral providers must check with national and local authorities for specific national guidance. Families and friends of the deceased are allowed to view the body, in accordance with customs but should not touch or kiss the body and should wash hands with soap and water following the viewing.

Q: What are the best recommendations for safe patient home care?
Interim guidance on home care from the WHO can be found here. If caring for a patient at home, the family member or caregiver should always ensure safety for themselves and other non-infected people in the household. If possible, it is best to do the following:
• Place the patient in a well-ventilated single room.
• Limit the movement of the patient in the house and minimize shared space.
• Household members should stay in a different room or, if that is not possible, maintain a distance of at least 1 metre from the ill person (e.g. sleep in a separate bed).
• Visitors should not be allowed until the patient has completely recovered and has no signs or symptoms of COVID-19.
• Perform proper hand hygiene after any type of contact with patients or their immediate environment.
• Do not reuse masks or gloves.
• Daily clean and disinfect surfaces that are frequently touched in the room where the patient is being cared for, such as bedside tables, bed frames, and other bedroom furniture.

Q: How long does the virus remain viable in the environment, and how best to decontaminate surfaces?

SARS CoV-2 is transmitted primarily person-to-person through small droplet transmission. Transmission typically occurs when droplets containing infectious virus from an infected person enter the airways (nose, eyes, and mouth) of another individual. As a respiratory disease, the US CDC recommends to practice physical distancing, and keep about 2 meters (~6 feet) from other individuals.

The virus has been shown to remain infectious on various surfaces, and a preliminary study suggests that the SARS-CoV-2 virus may remain viable for a few hours or up to several days. This may vary under different conditions (e.g. type of surface, temperature or humidity of the environment).

If you think a surface may be contaminated, clean it with a disinfectant sufficient to kill the virus and protect yourself and others. See the US EPA website here “Disinfectants for Use Against SARS-CoV-2” for more information. Clean your hands with an alcohol-based hand sanitizer or wash them with soap and water. As a general practice, avoid touching your eyes, mouth, or nose until proper hand washing can be performed.

Q: Are there any IPC guidelines for COVID-19 that have been released?

Adapted from IPC guidance for probable or confirmed cases of MERS-CoV infection, the WHO has released interim guidance documents at: Coronavirus disease (COVID-19) technical guidance: Infection prevention and control and the US CDC IPC interim guidance can be found here.

Q: What is the effectiveness of using surgical masks by the public?

The use of surgical masks alone is insufficient to prevent virus exposure and infection. The use of the surgical mask should be coupled with frequent hand washing and other infection control measures. Only wear a mask if you are ill with COVID-19 symptoms (especially coughing and sneezing) or looking after someone who may have COVID-19. Disposable face masks should ideally only be used once. Current WHO recommendations are that if you are not ill then you do not need to wear a mask.

The most effective ways to protect yourself and others against COVID-19 are to frequently clean your hands, cover your cough with the bend of an elbow or tissue and maintain at least 1-2 meters from people who are coughing or sneezing. Interim guidance on masks and their use can be found at the WHO website.

Q: Would you recommend using homemade masks in the absence of surgical masks?

The use of homemade masks as a last resort in the absence of any other personal protective equipment can be done, but the effectiveness of these masks is completely unknown. The recommended option for people in need of masks (health care workers, caregivers, and persons with COVID-19 symptoms) is N95 respirator masks, or surgical masks when fitted and used properly. More information can be found on the US CDC website.

Q: What is the best disinfectant to use?

Currently, there are no products that have SARS CoV-2 on the product label, however, US Environmental Protection Agency (EPA) “Disinfectants for Use Against SARS-CoV-2” list share approved disinfectants for use against other viruses that can be used. This list provides the necessary contact time necessary for effective disinfection.
**TREATMENTS & THERAPEUTICS**

Q: Are there any specific therapeutics available for use? What about drugs like remdesivir, hydroxychloroquine and azithromycin, or convalescent patient serum etc?

This is a highly active area of research. To date, there is no specific treatment fully evaluated and approved to prevent or treat SARS-CoV-2 virus infection and COVID-19. Therapeutics such as remdesivir, hydroxychloroquine and many others are being studied in clinical trials underway across the globe. Another treatment being investigated is the use of convalescent plasma collected from recovered COVID-19 patients. With the lack of specific treatment options, patients infected with the SARS-CoV-2 virus should receive appropriate care to relieve and treat symptoms, and those with severe illness should receive optimized supportive care. For more detailed information on the clinical management of COVID-19, including for pregnant and breast-feeding women, visit [these guidelines](#) by WHO.

Source and further technical details on the assessments of potential treatments can be found at these links:

- [Information for Clinicians on Therapeutic Options for COVID-19 Patients](#)
- [Coronavirus disease (COVID-19) advice for the public: Myth busters](#)
- [Coronavirus disease (COVID-19) R&D](#)
- [Investigational COVID-19 Convalescent Plasma - Emergency INDs](#)

Q: What is the best treatment for home care, especially under difficult resources settings and weak health systems?

More detailed information can be found here [US CDC Interim Guidance for Home Care](#) and here [WHO Interim Guidance for Home Care](#). For most people, symptoms last a few days to 10-14 days. If you or your family member is sick, make sure the sick person drinks plenty of fluids to stay hydrated and rests at home. You can take over-the-counter medicines (for fever and associated respiratory symptoms) to help with symptom management. Visit your doctor if your symptoms worsen, for example if you have trouble breathing or persistent pain or pressure in the chest, mental confusion or difficulty in standing, or develop bluish lips or face skin color. These are a sign of more significant respiratory disease.

It is extremely important to prevent the spread of the virus by having the sick person stay in one room or away from other people as much as possible. Avoid sharing personal household items, like dishes, towels, and bedding, and if facemasks are available, have the sick person wear a facemask when they are around people. Make sure to wash hands often with soap and water for at least 20 seconds, and if water is not available use other disinfecting supplies like hand sanitizers especially after interacting with the sick person.

**VACCINES**

Q: Is there a vaccine for COVID-19?

There is no vaccine for COVID-19 yet although possible vaccines are under investigation and are being tested through clinical trials. Source and additional information can be found at [WHO Coronavirus disease (COVID-19) R&D](#) and [advice for public](#) websites.

**OUTBREAK RESPONSE**

Q: To what extent is there a global approach to tackling the virus and how can countries evaluate the necessary measures to reduce transmission and minimize impacts?

The World Health Organization (WHO) has drafted a [Global Strategic Preparedness and Response Plan](#). According to the WHO, “each country is encouraged to plan its preparedness and response actions in line with the global Strategic Preparedness and Response Plan. Support will be prioritized to countries with weak health systems and significant gaps in preparedness capacity for technical and operational implementation. The support will be implemented through global, regional and country-level activities, and be allocated based on needs and availability of funds. Countries should prepare to respond to different public health scenarios, recognizing that there is no one-size-fits-all approach to managing cases and outbreaks of COVID-19. Each country should assess its risk and rapidly implement the necessary measures at the appropriate scale to reduce both COVID-19 transmission and economic, public and social impacts.”
Government authorities are also utilizing information stemming from mathematical models evaluating the effectiveness of different strategies for mitigation and suppression and the impact of interventions on reducing mortality and healthcare demand. More information about these models can be found here:

- Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand
- The Global Impact of COVID-19 and Strategies for Mitigation and Suppression

Q: What is the impact of the outbreak on health systems and ensuring continuity of essential services?

The impact of the COVID-19 pandemic on health systems and essential services has been devastating across the world. Cases have overwhelmed health care facilities and in some regions, facilities are lacking the capacity to treat all of the critically ill cases presenting to their care. Provision of essential services in these hardest hit areas has also been disrupted as businesses shut down and community members are requested to shelter-in-place. Additional information can be found at the WHO website here: WHO technical guidance for Health System Preparedness.

Q: What measures can be implemented to reduce community transmission in resource limited settings?

In resource limited settings enacting best practices with regard to infection control can be challenging, especially in the absence of vaccines and other medical countermeasures. Key elements in effective outbreak responses can include active surveillance and rapid identification and isolation of infected cases, contact tracing to identify potentially exposed persons, quarantine of these potentially exposed individuals, and prevention of transmission in healthcare settings.

According to information found here at these weblinks from the WHO (advice for public) and US CDC (prevention of coronavirus disease), important strategies to reduce community transmission in these settings include common standard public health measures, such as isolation of suspect cases; social distancing; practicing good respiratory and hand hygiene; avoiding touching of eyes, nose, and mouth; and frequent cleaning and disinfection of surfaces.

Whenever possible, resources should be prioritized for protecting healthcare workers, deployment of rapid testing technologies, and enacting isolation of virus infected cases and quarantine of potentially exposed contact individuals.

Q: How can people practice social distancing in high density urban areas?

For social distancing, the US CDC recommends that people maintain a distance of 6 feet from others whenever possible. Practicing social distancing can be difficult in high density urban areas. Tips for practicing social distancing in urban areas include:

- Work from home if possible.
- Keep children home from school and perform childcare at home.
- Plan activities at home that limit contact with others.
- Prepare food at home rather than eating at restaurants or take out of prepared foods.
- Avoid public gatherings such as community meetings, church services, sporting events, restaurants/bars, mass transit systems, and crowded parks and beaches.
- Avoid public transportation or travel during non-peak times.
- Shop and conduct any necessary errands outside of your home at non-peak times and try to maintain a distance of 6 feet (2 meters) from others out in public.

Additional resources can be found at the WHO website here.

Q: How long will social distancing / shelter in place last?

The duration of suppression measures, such as social distancing and shelter-in-place, is currently unknown and will depend on the dynamics of the outbreak and will vary regionally based on government guidelines aimed at reducing community transmission while minimizing negative impacts on health and economies. Currently, there are no universal guidelines but indications are that these measures might be in place for several months.
COVID-19 & OTHER SPECIES OF ANIMALS

Q: Most of the current cases of COVID-19 are in humans. How about animals/livestock? Can they also get infected?

To date, SARS-CoV-2 virus infection has been reported in dogs and cats. These animals were the pets and in close contact with sick COVID-19 patients. At this time data there is no data to suggest that these pets could then transmit the virus to other animals or people. Because of this and the to date unknown risks of human to animal transmission, people sick with COVID-19 should avoid close contact with people, pets and other livestock animals.

The AVMA (American Veterinary Medical Association) recommends that if you are not ill with COVID-19, you can interact with your pet as you normally would, including walking, feeding, and playing. You should continue to practice good hygiene during those interactions (e.g., wash hands before and after interacting with your pet; ensure your pet is kept well-groomed; regularly clean your pet’s food and water bowls, bedding material, and toys). Out of an abundance of caution, it is recommended that those ill with COVID-19 limit contact with animals until more information is known about the virus. Have another member of your household take care of walking, feeding, and playing with your pet. If you have a service animal or you must care for your pet, then wear a facemask; don’t share food, kiss, or hug them; and wash your hands before and after any contact with them.

Further information regarding animals can be found at the US CDC website here.

Q: Can anyone comment on poultry precautions? Backyard chicken keepers and poultry houses should be concerned, or no?

There is no research findings to date that suggest that birds could be infected with the SARS-CoV-2 virus. Birds can be infected with their own coronaviruses, and out of an abundance of caution, persons with COVID-19 should not come into direct contact with these animals.

Q: Relevance of Coronaviruses circulating in wildlife – especially bats?

Bats are the most commonly identified animals that carry coronaviruses. They may be the source of the SARS-CoV-2 virus but that has yet to be firmly established.


Q: Will shutting down wildlife markets help in preventing a future outbreak?

The intensity of direct contact with wildlife in markets can increase stress in animals and close contact between different species can increase the risk of viral spillover and disease transmission (from animals to human or vice versa). One should always take proper prevention measures when interacting with wildlife in markets or elsewhere.

Q: How serious is the risk of transmission of SARS-CoV-2/COVID-19 to semi-wild and wild populations of great apes and other non-human primates?

The morbidity and mortality associated with COVID-19 in apes is unknown, however transmission of human pathogens to apes can result in moderate-to-severe disease. Based on these earlier findings and experimental infections in rhesus and cynomolgus macaques, the SAES CoV-2 virus should be considered as a threat to great apes (early preliminary studies can be found here and here). It is recommended that governments, conservation practitioners, researchers, tourism professionals and funding agencies reduce the risk of COVID-19 exposure in great apes by applying the International Union for Conservation of Nature’s best-practice guidelines for health monitoring and disease control in great-ape populations. The above recommendation is based on this reference paper by Gillespie and Leendertz.
WORKFORCE PREPAREDNESS

Q: What is the direction and contribution of the One Health Workforce to combat this pandemic and to prevent future pandemics?

Most emerging infectious diseases and recent pandemics have zoonotic origins or originated through the transmission of a virus from an animal to human. From the US CDC’s One Health Basics webpage, “One Health is gaining recognition in the United States and globally as an effective way to address complex health issues at the human-animal-environment interface, including zoonotic diseases. One Health is an approach that recognizes that the health of people is closely connected to the health of animals and our shared environment. The US CDC uses a One Health approach by involving experts in human, animal, environmental health, and other relevant disciplines and sectors in monitoring and controlling public health threats and to learn about how diseases spread among people, animals, plants, and the environment. Successful public health interventions require the cooperation of human, animal, and environmental health partners. Professionals in human health (doctors, nurses, public health practitioners, epidemiologists), animal health (veterinarians, paraprofessionals, agricultural workers), environment (ecologists, wildlife experts), and other areas of expertise need to communicate, collaborate on, and coordinate activities. Other relevant players in a One Health approach could include law enforcement, policymakers, agriculture, communities, and even pet owners. No one person, organization, or sector can address issues at the animal-human-environment interface alone. By promoting collaboration across all sectors, a One Health approach can achieve the best health outcomes for people, animals, and plants in a shared environment.”

Q: How can One Health university networks contribute to the COVID-19 response?

The One Health university networks are uniquely positioned to serve as a credible resource of information and to provide access to a network of professionals with expertise in outbreak preparedness and response. In the long-term, these networks are working together to develop sustainable training programs that will provide trainees with the knowledge and skills needed to address complex health issues.

Q: How can we use collaboration tools like ECHO in capacity building, tele-coordination for regional and country specific pandemic preparedness?

The USAID One Health Workforce-Next Generation program is utilizing the ECHO model™ to bring networks of professionals from across the world together in a peer-learning community or virtual community of practice by which professionals can share the most up-to-date information, lessons learned, and best practices and participate in collaborative problem-solving. The model offers a cost and time effective proven mechanism to share knowledge and collaborate with networks across the world.

Q: Are there any plans to harness student One Health clubs for community education and outreach?

The USAID One Health Workforce - Next Gen program will be engaging student One Health clubs in universities across Africa and Asia in a public awareness campaign for COVID-19. Members of the clubs will be invited to participate in a competition in which students design innovative educational/outreach materials aimed at increasing awareness around infection prevention for COVID-19.
ADDITIONAL REFERENCES FOR USEFUL FAQs

- You asked, we’re answering: your top coronavirus questions
- Coronavirus Tips: Frequently Asked Questions and Advice
- Preventing the Spread of Coronavirus Disease 2019 in Homes and Residential Communities
- Q&A on coronaviruses (COVID-19)
- Medical Student COVID-19 Curriculum

ABBREVIATIONS & ACRONYMS

AVMA - American Veterinary Medical Association
BSL - Biosafety Levels
CDC - Centers for Disease Control and Prevention
CoV - Coronavirus
COVID-19 - Coronavirus Disease of 2019
FDA - Food and Drug Administration
ICLA - International Lactation Consultant Association
IPC - Infection Prevention and Control
nCoV - novel coronavirus
RNA - Ribonucleic Acid
SARS - Severe Acute Respiratory Syndrome
WHO - World Health Organization

Please note: The information provided below reflects the current understanding of this rapidly changing global pandemic as of 31 March 2020.