

Panelists and Remarks

Beth Alexander, MD, MS -

Question: What is the epidemiology of COVID-19 and how is SARS-CoV-2 transmitted to humans?

- Coronaviruses are a large family of viruses that can cause respiratory infections.
- Electron Microscopy shows that these viruses are crown-shaped with core spikes. The spikes are protein-based and are covered with a lipid membrane. The so-called protein spikes extend from within the core to the viral surface and allow the virus to "recognize and latch on" to specific cells in the body.
- The spikes can get to cells in the upper respiratory system. The first line of defense for the body is inflammatory reaction, trying to get rid of the virus (in most cases). Once the virus moves down to the respiratory tract, it can cause sequential inflammatory reactions and can go out to the end of the respiratory tree into the blood, taking out carbon dioxide. This leads to shortness of breath and fluid buildup in the lungs. The mortality rate ranges between 1-10%.
- COVID-19 is contagious as the virus spreads by respiratory particles (e.g. coughing and sneezing) and can survive on surfaces for at least 6 hours. It is important to note that the virus spreads in a logarithmic fashion.
- This disease has different states: asymptomatic, mildly symptomatic, and severely symptomatic (roughly 10% of infected people).
- COVID-19 is declared as pandemic, meaning that it spreads across continents.
- There is a need for guidelines to protect healthcare professionals (primary care, nurses, and hospital staff) and people with vulnerable immune systems (elderly people, people with respiratory diseases).

Dalen Agnew, DVM, PhD, DACVP -

Question: What is the source of the virus and how does it spread? Can the virus be transmitted to or from dogs?

- Two well-investigated cases show that the virus can persist in dogs. Yet, dogs show no symptoms. Experts are still uncertain if the dog was infected or acted as a door knob.
- Coronaviruses are of many types and are common in humans, mammals, nonmammalian, and amphibians. However, the hallmark coronavirus carrier is the bat.
- There are many thousand species of bats, carrying different strains of coronavirus. Bats have unique immune systems, allowing them to be tolerant to carrying different coronaviruses asymptomatically.
- SARS-CoV was likely transmitted from bats to an intermediate host (civets) and then to humans. Other viruses include Hantavirus in Australia infects horses and Nipah virus in Nepal infects pigs.
- COVID-19 Research is still pending, but in this case, the virus source is bat meat or an Intermediate host

Amy Keenum, DO, PHARMD -

Question: What are primary care physicians telling patients (e.g. virus spread)?

- Follow guidelines provided by Centers for Disease Control and Prevention (CDC) and Michigan Department of Health and Human Services (MDHHS).
- Eighty percent (80%) of infected patients do not need to be seen by a health professional, but may have flu-like symptoms.
- If a patient presents shortness of breath, hospital care is needed.
- Higher level of treatment beyond primary care is needed if severe symptoms such as any trouble breathing or shortness of breath are presented.
- Reconsider leisure plane travel and activities where large groups gather.

Peter Gulick, DO, FACP, FIDSA, FACOI -

Question: What are we doing in terms of hospital infectious control? What can we learn from previous outbreaks (e.g. SARS and MERS)?

- Severe Acute Respiratory Syndrome (SARS) occurred in 2003 involving 8,098 cases with a mortality rate of 10%. Symptoms were like COVID-19, but of more severe nature.
- Middle East Respiratory Syndrome (MERS) happened in 2012 involving 2485 with a mortality rate of 30%.
- With previous outbreaks, the severity of the illness helped contain the outbreak as patients didn't have the different disease stages.
- COVID-19 is different than prior outbreaks as it has different levels of disease state: asymptomatic, mildly symptomatic, and severely symptomatic. Diagnosis "testing" is important rather than just treating symptoms.
- Mitigation methods such as canceling public events (e.g. NFL and NBA games), flights to and from infected countries (e.g. flights from Europe), and quarantined COVID-19 patients for the incubation period (14 days) are essential.
- For the time being, only patients who have had the exposure history or are showing symptoms are being tested. Patients presenting symptoms such as coughing, shortness of breath, dizziness, and Dysosmia are being directed to hospital care.

- Once patients are admitted to the hospital, a respiratory panel is formed to exclude other viruses such as Influenza A, Influenza B, Metapneumovirus, and Adenovirus. If patients test negative for these viruses, the next step is COVID-19.
- Hospitals are taking extra precautions such as putting COVID-19 patients in a unique room with an air filter with negative pressure, where air doesn't circulate in the hospital. Healthcare providers are provided with protective gears such as gowns, goggles, and masks.
- For the present time, there is no active treatment. However, there are few effective antivirals and therapies.

Christopher Daniel, MA -

Question: What precautions is MSU taking regarding travel?

- The Office of International Health and Safety (OIHS) works closely with the Risk and Security Committee, University physician, Office for Education Abroad, and colleges/departments to assess threats to international travel.
- The type of visa that someone is traveling with must be considered when assessing their ability to return to campus.
- OIHS is communicating with the Office of the University Physician to provide students with precautions and potential quarantine situations that may occur upon their return to campus.
- <u>MSU's website</u> provides up to date information regarding the situation as phone lines have been overwhelmed.
- MSU is recalling all students and faculty worldwide and cancelling all study abroad programs.
- The focus now is protecting students/faculty coming back to the community, those in the community itself, and on keeping everyone "academically whole".
- The university recognizes the concern about maintaining academic credit and losing money and will continue to work to adapt to the situation.

Krista Beatty, PhD -

Question: What is the impact of the outbreak on international students and scholars on campus?

- The Office for International Students and Scholars (OISS) has been involved with COVID-19 since mid-January and is addressing concern for those with friends or family in countries affected earlier this year.
- Bias incidences have been another main concern for the office.
- MSU has suspended all visiting scholars for the next 60 days, causing question about the progress of research on campus. There is still uncertainty about the length of this policy.
- Non-US citizens are currently unable to return to the US. Students' decisions to return home are constricted by cost of flights, travel bans, and uncertainty about their required attendance to classes after April 20th.
- There is concern about social isolation for international students remaining in the dorms, as only 14% of students will remain in the dorms.

Charles Ballard, PhD -

Question: What is the potential impact on the local, global and national economy?

- The financial economy (stock market) has lost more than 28% of its value since March 11 with a huge amount of volatility.
- The good news is that the financial markets have not completely frozen like during the 2008 recession.
- Economists disagree about whether COVID-19 will cause a recession. It will be easier to kick Michigan's economy into recession than the US economy.
- The growth of the Real Economy is still robust. However, there is a predicted 9% drop in auto sales, which will impact Michigan.
- The drop of gasoline and oil prices could cause trouble for the U.S. oil and gas companies.
- Damage to the Real Economy will occur mostly in the areas of travel and entertainment. Manufacturing has not been hit hard yet, but if this continues, it will.
- In terms of policy, a payroll tax cut will take time to affect the community.
- It is advised to make level-headed decisions to invest for the long haul and avoid timing the market.

Jade Mitchell, PhD -

Question: what are the quantifiers that discern an epidemic versus a pandemic? What is the risk and how are we approaching communication?

- Risk is assessed based on two components: hazard (infectivity of the virus) and exposure (social behavior and number of viruses in contact).
- Animal models are relied on to estimate the 50% Infectious Dose (ID₅₀). We currently don't have one for this virus (SARS-CoV-2), but we do have one for SARS-CoV.
- Measuring risk quantitatively allows us to answer the questions like "how clean is clean?" and "how effective are the mitigation strategies?".
- The virus can live for several hours to several days based on the surface, humidity, and temperature.
- Hand washing and social distancing help with direct transmission, but we still need to learn about the indirect transmission. For example, effective hand washing results in 2 to 3 log reduction in a virus.
- For effective surface disinfecting, surfaces need to be cleaned prior to disinfection.
- The <u>Environmental Protection Agency (EPA)</u> has issued a list of disinfectants to use against SARS-CoV-2.
- It is still not clear the rate of shedding or secretion of this novel virus.
- The main concern in terms of research right now is the occupational risk for healthcare and wastewater workers.