What type of virus is 2019-nCoV?
Coronaviruses are a large family of viruses that are common in many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people such as with MERS and SARS. Many of the patients in the pneumonia outbreak caused by 2019-nCoV in Wuhan, China had some link to a large seafood and live animal market, suggesting animal-to-person spread. However, a growing number of patients reportedly have not had exposure to animal markets, indicating person-to-person spread is occurring. The name for the disease caused by the novel coronavirus is COVID-19.

How is 2019-nCoV virus spread?
It is not confirmed but we think 2019-nCoV spreads like other coronaviruses (like those that cause SARS or MERS), by respiratory droplets. When person-to-person spread has occurred with MERS and SARS, it is thought to have happened via respiratory droplets produced when an infected person coughs or sneezes, similar to how influenza and other respiratory pathogens spread. Spread of SARS and MERS between people has generally occurred between close contacts.

How contagious is 2019-nCoV?
It’s important to note that how easily a virus spreads person-to-person can vary. Some viruses are highly contagious (like measles), while other viruses are less so. It’s not clear yet how easily 2019-nCoV spreads from person-to-person. It’s important to know this in order to better understand the risk associated with this virus.

What kind of symptoms do people infected with 2019-nCoV have?
Patients with confirmed 2019-nCoV infection have reportedly had mild to severe respiratory illness with symptoms of:

- cough
- shortness of breath
- potential fever
- acute loss of smell/taste

CDC believes at this time that symptoms of 2019-nCoV may appear in as few as 2 days or as long as 14 after exposure. For more information on clinical management of COVID-19 patients, see https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

Who is at risk for severe disease from COVID-19?
The available data are currently insufficient to identify risk factors for severe clinical outcomes. From the limited data that are available for COVID-19 infected patients, and for data from related coronaviruses such as SARS-CoV and MERS-CoV, it is possible that older adults, and persons who have underlying chronic medical conditions, such as immunocompromising conditions, may be at risk for more severe outcomes.
Who is at risk for being infected with 2019-nCoV?
As 2019-nCoV has spread across the globe, while there are regions with more extensive community spread, at this stage, travel linkages no longer apply. Basically, as this spreads, any patient is at risk for infection.

When can an infected person spread 2019-nCoV virus to others?
While not completely known, it likely mirrors that of other coronaviruses, in that spread occurs with respiratory symptoms. It does seem that this virus has been associated with a greater risk of transmission in patients without or with mild symptoms.

Which body fluids can spread infection?
Very limited data are available about detection of SARS-CoV-2 and infectious virus in clinical specimens. SARS-CoV-2 RNA has been detected from upper and lower respiratory tract specimens, and SARS-CoV-2 has been isolated from upper respiratory tract specimens and bronchoalveolar lavage fluid. SARS-CoV-2 RNA has been detected in blood and stool specimens, but whether the infectious virus is present in extrapulmonary specimens is currently unknown. The duration of SARS-CoV-2 RNA detection in upper and lower respiratory tract specimens and in extrapulmonary specimens is not yet known but may be several weeks or longer, which has been observed in cases of MERS-CoV or SARS-CoV infection. While viable, infectious SARS-CoV has been isolated from respiratory, blood, urine, and stool specimens, in contrast – viable, infectious MERS-CoV has only been isolated from respiratory tract specimens. It is not yet known whether other non-respiratory body fluids from an infected person including vomit, urine, breast milk, or semen can contain viable, infectious SARS-CoV-2. A study of vaginal fluid in pregnant COVID+ patients did not detect evidence for SARS-CoV-2.

Can people who recover from COVID-19 be infected again?
The immune response to COVID-19 is not yet understood. Patients with MERS-CoV infection are unlikely to be re-infected shortly after they recover, but it is not yet known whether similar immune protection will be observed for patients with COVID-19. A recent study in macaques found prior COVID+ animals did not become ill of have evidence of reinfection after a later viral challenge.

2019-nCoV/COVID-19 FAQs: PATIENT SCREENING & PLACEMENT

How will VUMC detect patients that may have COVID-19?
In eStar, we have several contagious infection questions that should be performed on all patients when they first arrive at VUMC. These questions ask details about the presence of any symptoms, like cough, respiratory issues, or fever. In the event a patient answers yes to fever and cough, an alert will arise informing you to place a surgical mask on the patient and place the patient in a private room with the patient wearing a surgical mask. Then a full clinical evaluation using the recommended PPE noted below. Patients with suspected or confirmed COVID-19 should wear the mask during the entirety of their stay as long as it is tolerated by the patient and does not impair the delivery of clinical care.

If we have a suspected or confirmed COVID-19 patient, where at VUMC will that patient be treated?
These patients can be safety treated using some of our usual isolation precautions. Specifically, the
patient is placed in a private/isolation room and Contact (gowns, gloves), Droplet (surgical mask) and eye protection (goggles or face shield) Precautions are used. If an aerosol-generating procedure is anticipated for the patient, the patient should be placed into a negative pressure room and an N95/PAPR should be used instead of surgical mask.

**What is an aerosol-generating procedure?**

These are procedures that generate excessive aerosols. As defined by the CDC, these are bronchoscopy, intubation/extubation, induced sputum, open suctioning of airways, bedside tracheotomy, and placement of Bipap (if used for impending respiratory failure, not if used at nighttime for sleep apnea). Due to uncertainty as to size of aerosols created, Optiflow is also being considered an AGP by VUMC.

**Does the patient suspected of COVID-19 infection need to go to the CDRU?**

No. We can safely care for these patients using the infection prevention precautions noted above. The TN Department of Health has also emphasized that any hospital should be able to safely evaluate/treat a patient under investigation/confirmed case.

**Should any diagnostic or therapeutic interventions be withheld due to concerns about transmission of COVID-19?**

Patients should receive any interventions they would normally receive as standard of care. Patients with suspected or confirmed COVID-19 should be asked to wear a surgical mask as soon as they are identified and be evaluated in a private room with the door closed. Healthcare personnel entering the room should use Standard Precautions, Contact Precautions, Droplet Precautions, and use eye protection (e.g., goggles or a face shield), unless the procedure meets the definition of an aerosol-generating procedure. In that event follow recommended PPE noted above.

**What are our obligations to notify patient hospitalized on the same unit as a COVID-19 patient?**

It’s important to recognize that as long as any COVID-19 positive patient is being isolated according to our recommended guidance, there is no risk to others in the immediate geographic location (ward, hallway, etc.). HIPAA precludes our sharing any patient information with others outside of need to know for care purposes. If asked by a patient if we are caring for any COVID-19 patients, one could answer the question with “this is a medical center and hospitalized patients are present throughout the campus buildings equipped for their care. Privacy regulations prohibit us from answering specific questions about other patients by name or location.”

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**2019-nCoV/COVID-19 FAQs: ISOLATION PRECAUTIONS**

**What precautions are in place to protect the healthcare personnel treating the patient from becoming infected?**

We have an extensive plan in place to ensure our healthcare workers are protected. We will follow the CDC and Tennessee Department of Health recommended practices that include wearing personal protective equipment (a.k.a. PPE). Per the CDC, placement of a suspect COVID-19 patient into a regular room with a closed door and the patient instructed to keep wearing the mask in the room is an acceptable method to use to conduct the initial evaluation.

**What constitutes appropriate personal protective equipment (PPE)?**
We are following WHO and Tennessee Department of Health guidance regarding PPE. For routine patient care:

1) Contact Precautions – wear gloves and gown
2) Droplet Precautions – wear surgical mask
3) Standard Precautions – eye protection with goggles or face shield

For patients that need an aerosol-generating procedure, place into a negative pressure room and follow:

1) Contact Precautions – wear gloves and gown
2) Airborne Precautions – wear N95 or PAPR
3) Standard Precautions – eye protection with goggles or face shield

It is also important that we continue our outstanding adherence to basic infection practices such as hand hygiene with soap and water or alcohol, especially with the removal of the PPE.
I'm working in a clinic. Who needs to be fit-tested for an N95?
Currently, an N-95 is only needed for aerosol-generating procedures. In accordance with WHO and TN Dept of Health guidelines, individuals not performing the above procedures (including those in the clinic setting) should observe droplet plus contact precautions plus eye protection for the care of suspected/confirmed COVID-19 patients. This includes wearing gown, gloves, surgical mask, and eye protection. So most if not all clinics will not need fit-testing if not already in the fit-testing program for other infectious diseases (like tuberculosis).

How will the person with COVID-19 be transported within VUMC?
If they have to leave their room for a necessary procedure, the patient should be masked. In addition, we will not share elevator space with other patients, and healthcare workers transporting patients will wear the personal protective equipment noted earlier.

How will we monitor our employees and staff who are exposed to a COVID-19 patient?
Everyone who takes care of a confirmed COVID-19 patient will be actively monitored by Occupational Health for signs of fever and respiratory illnesses.

How will we make sure that our other patients, clinicians and staff are protected while a COVID-19 patient is at VUMC?
The patient will be physically separated from other patients and individuals and placed in a negative pressure room or in a room with the door closed and patient masked. In the event they have to leave the room, they will wear a surgical mask that will prevent spread of virus if not already wearing one. Use of the infection prevention tools noted earlier will prevent the spread of this virus to others.

2019-nCoV/COVID-19 FAQs: TESTING & TREATMENT

Can we test for COVID-19 at VUMC?
Yes, VUMC has the capability to test patients for COVID-19. The following is recommended:
• Test patients with acute onset lower respiratory tract infection symptoms (e.g. cough), sudden loss of smell, or fever without a clear identified cause. Presence of isolated upper respiratory symptoms (sore throat, congestion, runny nose) alone should not lead to testing, even if patient has contact with a confirmed COVID-19 case.
• Assess for other respiratory virus infections (such as influenza).
• Because early reports from China indicated a co-infection rate of COVID-19 and other respiratory viruses of ~6%, the Tennessee Department of Health currently recommends testing patients even if other viral tests are positive.
• Testing does not require approval by Infection Prevention.

How is the test ordered?
The name of the test in eStar is “SARS-CoV-2 PCR.”

What types of specimens do I need to collect?
As of March 16, you only need to collect a nasopharyngeal (NP) swab that is then placed into a container of viral transport media.

Updated April 14, 2020
How should swab for COVID-19 testing be collected?
*For nasopharyngeal swabs,* insert a swab into the nostril parallel to the palate. Leave the swab in place for a few seconds to absorb secretions. Those collecting the swab should wear the recommended PPE for COVID-19 suspects (gown, gloves, surgical mask and eye protection).

How should the specimen be transported to lab?
Seal the closed specimen-container within a 95kPa biohazard transport bag (currently being distributed). If such as bag is unavailable, double-bag the specimen within traditional specimen transport bags. Place the bagged specimen within a hard Styrofoam container, together with a cold pack. For patients on-site at VUMC, hand deliver the specimen to the Clinical Microbiology Laboratory in 4524 TVC. For off-site clinic patients, specimens should be delivered directly to 4525 TVC by courier. **If need to store specimens, store them in the refrigerator (2-8°C) but do not freeze.**

How is SARS-CoV-2 testing performed at VUMC?
This qualitative test is based upon PCR amplification and detection of viral nucleic acid. The reagents and methods of the SARS-CoV-2 test at VUMC specifically emulate the assay developed by the CDC for US public health laboratories.

What does the result of “Indeterminant” mean on the SARS-CoV-2 test?
An indeterminate result neither confirms nor excludes SARS-CoV-2 (COVID-19) infection. The most likely causes of an indeterminate result are inadequate specimen collection, a technical anomaly with the test, or potentially early infection with low virus abundance. It is recommended that patients with an indeterminate result be re-tested on a new specimen.

What is the likelihood of COVID-19 if a patient has tested positive for another virus?
It’s not clear and likely dependent on local virus circulation. In China, reports noted a 6% co-detection rate of SARS-CoV-2 and other respiratory viruses. With influenza circulating in the area, this rate may be higher. Only after extensive clinical testing will this become clear.

Can we send tests for other respiratory viruses, like the respiratory pathogen panel?
Yes, and the same swabs collected for COVID-19 testing can be used for the RPP testing (do not need to send separate swabs).

The respiratory pathogen panel tests for 4 types of coronavirus (HKU1, NL63, 229E and OC43). Are those the same as the 2019-nCoV?
No, those are different coronaviruses that commonly circulate and cause respiratory illness. A positive RPP for coronavirus does not mean the patients has been infected with the 2019-nCoV strain. The 2019-nCoV has not been shown to cross-react with these tests.

Are there any specific treatments for COVID-19?
There is no specific antiviral treatment recommended for 2019-nCoV infection. People infected with 2019-nCoV should receive supportive care to help relieve symptoms. For severe cases, treatment should include care to support vital organ functions.

Is there a vaccine against the 2019-nCoV virus?
Not at present.
2019-nCoV/COVID-19 FAQs: WASTE MANAGEMENT AND DISINFECTION

Should medical waste or general waste from healthcare facilities treating PUIs and patients with confirmed COVID-19 be handled any differently or need any additional disinfection?
Medical waste (trash) coming from healthcare facilities treating COVID-2019 patients is no different than waste coming from facilities without COVID-19 patients. CDC’s guidance states that management of laundry, food service utensils, and medical waste should be performed in accordance with routine procedures. There is no evidence to suggest that facility waste needs any additional disinfection.

What special disinfection practices are necessary for the rooms of patients with COVID-19?
The usual disinfectants we use in our isolation rooms will be effective in removing any virus in the environment. These include the following:
- Super Sani-Wipes (purple top)
- Bleach Wipes
- Oxivir (all forms)
- Virex II 256
- Oxycide
A full list of products can be found HERE.

Should we use the non-alcohol containing hand hygiene product that contains benzalkonium chloride (Symmetry non-flammable product)?
No, the manufacturer has not confirmed that that agent can kill coronavirus. We are removing that product from our clinical areas and are looking at other alcohol-containing alternatives. The Ecolab product used throughout VUMC is effective against 2019-nCoV.

2019-nCoV/COVID-19 FAQs: TRAVEL ISSUES

As travel guidance is regularly changing, please refer the CDC’s excellent webpage at https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html

Should travelers wear face masks during travel to protect themselves?
CDC does not recommend travelers wear facemasks to protect themselves from COVID-19. You may choose to wear a mask, but it is more important that you take these steps:
- Avoid close contact with people who are sick.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Clean and disinfect frequently touched objects and surfaces using a regular household cleaning product.
• Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing.
• If soap and water are not readily available, use an alcohol-based hand sanitizer that contains 60%–95% alcohol.

2019-nCoV RESOURCES:
• Infection Prevention Website: https://www.vumc.org/infectioncontrol/
• Hospital Epidemiologist on-call pager: 615-835-8826.
• Infection Prevention on-call pager 615-835-1205
• Emergency Preparedness: 615-936-8224