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January 21, 2020

To: All North Carolina Health Care Providers
From: Erica Wilson, MD, MPH, Medical Epidemiologist
Scott Shone, PhD, HCLD(ABB), Laboratory Director
Re: 2019 Novel Coronavirus in Wuhan, China (3 pages)

This memo is intended to provide the latest information to all North Carolina clinicians regarding the 2019 Novel Coronavirus (2019-nCoV) in Wuhan, China, including specimen testing requirements.

Summary
An outbreak of pneumonia of unknown etiology in Wuhan City was initially reported to WHO on December 31, 2019. On January 12, 2020 Chinese health officials publicly posted the genetic sequence of a novel coronavirus, related to Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), identified as the cause of illness. Numbers of reported cases have continued to increase and exported cases in travelers in multiple countries have been reported.

Initial cases reported a link to a large seafood and animal market, suggesting a zoonotic origin; however, increasing numbers of patients have not reported exposure to animal markets suggesting limited person-to-person spread.

The U.S. is currently actively screening incoming travelers from Wuhan, China and the Centers for Disease Control and Prevention (CDC) released Health Alert Notice (HAN) Advisories on January 8 and January 17. As the situation continues to evolve the most up to date information can be found at https://www.cdc.gov/coronavirus/2019-ncov/index.html.

Case Investigation and Testing

- Patients who meet the following criteria should be evaluated as a Patient Under Investigation (PUI) in association with the outbreak of 2019-nCoV in Wuhan City, China.

1) Fever[1] AND symptoms of lower respiratory illness (e.g., cough, shortness of breath)
   - and in the last 14 days before symptom onset,
     - History of travel from Wuhan City, China
       -or-
     - Close contact[2] with a person who is under investigation for 2019-nCOV while that person was ill.

2) Fever[1] OR symptoms of lower respiratory illness (e.g., cough, shortness of breath)
   - and in the last 14 days before symptom onset,
     - Close contact[2] with an ill laboratory-confirmed 2019-nCoV patient.

- **Clinicians caring for patients meeting these criteria should immediately contact their local health department or the state Communicable Disease Branch (919-733-3419; available 24/7) to discuss laboratory testing and control measures.**

- Persons who meet criteria should also be evaluated for common causes of community-acquired pneumonia, if not already done. (Note: Viral culture should not be attempted in cases with a high index of suspicion.) The state or local health department should still be consulted if the patient tests positive for another respiratory pathogen as information on possible 2019-nCoV infections is still unknown.

- Any cluster of severe acute respiratory illness in healthcare workers in the United States should be thoroughly investigated. Occurrence of a severe acute respiratory illness cluster of unknown etiology should prompt immediate notification of local public health for further investigation and testing.

Infection Control

- Although the transmission dynamics have yet to be determined, CDC currently recommends a cautious approach to patients under investigation for 2019-nCoV.
    - Standard, contact, and airborne precautions are recommended for management of patients in healthcare settings with known or suspected 2019-nCoV infection. These include:
        - Use of fit-tested NIOSH-approved N95 or higher level respirators
        - Use of gowns, gloves and eye protection (e.g., goggles or face shield)
        - Use of negative-pressure airborne infection isolation rooms if available
    - Patients should be asked to wear a surgical mask as soon as they are identified. The patient should continue to wear the mask if an airborne isolation room is not available or if they must be moved from their room.
- As the situation continues to evolve, please find updated guidance at https://www.cdc.gov/coronavirus/2019-nCoV/infection-control.html.

Treatment

- Limited information is available to characterize the spectrum of clinical illness associated with 2019-nCoV. No vaccine or specific treatment for 2019-nCoV infection is available; care is supportive

Testing

- Testing is available at the CDC through the N.C. State Laboratory of Public Health Bioterrorism and Emerging Pathogens (BTEP) unit. **CONTACT THE BTEP UNIT (919-807-8600) PRIOR TO ANY SHIPMENT OR IF YOU HAVE QUESTIONS.**

- Specimens should be collected as soon as possible once a PUI is identified regardless of time of symptom onset. Additional guidance for collection, handling, and testing of clinical specimens is available at https://www.cdc.gov/coronavirus/2019-nCoV/guidance-laboratories.html.

- To increase the likelihood of detecting an infection, CDC recommends collecting and testing multiple clinical specimens from different sites, including lower respiratory, upper respiratory, and serum specimens. Additional specimen types (e.g., stool, urine) may be collected and stored.
    - Lower respiratory tract
        - Bronchoalveolar lavage, tracheal aspirate
            - Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container. Refrigerate specimen at 2-8°C and ship overnight to CDC on ice pack.
        - Sputum
            - Have the patient rinse the mouth with water and then expectorate deep cough sputum directly into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container. Refrigerate specimen at 2-8°C and ship overnight to CDC on ice pack.
    - Upper respiratory tract
        - Nasopharyngeal swab AND oropharyngeal swab (NP/OP swab)

        - Use only synthetic fiber swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts, as they may contain substances that inactivate some viruses and inhibit PCR testing. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media. NP and OP specimens should be kept in separate vials. Refrigerate specimen at 2-8°C and ship overnight to CDC on ice pack.
        - *Nasopharyngeal swab:* Insert a swab into the nostril parallel to the palate. Leave the swab in place for a few seconds to absorb secretions. Swab both nasopharyngeal areas with the same swab.
        - *Oropharyngeal swab (e.g., throat swab):* Swab the posterior pharynx, avoiding the tongue.
    - Nasopharyngeal wash/aspirate or nasal aspirate
        - Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container. Refrigerate specimen at 2-8°C and ship overnight to CDC on ice pack.
- Serum
    - Minimum volume required:
        - *Children and adults:* Collect 1 tube (5-10 mL) of whole blood in a serum separator tube.
        - *Infant:* A minimum of 1 mL of whole blood is needed for testing pediatric patients. If possible, collect 1 mL in a serum separator tube.
    - Serum separator tubes should be stored upright for at least 30 minutes, and then centrifuged at 1000–1300 relative centrifugal force (RCF) for 10 minutes before removing the serum and placing it in a separate sterile tube for shipping (such as a cryovial). Refrigerate the serum specimen at 2-8°C and ship overnight to CDC on ice-pack.

- All specimen submissions **must** have a completed BTEP Specimen Submission Form.

- This is a novel emerging coronavirus and data is not currently available on the performance of current assays which target human coronavirus, SARS, or MERS. Therefore, it is important that local or state public health officials be notified so that arrangements can be made for testing at CDC where a specific assay is currently available.

This is an evolving situation and recommendations are likely to change as new information becomes available. Updated information and guidance are available from the CDC at https://www.cdc.gov/coronavirus/2019-nCoV/.

Notes:
[1]Fever may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain fever-lowering medications. Clinical judgment should be used to guide testing of patients in such situations.
[2]Close contact is defined as:

a) being within approximately 6 feet (2 meters), or within the room or care area, of a novel coronavirus case for a prolonged period of time while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection); close contact can include caring for, living with, visiting, or sharing a healthcare waiting area or room with a novel coronavirus case.
– or –
b) having direct contact with infectious secretions of a novel coronavirus case (e.g., being coughed on) while not wearing recommended personal protective equipment.

This is an official

CDC HEALTH UPDATE

Distributed via the CDC Health Alert Network
January 17, 2020, 2030 ET (8:30 PM ET)
CDCHAN-00426

Update and Interim Guidance on Outbreak of 2019 Novel Coronavirus (2019-nCoV) in Wuhan, China

Summary
The Centers for Disease Control and Prevention (CDC) continues to closely monitor an outbreak of a 2019 novel coronavirus (2019-nCoV) in Wuhan City, Hubei Province, China that began in December 2019. CDC has established an Incident Management System to coordinate a domestic and international public health response.

Coronaviruses are a large family of viruses. Some cause illness in people; numerous other coronaviruses circulate among animals, including camels, cats, and bats. Rarely, animal coronaviruses can evolve and infect people and then spread between people such as has been seen with Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV) (https://www.cdc.gov/coronavirus/mers/index.html) and Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) (https://www.cdc.gov/sars/index.html).

Chinese authorities report most patients in the Wuhan City outbreak have been epidemiologically linked to a large seafood and animal market, suggesting a possible zoonotic origin to the outbreak. Chinese authorities additionally report that they are monitoring several hundred healthcare workers who are caring for outbreak patients; no spread of this virus from patients to healthcare personnel has been reported to date. Chinese authorities are reporting no ongoing spread of this virus in the community, but they cannot rule out that some limited person-to-person spread may be occurring. China has reported that two of the patients have died, including one with pre-existing medical conditions. Chinese health officials publicly posted the genetic sequence of the 2019-nCoV on January 12, 2020. This will facilitate identification of infections with this virus and development of specific diagnostic tests.

Thailand and Japan have confirmed additional cases of 2019-nCoV in travelers from Wuhan, China. It is possible that more cases will be identified in the coming days. This is an ongoing investigation and given previous experience with MERS-CoV and SARS-CoV, it is possible that person-person spread may occur. There is much more to learn about the transmissibility, severity, and other features associated with 2019-nCoV as the investigations in China, Thailand, and Japan continue. Additional information about this novel virus is needed to better inform population risk.

This HAN Update provides a situational update and guidance to state and local health departments and healthcare providers that supersedes guidance in CDC's HAN Advisory 424 distributed on January 8, 2020. This HAN Update adds guidance for evaluation of patients under investigation (PUI) for 2019-nCoV, prevention and infection control guidance, including the addition of an eye protection recommendation, and additional information on specimen collection.

Background
An outbreak of pneumonia of unknown etiology in Wuhan City was initially reported to WHO on December 31, 2019. Chinese health authorities have confirmed more than 40 infections with a novel coronavirus as the cause of the outbreak. Reportedly, most patients had epidemiological links to a large seafood and animal market. The market was closed on January 1, 2020. Currently, Chinese health authorities report no community spread of this virus, and no transmission among healthcare personnel

caring for outbreak patients. No additional cases of infection with 2019-nCoV have been identified in China since January 3, 2020.

On January 13, 2020 public health officials in Thailand confirmed detection of a human infection with 2019-nCoV in a traveler from Wuhan, China. This was the first confirmed case of 2019-nCoV documented outside China. On January 17, 2020 a second case was confirmed in Thailand, also in a returned traveler from Wuhan City. On January 15, 2020 health officials in Japan confirmed 2019-nCoV infection in a returned traveler from Wuhan City. These persons had onset dates after January 3, 2020. These cases did not report visiting the large seafood and animal market to which many cases in China have been linked.

On January 11, 2020, CDC updated the level 1 travel health notice ("practice usual precautions") for Wuhan City, Hubei Province, China with additional information (originally issued on January 6, 2020): https://wwwnc.cdc.gov/travel/notices/watch/novel-coronavirus-china.

Recommendations for Healthcare Providers
Limited information is available to characterize the spectrum of clinical illness associated with 2019-nCoV. No vaccine or specific treatment for 2019-nCoV infection is available; care is supportive.

The CDC clinical criteria for a 2019-nCoV patient under investigation (PUI) have been developed based on what is known about MERS-CoV and SARS-CoV and are subject to change as additional information becomes available.

Healthcare providers should obtain a detailed travel history for patients being evaluated with fever and acute respiratory illness. CDC guidance for evaluating and reporting a PUI for MERS-CoV remains unchanged.

Criteria to Guide Evaluation of Patients Under Investigation (PUI) for 2019-nCoV
Patients in the United States who meet the following criteria should be evaluated as a PUI in association with the outbreak of 2019-nCoV in Wuhan City, China.

1) Fever[1] AND symptoms of lower respiratory illness (e.g., cough, shortness of breath)
–and in the last 14 days before symptom onset,
- History of travel from Wuhan City, China

-or-
- Close contact[2] with a person who is under investigation for 2019-nCOV while that person was ill.

2) Fever[1] OR symptoms of lower respiratory illness (e.g., cough, shortness of breath)
–and in the last 14 days before symptom onset,
- Close contact[2] with an ill laboratory-confirmed 2019-nCoV patient.

The above criteria are also available at https://www.cdc.gov/coronavirus/novel-coronavirus-2019/clinical-criteria.html. The criteria are intended to serve as guidance for evaluation. Patients should be evaluated and discussed with public health departments on a case-by-case basis if their clinical presentation or exposure history is equivocal (e.g., uncertain travel or exposure).

Recommendations for Reporting, Testing, and Specimen Collection
Healthcare providers should **immediately** notify both infection control personnel at their healthcare facility and their local or state health department in the event of a PUI for 2019-nCoV. State health departments that have identified a PUI should immediately contact CDC's Emergency Operations Center (EOC) at 770-488-7100 and complete a 2019-nCoV PUI case investigation form available at https://www.cdc.gov/coronavirus/novel-coronavirus-2019/downloads/pui-form.pdf. CDC's EOC will assist local/state health departments to collect, store, and ship specimens appropriately to CDC, including during afterhours or on weekends/holidays. At this time, diagnostic testing for 2019-nCoV can be conducted only at CDC. Testing for other respiratory pathogens should not delay specimen shipping to

CDC. If a PUI tests positive for another respiratory pathogen, after clinical evaluation and consultation with public health authorities, they may no longer be considered a PUI. This may evolve as more information becomes available on possible 2019 nCoV co-infections.

For biosafety reasons, it is not recommended to perform virus isolation in cell culture or initial characterization of viral agents recovered in cultures of specimens from a PUI for 2019-nCoV. To increase the likelihood of detecting 2019-nCoV infection, CDC recommends collecting and testing multiple clinical specimens from different sites, including all three specimen types—lower respiratory, upper respiratory, and serum specimens. Additional specimen types (e.g., stool, urine) may be collected and stored. Specimens should be collected as soon as possible once a PUI is identified regardless of time of symptom onset. Additional guidance for collection, handling, and testing of clinical specimens is available at https://www.cdc.gov/coronavirus/2019-nCoV/.

Interim Healthcare Infection Prevention and Control Recommendations for Patients Under Investigation for 2019-nCoV

Although the transmission dynamics have yet to be determined, CDC currently recommends a cautious approach to patients under investigation for 2019-nCoV (https://www.cdc.gov/coronavirus/2019-nCoV/clinical-criteria.html). Such patients 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, ideally an airborne infection isolation room if available. Healthcare personnel entering the room should use standard precautions, contact precautions, airborne precautions, and use eye protection (e.g., goggles or a face shield). Immediately notify your healthcare facility's infection control personnel and local health department.

Additional Infection Control Practices Resources

- Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html)

Notes

[1]Fever may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain fever-lowering medications. Clinical judgment should be used to guide testing of patients in such situations.

[2]Close contact with a person who is under investigation for 2019-nCOV.

Close contact is defined as—

a) being within approximately 6 feet (2 meters), or within the room or care area, of a novel coronavirus case for a prolonged period of time while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection); close contact can include caring for, living with, visiting, or sharing a healthcare waiting area or room with a novel coronavirus case.

– or –

b) having direct contact with infectious secretions of a novel coronavirus case (e.g., being coughed on) while not wearing recommended personal protective equipment.

See CDC's Interim Healthcare Infection Prevention and Control Recommendations for Patients Under Investigation for 2019 Novel Coronavirus (https://www.cdc.gov/coronavirus/2019-nCoV/infection-control.html).

Data to inform the definition of close contact are limited. Considerations when assessing close contact include the duration of exposure (e.g., longer exposure time likely increases exposure risk) and the clinical symptoms of the person with novel coronavirus (e.g., coughing likely increases exposure risk as does exposure to a severely ill patient). Special consideration should be given to those exposed in healthcare settings.

For More Information

More information is available at https://.cdc.gov/coronavirus/2019-ncov/index.html or by calling 800-CDC-INFO | (800-232-4636) | TTY: (888) 232-6348

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

Categories of Health Alert Network messages:

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Health Advisory	May not require immediate action; provides important information for a specific incident or situation
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HAN Info Service	Does not require immediate action; provides general public health information

##This message was distributed to state and local health officers, state and local epidemiologists, state and local laboratory directors, public information officers, epidemiologists, HAN coordinators, and clinician organizations##