

Appendix D. Enterovirus Investigation Protocol

Background

Enteroviruses are associated with various clinical symptoms, from mild to severe. EV-D68 primarily causes respiratory illness, although the full spectrum of disease remains unclear. EV-D68 was originally isolated in 1962 and, since then, has been reported rarely in the United States. Small clusters of EV-D68 associated with respiratory illness were reported in the United States during 2009–2010. There are no available vaccines or specific treatments for EV-D68, and clinical care is supportive.

In August 2014, a children's hospital in Kansas City, Missouri, and one in Chicago, Illinois, notified CDC of increases in pediatric patients examined and hospitalized with severe respiratory illness, including some admitted to pediatric intensive care units. Both hospitals also reported recent increases in detection of rhinovirus/enterovirus, in initial screening with a respiratory virus panel. Nasopharyngeal specimens from patients with recent onset of severe symptoms from both facilities were sequenced by the CDC Picornavirus Laboratory. Admissions for severe respiratory illness have continued at both facilities at rates higher than expected for this time of year. CDC has been notified by various states of similar clusters of respiratory illness, though confirmation of EV-D68 in these potential clusters is still under way.

Of these severely ill patients who were confirmed positive for EV-D68 from both hospitals, all presented with difficulty breathing and hypoxemia, and some with wheezing. Notably, most patients were afebrile at presentation and throughout the hospital course. Approximately two thirds of cases had a previous medical history of asthma or wheezing, but both hospitals reported some patients with no known underlying respiratory illness. Ages ranged from 6 weeks through 16 years, with median ages of 4 and 5 years in Kansas City and Chicago, respectively. Most patients were admitted to the pediatric intensive care unit. It should be noted that specimens from only the most severe cases have been typed at this time, and so these findings may not reflect the full spectrum of disease.

Clinical Care:

- Health care providers should consider EV-D68 as a possible cause of acute, unexplained severe respiratory illness, even in the **absence of fever**
- Although the findings to date have been in children, EV-D68 may also affect adults

Laboratory Testing:

- Providers should consider laboratory testing of respiratory specimens for enteroviruses when the cause of respiratory infection in **severely ill** patients is unclear
- Confirmation of the presence of EV-D68 requires typing by molecular sequencing
- Providers may contact DOH for further enterovirus typing
- DOH and PHL will contact CDC for further enterovirus typing

Infection Control:

Epidemiological Surveillance and Response Plan

- Routes of transmission for EV-D68 are not fully understood
- Infection control guidelines for hospitalized patients with EV-D68 infection should include **standard** precautions, and **contact** precautions in certain situations, as is recommended for all [enteroviruses](#)
- As EV-D68 is a cause of clusters of respiratory illness, similar to rhinoviruses, **droplet** precautions also should be considered as an interim recommendation until there is more definitive information available on appropriate infection control
- As EV-D68 is a non-enveloped virus, environmental disinfection of surfaces in healthcare settings should be performed using a hospital-grade disinfectant with an EPA label claim for any of several non-enveloped viruses (e.g. norovirus, poliovirus, rhinovirus). Disinfectant products should be used in accordance with the manufacturer's instructions for the specific label claim and in a manner consistent with [environmental infection control recommendations](#)

Reporting:

- Providers should report suspected clusters of severe respiratory illness to DOH
- EV-D68 is not nationally notifiable.
- DOH may contact CDC for epidemiologic support.

The District of Columbia Department of Health is asking that all critically ill patients under the age of 18 admitted with unexplained severe respiratory symptoms consistent with EV-D68 be reported to the Department of Epidemiology – Disease Surveillance and Investigation by faxing the [Communicable Disease Report Form](#) to 202-442-8060.

An epidemiologist can be reached by phone at (202) 442-8141.

For more information:

- [District of Columbia Enterovirus D68, and other non-polio enteroviruses](#)
- [CDC enterovirus D68 website](#)

Appendix E. Ebola Virus Investigation Protocol

Background

The first known case of Ebola with illness onset and laboratory confirmation in the United States occurred in Dallas, Texas, on September 2014, in a traveler from Liberia. The West African countries of Liberia, Sierra Leone, and Guinea are experiencing the largest Ebola epidemic in history, with over half of infected cases being fatal. Ebola is a rare and deadly disease caused by infection with one of four viruses (Ebolavirus genus) that cause disease in humans. Ebola infection is associated with fever of greater than 38.6°C or 101.5°F, and additional symptoms such as severe headache, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage. Ebola is spread through direct contact (through broken skin or mucous membranes) with blood or body fluids (including but not limited to urine, saliva, feces, vomit, sweat, breast milk, and semen) of a person who is sick with Ebola or contact with objects (such as needles and syringes) that have been contaminated with these fluids. Ebola is not spread through the air or water. The main source for spread is human-to-human transmission. Avoiding contact with infected persons (as well as potentially infected corpses) and their blood and body fluids is of paramount importance. Persons are not contagious before they are symptomatic. The incubation period (the time from exposure until onset of symptoms) is typically 8-10 days, but can range from 2-21 days. Additional information is available at <http://www.cdc.gov/vhf/ebola/index.html>.

Recommendations

Early recognition is critical to controlling the spread of Ebola virus. Consequently, healthcare personnel should elicit the patient's travel history and consider the possibility of Ebola in patients who present with fever, myalgia, severe headache, abdominal pain, vomiting, diarrhea, or unexplained bleeding or bruising. Should the patient report a history of recent travel to one of the affected West African countries (Liberia, Sierra Leone, and Guinea) *and* exhibit such symptoms, **immediate action** should be taken. The DOH algorithm for the evaluation of a suspected case of Ebola infection is included at the end of this section:

1. *Physicians suspecting Ebola should inquire about the patient's history of travel to West Africa in the 21 days before illness onset for any patient presenting with fever or other symptoms consistent with Ebola;*
2. *Isolate patients who report a travel history to an Ebola-affected country (currently Liberia, Sierra Leone, and Guinea) and who are exhibiting Ebola symptoms in a private room with a private bathroom and implement standard, contact, and droplet precautions (gowns, facemask, eye protection, and gloves); and*
3. *Immediately notify the DC DOH Between 8:15 am – 4:45 pm an epidemiologist may be reached at 202-442-8141. Afterhours an epidemiologist may be reached by calling 311, identifying yourself as a health care provider, and asking to speak with the Department of Health epidemiologist or email the Department of Health directly at John.Davies-Cole@dc.gov concerning Ebola.*

The following guidance documents provide additional information about clinical presentation and clinical course of Ebola virus disease, infection control, and patient management:

- Guidelines for clinicians in U.S. healthcare settings are available at <http://www.cdc.gov/vhf/ebola/hcp/clinician-information-us-healthcare-settings.html>
- Guidelines for infection prevention control for hospitalized patients with known or suspected Ebola in U.S. hospitals are available at <http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>
- Guidelines for safe management of patients with Ebola in U.S. hospitals are at <http://www.cdc.gov/vhf/ebola/hcp/patient-management-us-hospitals.html>

The case definitions for persons under investigation (PUI) for Ebola, probable cases, and confirmed cases as well as classification of exposure risk levels are at <http://www.cdc.gov/vhf/ebola/hcp/case-definition.html>.

Persons at highest risk of developing infection are:

- Those who have had direct contact with the blood and body fluids of an individual diagnosed with Ebola – this includes any person who provided care for an Ebola patient, such as a healthcare provider or family member not adhering to recommended infection control precautions (i.e., not wearing recommended PPE)
- Those who have had close physical contact with an individual diagnosed with Ebola
- Those who lived with or visited the Ebola-diagnosed patient while he or she was ill

Persons who have been exposed, but who are asymptomatic, will be monitored for the development of fever or symptoms for 21 days after the last exposure. Guidelines for monitoring and movement of persons who have been exposed to Ebola are available at <http://www.cdc.gov/vhf/ebola/hcp/monitoring-and-movement-of-persons-with-exposure.html>

Patients who test positive for Ebola will be treated accordingly. DOH Epidemiologists will proceed to complete a full evaluation of the case with the support of CDC and other applicable agencies.

Epidemiological Surveillance and Response Plan

Healthcare personnel in the District of Columbia should immediately contact the Department of Health regarding any person being evaluated for Ebola if the medical evaluation suggests that diagnostic testing may be indicated. If there is a high index of suspicion, DOH will immediately report any probable cases or persons under investigation (PUI) (<http://www.cdc.gov/vhf/ebola/hcp/case-definition.html>) to CDC's Emergency Operations Center.

The District of Columbia requests that physicians call the Department of Health Division of Epidemiology – Disease Surveillance and Investigation to discuss all patients being considered for Ebola Virus infections. Between 8:15 am – 4:45 pm an epidemiologist may be reached at 202-442-8141. Afterhours an epidemiologist may be reached by calling 311, identifying yourself as a health care provider, and asking to speak with the Department of Health epidemiologist or email the Department of Health directly at John.Davies-Cole@dc.gov concerning Ebola.

For more information:

Additional information on EVD can be found at: <http://www.cdc.gov/ebola>

Travel notices for each country can be found at:

- *Guinea: <http://wwwnc.cdc.gov/travel/notices/alert/ebola-guinea>*
- *Liberia: <http://wwwnc.cdc.gov/travel/notices/alert/ebola-liberia>*
- *Sierra Leone: <http://wwwnc.cdc.gov/travel/notices/alert/ebola-sierra-leone>*