HEALTH ADVISORY:
Respiratory Illnesses Due to Enterovirus D68 (EV-D68)

SUMMARY: Recently, hospitals in a number of states report seeing an unusually high number of children with severe respiratory illness caused by enterovirus D68 (EV-D68). The Centers for Disease Control and Prevention (CDC) is working with multiple states, including New York and Connecticut, to track respiratory illnesses to determine if they were caused by EV-D68. To date, there have been no confirmed cases of EV-D68 in Boston, however BPHC continues to closely monitor emergency departments in the city for trends in respiratory distress and asthma-related hospital visits compared to previous years. Clusters of illness are reportable to the Boston Public Health Commission at 617-534-5611.

BACKGROUND
Enteroviruses are very common viruses, and there are more than 100 different types. Enteroviruses are estimated to cause 10 to 15 million infections in the United States yearly, with most occurring in the summer or fall. While many people infected with enteroviruses have no symptoms or only mild symptoms, some infections can be serious.

EV-D68 was first identified in California in 1962, but is relatively rare compared to other enteroviruses. Clusters of respiratory illness associated with the virus have been described previously in Asia, Europe, and the U.S. during 2008-2010. Like other enteroviruses, EV-D68 appears to spread through close contact with infected people, most likely when an infected person coughs, sneezes, or when an uninfected person touches contaminated surfaces. While the majority of enteroviruses manifest as a mild upper respiratory illness, febrile rash illness, or neurologic illness, EV-D68 has been associated almost exclusively with respiratory disease.

Though there have been no confirmed cases of EV-D68 in Boston to date, BPHC continues to closely monitor emergency departments (EDs) in the city for trends in respiratory distress compared to previous years. Because EV-D68 also causes more severe illness in patients with a prior history of asthma, BPHC also continues to monitor EDs in the city for asthma-related visits for trends compared to previous years.
Between August 1 and September 16, 296 children under the age of 18 presented to EDs with respiratory distress. The average age of these children was four, and 32% required hospitalization. During the same time period in 2013, 258 children under the age of 18 presented to EDs with asthma-related illness. The average age of these children was five, and 28% required hospitalization.

SYMPTOMS
EV-D68 has been reported to cause mild to severe respiratory illness, though the full spectrum of illness is not well-defined. During the most recent clusters:
- Many patients presented with cough and respiratory distress, sometimes severe
- Most EV-D68 cases were not febrile, although fever may occur
- Many patients had a prior history of asthma or wheezing, and new-onset wheezing or asthma exacerbation were notable symptoms.

DIAGNOSTIC TESTING
Testing outpatients (not requiring hospitalization) for respiratory enterovirus infection is not recommended. Diagnostic testing is recommended for severe respiratory illness without an identified cause. The Hinton State Laboratory Institute (HSLI) will accept nasopharyngeal specimens to test for enterovirus / rhinovirus in patients with severe respiratory illness consistent with enteroviral infection, as well as spinal fluid or stool in cases of aseptic meningitis, flaccid paralysis, or clusters of respiratory illness. HSLI reports that their turnaround time for the enterovirus / rhinovirus test is 24 hours; no testing is done on weekends. Collecting samples during the first week of illness is ideal. Samples collected in the second week should also include a rectal swab or stool sample.

Testing at the HSLI will ONLY identify as human enterovirus / rhinovirus species. Subtype identification for EV-D68 can be performed by the CDC, but significant delays in turnaround time have been reported. Samples that are positive for enterovirus / rhinovirus will be sent to the CDC for specific EV-D68 testing.

INFECTION CONTROL
Prevention is through general respiratory and hand hygiene. There is no vaccine or specific therapy other than supportive care and management of complications. Wash hands often with soap and water for 20 seconds, especially after changing diapers. Alcohol based hand sanitizers are less effective against enteroviruses. Health care providers should use standard and droplet precautions. A 10% bleach solution is suggested for disinfection.

PREVENTION
To help reduce the risk of infection with EV-D68, health care providers should recommend the following:
- Wash hands often with soap and water for 20 seconds, especially after changing diapers. Alcohol based hand sanitizers are less effective against enteroviruses
- Avoid touching eyes, nose or mouth with unwashed hands
- Avoid kissing, hugging, and sharing cups or eating utensils with people who are sick
- Disinfect frequently touched surfaces, such as toys and doorknobs, especially if someone is sick
- For disinfection a freshly prepared 10% bleach solution is suggested
- Optimize asthma control plans

The BPHC Infectious Disease Bureau is working with the BPHC Asthma Program to provide information to their constituents and collaborators. The BPHC ID Bureau is also working with the Boston Public Schools (BPS) and day care facilities to provide information.

REPORTING
Healthcare providers in Boston should report any clusters of illness, including severe respiratory illness, directly to the Boston Public Health Commission at 617-534-5611. Also all cases of meningitis are reportable to BPHC. Reporting forms are available at http://www.bphc.org/cdc.

FOR MORE INFORMATION
Information about EV-D68 is available from CDC at http://www.cdc.gov/non-polio-enterovirus/about/EV-D68.html.