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Acute Flaccid Myelitis in the United States

Background: Acute Flaccid Myelitis (AFM) is a subset of Acute Flaccid Paralysis (AFP) and has been associated with viruses such as polio and non-polio enterovirus, West Nile virus, herpesvirus and adenoviruses.¹ AFM is not a reportable disease in the United States; therefore, there is no baseline disease prevalence. Increased incidence of AFM from August 2014 to July 2015 led to a request from the Centers of Disease Control and Prevention (CDC) to enhance the surveillance of AFM to further characterize the disease, its prevalence, and causative agents. During this time, an outbreak of AFM occurred in 120 children in 34 states (no cases were identified in Montana). The CDC outbreak case definition included cases with an onset of acute limb weakness on or after August 1, 2014 with an MRI showing spinal cord lesions restricted to gray matter in patients ≤ 21 years of age. The majority of cases were hospitalized. Patients usually presented with a fever and/or respiratory illness before the onset of any neurological symptoms. The documented increase in AFM coincided with an Enterovirus D-68 (EV-D68) outbreak, but the cause of AFM largely remains to be determined. Overall, within the United States and with no specifications on age, a total of 115 people were reported to have confirmed AFM in 2014 and 16 in 2015.²

Symptoms: AFM is characterized by a sudden onset of limb weakness with loss of muscle tone and reflexes within hours to a few days. Additional symptoms may include facial droop/weakness, drooping lids, difficulty moving eyes, difficulty swallowing, slurred speech, and some patients may be unable to pass urine. There can be pain in the arms or legs before the onset of paralysis, although in rare cases the arms or legs can also feel numbness or tingling. For more severe cases of AFM, respiratory failure can occur causing the patient to need a ventilator for breathing support.³

Case Definition and Specimen Collection: Those at greatest risk of developing AFM are children ≤ 21 years of age, but that does not exclude adults as they are more susceptible to AFM when associated with West Nile virus or herpesvirus infection. The CDC case definition defines a confirmed case of AFM as an acute onset of focal limb weakness and an MRI showing spinal cord lesions largely restricted to the gray matter and spanning one or more spinal segments. A probable case of AFM includes acute onset of focal limb weakness and cerebral spinal fluid (CSF) with pleocytosis (white blood cell count >5 cell/mm³, adjusting for presence of red blood cells by subtracting 1 white blood cell for every 500 red blood cells present)⁴. AFM is not to be confused with Guillain-Barré syndrome, in which the body's immune system attacks and damages nerve cells in the peripheral nervous system, the central nervous system is not directly involved, resulting in muscle weakness and sometimes paralysis. If AFM is suspected clinicians should ensure that testing is performed to obtain further evidence to confirm the case. It is recommended that specimens should be collected as soon as possible after onset of symptoms. These samples include CSF, blood (serum and whole blood prior to treatment of IVIG), nasopharyngeal aspirate, wash or swab with a lower respiratory specimen if indicated, oropharyngeal swab, and two stool samples 24 hours apart, preferably with the first being after the onset of limb weakness.⁵ An MRI is required to confirm a diagnosis of AFM.

Recommendations: Enhanced surveillance of AFM is important for understanding potential causes, risk factors, prevention and treatments for the condition, as well as establishing a clear case definition and obtaining baseline data to understand disease prevalence. Clinicians should report all suspected cases to their local public health jurisdiction regardless of lab results. Local public health jurisdictions, with help of the attending physician, can coordinate specimen collection. Please consult with the Communicable Disease Epidemiology section at DPHHS at 406-444-0273 with any questions/concerns.

¹ CDC. "Frequently Asked Questions." Centers for Disease Control and Prevention. January 22, 2016. <http://www.cdc.gov/acute-flaccid-myelitis/faqs.html>

² CDC. "AFM-Surveillance." Centers for Disease Control and Prevention. February 18, 2016. <http://www.cdc.gov/acute-flaccid-myelitis/afm-surveillance.html>

³ CDC. "About Acute Flaccid Myelitis." Centers for Disease Control and Prevention. January 22, 2016. <http://www.cdc.gov/acute-flaccid-myelitis/about-afm.html>

⁴ CDC. "Case Definition." Centers for Disease Control and Prevention. January 22, 2016. <http://www.cdc.gov/acute-flaccid-myelitis/hcp/case-definition.html>

⁵ CDC. "Specimen Collection." Centers for Disease Control and Prevention. January 22, 2016. <http://www.cdc.gov/acute-flaccid-myelitis/hcp/specimens.html>