Acute Flaccid Myelitis
Investigation Guideline

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Attachments can be accessed through the Adobe Reader’s navigation panel for attachments. Throughout this document attachment links are indicated by this symbol ; when the link is activated in Adobe Reader it will open the attachments navigation panel. The link may not work when using PDF readers other than Adobe.
## Revision History:

<table>
<thead>
<tr>
<th>Date</th>
<th>Replaced</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/2018</td>
<td>02/2018</td>
<td>Updated notification section with new regulation requirements.</td>
</tr>
<tr>
<td>02/2018</td>
<td>12/2016</td>
<td>Updated case definition and CDC patient information form and instructions. Added description of sending NP swabs if previously tested positive for entero/rhinovirus to Laboratory Analysis Section.</td>
</tr>
<tr>
<td>12/2016</td>
<td>05/2016</td>
<td>Updated Laboratory Analysis section and Tables 1 and 2 based on new CDC guidance. Job Aid for Clinicians was added on 3/2017. No major revision changes.</td>
</tr>
</tbody>
</table>
Acute Flaccid Myelitis (AFM)
Disease Management and Investigation Guidelines

CASE DEFINITION (CDC, 2018)

Clinical criteria for Public Health Surveillance:
An illness with onset of acute focal limb weakness.

Laboratory criteria:
An illness with onset of acute focal limb weakness.
- Confirmatory Laboratory Evidence: a magnetic resonance image (MRI) showing spinal cord lesion largely restricted to gray matter* and spanning one or more vertebral segments
- Supportive Laboratory Evidence: cerebrospinal fluid (CSF) with pleocytosis (white blood cell count >5 cells/mm³)

Case Classification:

Probable:
- Clinically compatible case AND
- Supportive laboratory evidence: CSF showing pleocytosis (white blood cell count >5 cells / mm³)

Confirmed:
- Clinically compatible case AND
- Confirmatory laboratory evidence: MRI showing spinal cord lesion largely restricted to gray matter † and spanning one or more spinal segments.

* Spinal cord lesions may not be present on initial MRI; a negative or normal MRI performed within the first 72 hours after onset of limb weakness does not rule out AFM.
† Terms in the spinal cord MRI report such as “affecting mostly gray matter,” “affecting the anterior horn or anterior horn cells,” “affecting the central cord,” “anterior myelitis,” or “poliomyelitis” would all be consistent with this terminology.

Comments on AFM Surveillance:
- Purpose: to further understand the impact of AFM including potential causes and how often the illness occurs in the United States.
- To accomplish this, specimens, including cerebrospinal fluid, blood, and stool specimens from the children with AFM, are tested at the Centers for Disease Control and Prevention (CDC) Polio and Picornavirus Laboratory Branch.
- The testing that is done at the CDC is for investigational purposes, and it is unlikely that results would be available in a timely fashion to guide the clinical management of the patient.
- For testing done at CDC, CDC will not provide individual clinical reports of specific results as the testing done uses assays that are not CLIA-Approved and are not intended for clinical diagnosis. Results that indicate possible cause of AFM will be rapidly publicized.
NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

1) Suspected cases of AFM shall be reported within 24 hours, except if the reporting period ends on a weekend or state-approved holiday, the report shall be made by 5:00 p.m. on the next business day after the 24-hour period.

2) Health care providers and hospitals report to KDHE-BEPHI by calling 1-877-427-7317 and submitting the AFM Patient Case Summary Form AND copy of pertinent medical records.

    Kansas Department of Health and Environment (KDHE)
    Bureau of Epidemiology and Public Health Informatics (BEPHI)
    Phone: 1-877-427-7317    Fax: 1-877-427-7318

3) KDHE-BEPHI must approve the laboratory testing prior to specimen submission and will serve as a consultant providing guidance on specimens to submit for testing at public health laboratories.

4) KDHE-BEPHI will contact the Kansas Health and Environmental Laboratories (KHEL) and provide them with a copy of page one of the AFM Patient Case Summary Form.

5) KHEL staff will prepare to receive and package the specimens for shipment to CDC and will email the CDC representatives on what is being shipped.

LABORATORY ANALYSIS:

Please note, that testing done at CDC is not for clinical diagnosis. The CDC will not provide individual reports of specific tests. Results that indicate a possible cause of AFM will be rapidly publicized.

After approval of specimens for the AFM study at CDC, a full set of specimens (listed under Specimen Collection) with a completed Form 50.34 should be sent for delivery Monday – Friday to:

    Kansas Health and Environmental Laboratories
    Attention: Virology/Serology – AFM Testing
    6810 SE Dwight Street
    Topeka, KS 66620
    Telephone Number: 785-296-1644

Handling and Shipping

1) Samples should be refrigerated or frozen and shipped as soon as possible.

2) Shipment of approved samples should meet the following requirements:
   • Accompanied by a completed CDC Form 50.34.
   • Shipped in an insulated category B shipper with cold packs for refrigerated samples (or dry ice for frozen samples).
   • Delivery arranged to KHEL for Monday through Friday

3) KHEL will freeze those samples that CDC requests to be shipped frozen and will ship to the CDC on dry ice.

4) With each patient’s specimen KHEL will submit a hard copy of the following:
   • Page 1 of the completed Acute Flaccid Myelitis: Patient Summary Form.
   • A completed submission form 50.34.

5) Further guidance on proper handling of specimens for viral testing can be found at
www.kdheks.gov/virosero/Viral_Isolation.html, including:

- Viral Culture Rejection Criteria (.pdf)
- Viral Culture Specimen Collection and Transport Guidelines (.pdf)

**Specimen Collection**

1) Collect specimens as early as possible in the course of illness, preferably on the day of onset of limb weakness.

2) Specimens should be collected and sent even if testing for any other etiological agent such as EV-D68 occurred and were negative.

3) For currently hospitalized patients, collect all the specimens listed below.
   - If they have not been collected or no specimen is remaining, it is requested that repeat specimens be collected.

4) For patients discharged from the hospital:
   - If it has been less than 30 days since the hospital admission date, please send any stored specimens from the list below. If any were not collected or no longer available, consider obtaining the specimen from the patient.
   - If it has been more than 30 days since the hospital admission date, please send any stored specimens listed below.

5) EACH of the following specimens is requested:
   - CSF: 2mL unspun or 1mL if spun and processed
   - Serum: 2-3 cc collected in red top or tiger-top tubes prior to treatment with IVIG or plasmapheresis. (If treatment has already occurred, indicate date of therapy on the Acute Flaccid Myelitis: Patient Summary Form).
     - Acute: Collect as soon as possible.
     - Convalescent: Collected 10-14 days after first serum, or at the time of patient discharge, whichever comes first
   - Whole blood: 3-5 mL collected in a lavender/green top tube (with anticoagulant); collect at same time or within 24 hours of CSF
   - Two stools specimens collected 24 hours apart two quarter-sized amounts in sterile wide-mouth container or two rectal swabs in viral transport media.
   - Respiratory NP or nasal swab in at a minimum 1 ml of viral transport, sent only for typing if specimen was positive for enterovirus or rhinovirus at external lab.

For additional information, including information on pathology specimens, review Table 1 and Table 2 extracted from the CDC webpage: www.cdc.gov/acute-flaccid-myelitis/hcp/instructions.html

**EPIDEMIOLOGY**

AFM is one of a number of conditions that can result in neurologic illness with limb weakness. Such illnesses can result from a variety of causes, including viral infections, environmental toxins, genetic disorders, and Guillain-Barre syndrome. From August 2014 to July 2015, CDC verified reports of 120 children in 34 states who developed AFM. The apparent increase in AFM in 2014 coincided with an outbreak of severe respiratory illness caused by enterovirus D68 (EV-D68). Despite the timing, a cause for the 2014 AFM cases has not been determined.
DISEASE OVERVIEW

A. Agent:
The specific causes of this illness are still under investigation. Additional laboratory testing at the will attempt to determine an etiological agent. The AFM cases are most similar to illnesses caused by viruses, including:
- Enteroviruses (polio and non-polio),
- Adenovirus,
- West Nile virus and similar viruses, and
- Herpesviruses

B. Clinical Description:
The condition affects the nervous system, specifically the spinal cord resulting in a sudden onset of limb weakness and loss of muscle tone and reflexes. Additional developments may include: facial droop/weakness, difficulty moving the eyes, drooping eyelids, or difficulty with swallowing or slurred speech. Numbness or tingling is rare, though some patients may have pain in arms or legs. Some patients may not be able to pass urine, and the most severe symptom is paralysis of the muscles of respiration.

C. Reservoirs:
Dependent upon agent, but may include humans and mosquitos

D. Mode(s) of Transmission:
Dependent upon agent, but may include person-to-person via fecal-oral and/or respiratory secretions, or vector-borne by bite of the arthropod

E. Incubation Period:
Dependent upon agent. For comparison, paralytic polio cases were reported with a range of 3 to possibly 35 days, commonly within 7-14 days.

F. Period of Communicability:
Not well defined, but as long as agent is excreted (body fluids/feces) or present in blood. For enteroviruses, fecal viral shedding can persist for several weeks or months after onset of infection, but respiratory tract shedding usually is limited to 1 to 3 weeks or less. Viral shedding can occur without clinical illness.

G. Differential Diagnoses:
Other etiologies of childhood acute flaccid paralysis, such as bacterial infections of the central nervous system, Guillain-Barré syndrome, transverse myelitis, or other immune-mediated etiologies should be considered, and if found, appropriate intervention should be rendered.

The following document provides interim considerations for clinical management of “Acute flaccid myelitis” when the alternative diagnosis has been explored and not found:
INVESTIGATOR RESPONSIBILITIES

1) **Report** all AFM cases to the KDHE-BEPHI.
2) Contact medical provider to collect additional information and confirm diagnosis using current **case definition**.
3) Consult with KDHE-BEPHI, to obtain approval for testing at CDC.
   - Forward pertinent medical records and information to KDHE-BEPHI.
   - An EpiTrax record will be created for all approved cases, and the case morbidity report (CMR) number will be used as the “Patient Identification Number” for all forms and specimens sent to CDC.
   - Ensure specimens are **forwarded to KHEL** and an **AFM Patient Case Summary Form** is completed and **sent to KDHE-BEPHI**.
4) **Record** data, collected during the investigation, in the KS EpiTrax system under the data’s associated [tab] in the case morbidity report (CMR).
5) If requested, assist with the completion of any additional reporting forms or investigation as directed by KDHE-BEPHI.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

**Case Investigation**

Standard case investigation will entail completion of the **AFM Patient Case Summary Form** utilizing CDC provided instructions and ensuring appropriate specimens are forwarded to the KHEL.

**Contact Investigation**

No routine contact investigation will be needed for sporadic cases. Further guidance will be provided by KDHE-BEPHI depending upon the situation.

**Isolation, Work and Daycare Restrictions**

Restrictions are dependent upon the suspected etiological agent. Utilize the following resources:

- [KAR 28-1-6 Requirements for Isolation and Quarantine of Specific Infectious and Contagious Diseases](#)
- [Kansas Classroom Handbook of Communicable Diseases](#)
- [Control of Communicable Diseases Manual](#)

**Education**

Education measures will be influenced by the suspected etiological agent, but the general prevention messages may include:

- Following recommended vaccination schedules,
- Avoiding mosquitoes bites,
- Promoting respiratory and hand hygiene etiquette,
- Limiting contact of ill individuals with others, and
- Extra cleaning of contact surfaces with disinfectants.
DATA MANAGEMENT AND REPORTING TO THE KDHE

A. Accept the case assigned to the LHD and record the date the LHD investigation was started on the [Administrative] tab.

B. Organize and collect data, using appropriate data collection tools including:
   - AFM Patient Case Summary Form (This form may have already been completed and reported to KDHE. If available, it can be found in attachments on [Notes] tab.)

C. Report data collected during the course of the investigation via EpiTrax.
   - Enter any additional information directly into EpiTrax [Investigation], [Clinical], [Demographics], [Epidemiological] tabs.
   - Some data that cannot be reported on an EpiTrax [tab] may need to be recorded in [Notes] or scanned and attached to the record.
   - Paper report forms do not need to be sent to KDHE after the information is recorded and/or attached in EpiTrax. The forms should be handled as directed by local administrative practices.

D. Once the investigation is completed, the LHD investigator will record the date the investigation was completed on the [Administrative] tab and click the “Complete” button. This will trigger an alert to the LHD Administrator so they can review the case before sending to the state.
   - The LHD Administrator will then “Approve” or “Reject” the CMR.
   - Once a case is “Approved” by the LHD Administrator, BEPHI staff will review and close the case after ensuring it is complete and that the case is assigned to the correct event, based on the reported symptoms reported. (Review the EpiTrax User Guide, Case Routing for further guidance.)

ADDITIONAL INFORMATION / REFERENCES


C. Case Definitions: CDC Division of Public Health Surveillance and Informatics, Available at: www.cdc.gov/nndss/

D. Kansas Regulations/Statutes Related to Infectious Disease: www.kdheks.gov/epi/regulations.htm


ATTACHMENTS

To view attachments in the electronic version:
   1. Go to <View>; <Navigation Pane>; <Attachments> – OR – Click on the “Paper Clip” icon at the left.
   2. Double click on the document to open.
Table 1: Routine specimens to be collected from Suspect AFM Cases:

<table>
<thead>
<tr>
<th>Specimen type</th>
<th>Minimum Amount</th>
<th>Collection</th>
<th>Storage</th>
<th>Shipping</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cerebrospinal fluid (CSF)</td>
<td>2 mL</td>
<td>Unspun; standard cryovial tube; collect at same time or within 24 hours as whole blood</td>
<td>Refrigerate at 4°C</td>
<td>Ship on cold pack overnight.</td>
<td>Insulate tubes to ensure they are not in direct contact with cold pack</td>
</tr>
<tr>
<td>Serum</td>
<td>0.4 mL</td>
<td>Spun and processed; Tiger/red top tube</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice.</td>
<td></td>
</tr>
<tr>
<td>Whole blood</td>
<td>3-5 mL</td>
<td>Lavender/green top tube (with anticoagulant); collect at same time or within 24 hours as CSF</td>
<td>Refrigerate at 4°C</td>
<td>Ship on cold pack overnight.</td>
<td>Insulate tubes to ensure they are not in direct contact with cold pack</td>
</tr>
<tr>
<td>Stool</td>
<td>Ranked below by first to last preference</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Whole stool</td>
<td>≥1gram</td>
<td>Collect in sterile container, no special medium required</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice.</td>
<td>Two samples total, collected at least 24 hours apart, both collected as early in illness as possible and ideally within 14 days of illness onset</td>
</tr>
<tr>
<td>2. Rectal swab ²</td>
<td>≥1gram</td>
<td>Store in viral transport medium</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice.</td>
<td>Two samples total, collected at least 24 hours apart, both collected as early in illness as possible and ideally within 14 days of illness onset</td>
</tr>
</tbody>
</table>

²For rectal swabs please use only sterile dacron or rayon swabs with plastic shafts or if available, flocked swabs. DO NOT use calcium alginate swabs or swabs with wooden sticks, as they may contain substances that inactivate some viruses and inhibit some molecular assays. Sterile PBS or Hank’s balanced salt solution (HBSS) (no antibiotics) can be used in lieu of viral transport medium.

²Convalescent sera should be collected 10-14 days after the first serum specimen, or at time of patient discharge, whichever comes first.

Table 2 listing optional specimens (including tissue for death) found on the next page.
Table 2: Non-routine specimens collected from Suspect AFM Cases:

<table>
<thead>
<tr>
<th>Optional</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory – NP/OP swab</td>
<td>1 mL</td>
<td>Store in viral transport medium</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice. Send only if specimen was EV/RV positive. Specimen can be typed by CDC.</td>
</tr>
<tr>
<td>In the event of death, please send the following specimens, if possible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh-frozen tissue</td>
<td></td>
<td>Place directly on dry ice or liquid nitrogen</td>
<td>Freeze at -70°C</td>
<td>Ship on dry ice. Representative sections from various organs are requested, but particularly from brain/spinal cord (including gray and white matter), heart, lung, liver, kidney, and other organs as available.</td>
</tr>
<tr>
<td>Formalin-fixed or formalin-fixed, paraffin-embedded tissue</td>
<td></td>
<td>Avoid prolonged fixation—tissues should have been fixed in formalin for 3 days, then transferred to 100% ethanol</td>
<td>Room temperature</td>
<td>Ship at room temperature with paraffin blocks in carriers to prevent breakage See comment above regarding frozen tissue</td>
</tr>
</tbody>
</table>

Figure. Technique for collection of a nasopharyngeal swab. For more information on the proper technique, see the videos at [Pertussis (Whooping Cough) Specimen Collection](#).

Ensure that patient meets **confirmed** or **probable** case definition for acute flaccid myelitis (AFM).

**Confirmed:**
Patient with acute onset of focal limb weakness and an MRI showing a spinal cord lesion largely restricted to gray matter and spanning one or more spinal segments.

**Probable:**
Patient with acute onset of focal limb weakness and cerebrospinal fluid (CSF) with pleocytosis (white blood cell (WBC) count >5 cells/mm³)

Contact your health department when you identify a suspect case of AFM.

**SPECIMEN COLLECTION**
Collect specimens as close to onset of limb weakness as possible and store as directed (see table on reverse side)
- CSF
- Serum
- Whole blood
- Stool
- NP swab

Work with your health department to coordinate submission of specimens for testing at CDC.
- Specimens should be shipped overnight to arrive at CDC Tuesday through Friday.
- Specimens should be shipped within 24–48 hours of collection, if possible.

**INFORMATION SHARING**
Complete **AFM Patient Summary Form** available at: [www.cdc.gov/acute-flaccid-myelitis/hcp/data.html](http://www.cdc.gov/acute-flaccid-myelitis/hcp/data.html)

Send copies of **Patient Summary Form** and other clinical information to health department for sharing with CDC.
## Specimens to collect and send to CDC for testing for suspect AFM cases

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>AMOUNT</th>
<th>TUBE TYPE</th>
<th>PROCESSING</th>
<th>STORAGE</th>
<th>SHIPPING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSF</td>
<td>1mL (collect at same time or within 24hrs of whole blood)</td>
<td>Cryovial</td>
<td>Spun and CSF removed to cryovial</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice</td>
</tr>
<tr>
<td>CSF</td>
<td>2 mL (collect at same time or within 24hrs of whole blood)</td>
<td>Cryovial</td>
<td>Unspun</td>
<td>Refrigerate at 4°C</td>
<td>Ship overnight on cold packs within <strong>24–48 hours</strong> of collection*</td>
</tr>
<tr>
<td>Serum</td>
<td>≥0.4mL</td>
<td>Tiger/red top</td>
<td>Spun and serum removed to tiger/red top</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice</td>
</tr>
<tr>
<td>Whole blood</td>
<td>3 to 5mL (collect at same time or within 24hrs of CSF)</td>
<td>EDTA/heparin tube (lavender or green top)</td>
<td>Unspun</td>
<td>Refrigerate at 4°C</td>
<td>Ship overnight on cold packs within <strong>24–48 hours</strong> of collection*</td>
</tr>
<tr>
<td>Stool</td>
<td>≥1 gram (2 samples collected 24hrs apart)</td>
<td>Sterile container</td>
<td>n/a</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice</td>
</tr>
<tr>
<td>Rectal swab</td>
<td>≥1 gram (2 samples collected 24hrs apart)</td>
<td>n/a</td>
<td>Store in viral transport medium</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice</td>
</tr>
<tr>
<td>Respiratory NP or nasal (mid-turbinate [MT]+OP) swab</td>
<td>1mL (minimum amount)</td>
<td>n/a</td>
<td>Store in viral transport medium</td>
<td>Freeze at -20°C</td>
<td>Ship on dry ice; send ONLY if EV/RV positive for typing</td>
</tr>
</tbody>
</table>

*If specimens cannot be shipped within 24-48 hours of collection, consider repeat collection, if feasible.

**Coordinate with health department to send information about suspect AFM cases and ship specimens to CDC.**
Instructions for Completing the AFM Patient Summary Form

GENERAL. Clinicians should remain vigilant and send information to their state or local health department for all patients with acute onset of neurologic illness associated with limb weakness that meet the clinical criteria for AFM (as highlighted on page 3).

a. Clinicians should send information about patients who meet the clinical criteria regardless of any laboratory and MRI results.

b. The AFM Patient Summary Form should be completed by the state or local health department, in conjunction with a clinician who provided care to the patient during the neurologic illness.

CDC requests that state health departments send the Patient Summary Form, along with additional clinical information, to CDC for case classification and to help monitor these cases at the national level. AFM neurology experts will classify suspect cases of AFM according to the Council of State and Territorial Epidemiologists (CSTE) AFM case definition using the requested clinical information: admission and discharge notes, MRI report, MRI images, neurology consult notes, infectious disease consult notes, vaccination record, diagnostic laboratory results, and EMG report if done and available. When sending this information, please indicate the information included with the Patient Summary Form in the box at the top of the form.

Demographics

1. TODAY’S DATE. Date that completion of the patient summary form is initiated.
2. STATE ASSIGNED ID. Alpha/numeric
3. SEX. Indicate whether the case-patient is male or female.
4. DATE OF BIRTH. Case-patient birth date.
5. RESIDENCE. State in which case-patient resides.
6. COUNTY. County in which case-patient resides.
7. RACE. Self-reported race of case-patient; more than one option may be reported.
8. ETHNICITY. Self-reported ethnicity of case-patient.
9. DATE OF ONSET OF LIMB WEAKNESS. Limb weakness onset date of case-patients.
10. HOSPITALIZED? Was case-patient hospitalized?
11. DATE HOSPITALIZED. Date case-patient FIRST hospitalized.
12. DATE DISCHARGED. Date case-patient discharged from LAST hospital (indicate if still hospitalized).
13. DIED? Did case-patient die from this illness?
14. DATE OF DEATH. Case-patient’s date of death.

Signs/symptoms/condition at ANY time during the illness

15. WEAKNESS. Specify for each limb (arms and or legs) if there was noted acute onset of weakness.

15a. TONE IN AFFECTED LIMB. Specify for each limb (arms and or legs) the tone in the limb with weakness (select one option per limb)

16. ICU? Was case-patient admitted to the ICU?
17. DATE ICU. Date case-patient admitted to ICU.
18. **RESPIRATORY ILLNESS?** Did case-patient have a respiratory illness within the 4-week period before onset of limb weakness?

19. **RESPIRATORY ILLNESS ONSET DATE.** Case-patient’s respiratory onset date.

20. **GASTROINTESTINAL ILLNESS?** Did case-patient have a gastrointestinal illness (e.g., diarrhea or vomiting) within the 4-week period before onset of limb weakness?

21. **GASTROINTESTINAL ILLNESS ONSET DATE.** Case-patient’s gastrointestinal illness onset date.

22. **FEVER?** Did case-patient have a fever (≥38°C/100.4°F), measured by parent or provider, within the 4-week period before onset of limb weakness?

23. **FEVER ONSET DATE.** Case-patient’s fever onset date.

24. **TRAVEL OUTSIDE U.S.?** Did case-patient travel outside the U.S. within the 4-week period before onset of limb weakness?

25. **IF YES, LIST.** If any, list the country(s) visited by the case-patient.

26. **UNDERLYING ILLNESSES?** Does the case-patient have any underlying illnesses?

27. **IF YES, LIST.** List the case-patient’s underlying illness(es).

### Other patient information

28. **MRI OF SPINAL CORD PERFORMED?** Indicate whether case-patient had an MRI of the spinal cord performed.

29. **DATE SPINAL MRI PERFORMED.** Date of the case-patient’s spinal cord MRI.

30. **MRI OF BRAIN PERFORMED?** Indicate whether case-patient had an MRI of the brain performed.

31. **DATE BRAIN MRI PERFORMED.** Date of the case-patient’s brain MRI.

### CSF examination

32. **LUMBAR PUNCTURE PERFORMED?** Indicate if there was a CSF examination done (option for up to two. If more than 2 CSF examinations performed, list the first 2 performed).

32a. **CSF from LP1.** Complete findings for lumbar puncture 1.

32b. **CSF from LP2.** Complete findings for lumbar puncture 1.

### Acute Flaccid Myelitis Outcome

Follow-up of suspect AFM cases, conducted at least 60 days after onset of limb weakness, will help ascertain if there is any residual paralysis. Follow-up can be done by contacting the case-patient/family for answers to the questions, reviewing medical records, or contacting the case-patient’s regular healthcare provider.

33. **DATE OF 60-DAY FOLLOW-UP.** Date that 60-day follow-up of the case-patient is initiated.

34. **SITES OF PARALYSIS.** Indicate the sites where the case-patient had paralysis.

35. **SPECIFIC SITES.** Specify the specific sites where the case-patient had paralysis.

36. **60-DAY RESIDUAL.** Indicate the status of the case-patient at the point of the 60-day follow-up.

37. **DATE OF DEATH.** Case-patient’s date of death during 60-day follow-up.
In June 2015, the Council of State and Territorial Epidemiologists (CSTE) adopted a standardized case definition for AFM that is used by CDC to classify suspected cases as confirmed or probable. The case definition was updated in June 2017 and is presented below.


**Clinical Criteria**
An illness with onset of acute flaccid limb weakness

**Laboratory Criteria**
- Confirmatory Laboratory Evidence: a magnetic resonance image (MRI) showing spinal cord lesion largely restricted to gray matter*† and spanning one or more vertebral segments
- Supportive Laboratory Evidence: cerebrospinal fluid (CSF) with pleocytosis (white blood cell count >5 cells/mm³)

**Case Classification**

**Confirmed:**
- Clinically compatible case AND
- Confirmatory laboratory evidence: MRI showing spinal cord lesion largely restricted to gray matter*† and spanning one or more spinal segments

**Probable:**
- Clinically compatible case AND
- Supportive laboratory evidence: CSF showing pleocytosis (white blood cell count >5 cells/mm³).

* Spinal cord lesions may not be present on initial MRI; a negative or normal MRI performed within the first 72 hours after onset of limb weakness does not rule out AFM. MRI studies performed 72 hours or more after onset should also be reviewed if available.
† Terms in the spinal cord MRI report such as “affecting mostly gray matter,” “affecting the anterior horn or anterior horn cells,” “affecting the central cord,” “anterior myelitis,” or “poliomyelitis” would all be consistent with this terminology.

**Comment**
To provide consistency in case classification, review of case information and assignment of final case classification for all suspected AFM cases will be done by experts in national AFM surveillance. This is similar to the review required for final classification of paralytic polio cases.
Acute Flaccid Myelitis: Patient Summary Form

FOR LOCAL USE ONLY

Name of person completing form: ___________________________ State assigned patient ID: ___________________________

Affiliation _______________________________________________ Phone: ___________________________ Email: ___________________________

Name of physician who can provide additional clinical/lab information, if needed ___________________________ Phone: ___________________________ Email: ___________________________

Name of main hospital that provided patient’s care: ___________________________ State: ___ County: _________________

_________________________________________________________ DETACH and transmit only lower portion to limbweakness@cdc.gov if sending to CDC

Acute Flaccid Myelitis: Patient Summary Form

Please send the following information along with the patient summary form (check information included):

☐ History and physical (H&P)  ☐ MRI report  ☐ MRI images  ☐ Neurology consult notes  ☐ EMG report (if done)
☐ Infectious disease consult notes (if available)  ☐ Vaccination record  ☐ Diagnostic laboratory reports

1. Today’s date ___/___/___ (mm/dd/yyyy)  2. State assigned patient ID: ___________________________


7. Race: ☐ American Indian or Alaska Native  ☐ Asian  ☐ Black or African American  ☐ Pacific Islander
☐ Native Hawaiian or Other Pacific Islander  ☐ White (check all that apply)  ☐ Not Hispanic or Latino

8. Ethnicity: ☐ Hispanic or Latino

9. Date of onset of limb weakness ___/___/___ (mm/dd/yyyy)

10. Was patient admitted to a hospital? ☐ yes  ☐ no  ☐ unknown  11. Date of admission to first hospital ___/___/___

12. Date of discharge from last hospital ___/___/___ (or ☐ still hospitalized at time of form submission)

13. Did the patient die from this illness? ☐ yes  ☐ no  ☐ unknown  14. If yes, date of death ___/___/___

<table>
<thead>
<tr>
<th>SIGNS/SYMPOTMS/CONDITION:</th>
<th>Right Arm</th>
<th>Left Arm</th>
<th>Right Leg</th>
<th>Left Leg</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Weakness? [indicate yes(y), no (n), unknown (u) for each limb]</td>
<td>Y N U</td>
<td>Y N U</td>
<td>Y N U</td>
<td>Y N U</td>
</tr>
<tr>
<td>15a. Tone in affected limb(s) [flaccid, spastic, normal for each limb]</td>
<td>☐ flaccid</td>
<td>☐ spastic</td>
<td>☐ normal</td>
<td>☐ unknown</td>
</tr>
<tr>
<td>☐ flaccid</td>
<td>☐ spastic</td>
<td>☐ normal</td>
<td>☐ unknown</td>
<td></td>
</tr>
<tr>
<td>☐ flaccid</td>
<td>☐ spastic</td>
<td>☐ normal</td>
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<td>☐ spastic</td>
<td>☐ normal</td>
<td>☐ unknown</td>
<td></td>
</tr>
</tbody>
</table>

16. Was patient admitted to ICU?  17. If yes, admit date: ___/___/___

18. Have a respiratory illness?  19. If yes, onset date ___/___/___

20. Have a gastrointestinal illness (e.g., diarrhea or vomiting)?  21. If yes, onset date ___/___/___

22. Have a fever, measured by parent or provider ≥38.0°C/100.4°F?  23. If yes, onset date ___/___/___

24. Travel outside the US?  25. If yes, list country: ___________________________

26. At onset of limb weakness, does patient have any underlying illnesses?  27. If yes, list: ___________________________

Other patient information:

28. Was MRI of spinal cord performed? ☐ yes  ☐ no  ☐ unknown  29. If yes, date of spine MRI: ___/___/___

30. Was MRI of brain performed? ☐ yes  ☐ no  ☐ unknown  31. If yes, date of brain MRI: ___/___/___

CSF examination: 32. Was a lumbar puncture performed? ☐ yes  ☐ no  ☐ unknown

If yes, complete 32 (a,b) (If more than 2 CSF examinations, list the first 2 performed)

<table>
<thead>
<tr>
<th>Date of lumbar puncture</th>
<th>WBC/mm³</th>
<th>% neutrophils</th>
<th>% lymphocytes</th>
<th>% monocytes</th>
<th>% eosinophils</th>
<th>RBC/mm³</th>
<th>Glucose mg/dl</th>
<th>Protein mg/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td>32a. CSF from LP1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32b. CSF from LP2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Public reporting burden of this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information including suggestions for reducing this burden to CDC/ATSDR Reports Clearance Officer; 1600 Clifton Road NE, MS D-74 Atlanta, Georgia 30333.
Acute Flaccid Myelitis Outcome – 60-day follow-up (completed at least 60 days after onset of limb weakness)

33. Date of 60-day follow-up: __/__/____/____/____/____ (mm/dd/yyyy)

34. Sites of Paralysis: □ Spinal □ Bulbar □ Spino-bulbar

35. Specific sites: _____________________________________________________________

36. 60-day residual: □ None □ Minor (any minor involvement) □ Significant (≥2 extremities, major involvement) □ Severe (≥3 extremities and respiratory involvement) □ Death □ Unknown

37. Date of death: __/__/____/____/____/____ (mm/dd/yyyy)

Acute Flaccid Myelitis case definition

Clinical Criteria
An illness with onset of acute flaccid limb weakness

Laboratory Criteria
- Confirmatory Laboratory Evidence: a magnetic resonance image (MRI) showing spinal cord lesion largely restricted to gray matter**† and spanning one or more vertebral segments
- Supportive Laboratory Evidence: cerebrospinal fluid (CSF) with pleocytosis (white blood cell count >5 cells/mm³)

Case Classification

Confirmed:
- Clinically compatible case AND
- Confirmatory laboratory evidence: MRI showing spinal cord lesion largely restricted to gray matter**† and spanning one or more spinal segments

Probable:
- Clinically compatible case AND
- Supportive laboratory evidence: CSF showing pleocytosis (white blood cell count >5 cells/mm³).

* Spinal cord lesions may not be present on initial MRI; a negative or normal MRI performed within the first 72 hours after onset of limb weakness does not rule out AFM. MRI studies performed 72 hours or more after onset should also be reviewed if available.

† Terms in the spinal cord MRI report such as “affecting mostly gray matter,” “affecting the anterior horn or anterior horn cells,” “affecting the central cord,” “anterior myelitis,” or “poliomyelitis” would all be consistent with this terminology.

Comment
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Acute Flaccid Myelitis specimen collection information
(https://www.cdc.gov/acute-flaccid-myelitis/hcp/instructions.html)

Acute Flaccid Myelitis job aid

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