

Transmissible Spongiform Encephalopathy (TSE) or Prion Disease (includes CJD; vCJD) 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:

Date	Replaced	Comments
05/2018	03/2011	Notification Section modified with requirements of revised regulations. Updated web links.
03/2011	09/2010	Minor formatting and editing of investigation guideline, fact sheet and questionnaire.

TSE or Prion

Disease Management and Investigation Guidelines

DIAGNOSTIC CRITERIA

Diagnostic Criteria Creutzfeldt-Jakob Disease (CJD), CDC 2010

Sporadic CJD:

Definite (Confirmed): Diagnosed by standard neuropathological techniques; and/or immunocytochemically; and/or Western blot confirmed protease-resistant PrP; and /or presence of scrapie-associated fibrils.

Probable: Rapidly progressive dementia; and at least two out of the following four clinical features:

- Myoclonus
- Visual or cerebellar signs
- Pyramidal/extrapyramidal signs
- Akinetic mutism

AND a positive result on at least one of the following laboratory tests:

- atypical electroencephalography EEG (periodic sharp wave complexes) during an illness of any duration; and/or
- a positive 14-3-3 cerebrospinal fluid (CSF) assay in patients with a disease duration of less than 2 years; and/or
- Magnetic resonance imaging (MRI) high signal abnormalities in caudate nucleus and/or putamen on diffusion-weighted imaging (DWI) or fluid attenuated inversion recovery (FLAIR)

AND no alternative diagnosis

Possible: Progressive dementia; and at least two of the following four clinical features:

- Myoclonus
- Visual or cerebellar signs
- Pyramidal/extrapyramidal signs
- Akinetic mutism

AND the absence of a positive result for any of the three laboratory tests that would classify a case as “probable” (see tests a-c above)

AND duration of illness less than two years

AND no alternative diagnosis

Iatrogenic CJD:

Progressive cerebellar syndrome in a recipient of human cadaveric-derived pituitary hormone; or sporadic CJD with a recognized exposure risk, e.g., antecedent neurosurgery with dura mater implantation.

Familial CJD:

Definite or probable CJD plus definite or probable CJD in a first degree relative (e.g. mother, father, brother, sister); and/or neuropsychiatric disorder plus disease-specific PrP gene mutation.

Diagnostic Criteria for Variant Creutzfeldt-Jakob Disease (vCJD) in the United States, CDC 2003

Variant Creutzfeldt-Jakob Disease (vCJD):

Definite: Neuropathologic examination of brain tissue is required to confirm a diagnosis of variant CJD. The following confirmatory features should be present;

- Numerous widespread kuru-type amyloid plaques surrounded by vacuoles in both the cerebellum and cerebrum - florid plaques.
- Spongiform change and extensive prion protein deposition shown by immunohistochemistry throughout the cerebellum and cerebrum.

Suspected:

- a. Current age or age at death <55 years (a brain autopsy is recommended for all physician-diagnosed CJD cases).
- b. Psychiatric symptoms at illness onset and/or persistent painful sensory symptoms (frank pain and/or dysesthesia).
- c. Dementia and development ≥ 4 months after illness onset of at least two of the following five neurologic signs: poor coordination, myoclonus, chorea, hyperreflexia, or visual signs. (If persistent painful sensory symptoms exist, ≥ 4 month delay in the development of the neurologic signs is not required).
- d. A normal or an abnormal EEG, but not the diagnostic EEG changes often seen in classic CJD.
- e. Duration of illness of greater than 6 months.
- f. No alternative, non-CJD diagnosis.
- g. No history of receipt of cadaveric human pituitary growth hormone or a dura mater graft.
- h. No history of CJD in a first degree relative or prion protein gene mutation in the patient.

NOTE:

1. If a patient has the typical bilateral pulvinar high signal on MRI scan, a suspected diagnosis of variant CJD requires the presence of a progressive neuropsychiatric disorder, d, e, f and g of the above criteria, and four of the following five criteria: 1) early psychiatric symptoms (anxiety, apathy, delusions, depression, withdrawal); 2) persistent painful sensory symptoms (frank pain and/or dysesthesia); 3) ataxia; 4) myoclonus or chorea or dystonia; and 5) dementia.
2. A history of possible exposure to bovine spongiform encephalopathy (BSE) such as residence or travel to a BSE-affected country after 1980 increases the index of suspicion for a variant CJD diagnosis.

LABORATORY ANALYSIS

Testing for prion diseases is not provided by the Kansas Health and Environment Laboratories, but the National Prion Disease Pathology Surveillance Center (NPDPSC) does provide testing. The NPDPSC:

- Acquires tissue samples and clinical information from cases of human prion disease occurring in the United States (US) to monitor for vCJD.
- Diagnoses prion disease by analyzing cerebrospinal fluid (CSF), blood, and brain tissue obtained either at biopsy or autopsy.
- Identifies the precise type of prion disease (sporadic, familial, or acquired) by examining the prion protein and the prion protein gene.
- Report findings to caregivers in a timely fashion.
- Submits data to CDC and state health departments who monitor prevalence and investigate possible cases of transmissible disease.
- Stores tissues for future studies.

Diagnostic tests performed by NPDPSC:

- CSF: Search for the presence of the 14-3-3 protein, a marker for some prion diseases, such as Creutzfeldt-Jakob disease (CJD).
- Blood, brain, or other tissues: DNA extracted and examined for mutations in the prion protein gene and polymorphism at codon 129 and at other codons.
- Unfixed brain tissue: obtained either at biopsy or autopsy; examined for presence and type of the abnormal, protease-resistant form of the prion protein, also known as scrapie prion protein (PrP^{Sc}).
- Fixed brain tissue: Exclude or confirm and characterize the prion disease by microscopic examination following ordinary histological procedures and immunohistochemical demonstration of the prion protein.

Note: **Only an examination of frozen brain tissue** can confirm or exclude the diagnosis of prion disease and provide information to identify the type of prion disease. CSF and blood examinations provide information that may be helpful to physicians in making a clinical diagnosis.

Specimen collection, shipping, and testing:

- For details regarding the collection and shipment of clinical specimens, visit the NPDPSC website at www.cjdsurveillance.com.
 - Protocols are available for specimen collection and test reporting (including turnaround times).
 - Forms are available for autopsy consent, test request, and test reporting.
 - Instructions for contacting and mailing to the NPDPSC are provided.

EPIDEMIOLOGY

- Prion diseases or transmissible spongiform encephalopathies (TSEs) are a group of rare disease of the brain characterized by a degenerative neuropathology and tissue deposition of an abnormal form of a normal prion protein.
- Human prion diseases are comprised of: Creutzfeld-Jakob In humans (CJD) and its four known variants: sporadic (sCJD); genetic (gCJD); variant (vCJD) and iatrogenic (iCJD) and the less common prion disease include Gerstmann-Straussler-scheinker syndrome (GSS); Kuru; and fatal familial insomnia (FFI). The most common prion disease, sCJD, has a 1-2 per million mortality rate with the highest age-specific mortality rate in the 65-79 age group (more than 5 cases/million. Genetic CJD have been reported in familial clusters in Chile, Israel, and Slovakia.
- In the 1990s, vCJD was recognized in the United Kingdom (UK) associated with the consumption of BSE-infected beef. BSE, or bovine spongiform encephalopathy, is an animal prion disease of cattle similar to scrapie in sheep, chronic wasting disease in deer and elk, and transmissible mink encephalopathy. As of March 2008, 206 cases of vCJD have been reported worldwide, mostly in the UK and Europe. In the United States there have not been any reported cases of endemically acquired vCJD though health care providers should be alert for cases in persons who have lived in the UK or Europe.

DISEASE OVERVIEW

A. Agent:

A prion is suspected; induces abnormal folding of normal cellular prions in the brain, leading to brain damage and the characteristic signs and symptoms.

B. Clinical Description:

Sporadic CJD begins with cognitive and behavioral changes and progresses to include physical neurologic abnormalities (e.g., myoclonus, ataxia, rigidity). Death is often caused by aspiration or sepsis. Typically, 90% of sCJD patients die within 12 months of illness onset; with a mean survival time of 5 months.

Variant CJD is characterized primarily by behavioral changes (e.g., psychosis, depression), painful sensory symptoms, a younger age of onset, and a longer duration of illness. [Table 1](#) shows clinical and pathologic differences for vCJD and sCJD.

C. Reservoirs

It is unknown whether a reservoir exists for the most common human prion disease, sCJD.

Table 1: Clinical and pathologic characteristics distinguishing vCJD from sCJD

	vCJD	sCJD
Median age at death	28 years	68 years
Median duration of illness	13–14 months	4–5 months
Clinical signs and symptoms	Prominent psychiatric/ behavioral symptoms; painful dysesthesia; delayed neurologic signs	Dementia; early neurologic signs
Periodic sharp waves on EEG	Absent	Often present
“Pulvinar sign” on MRI*	Present in >75%	Not reported
Presence of “florid plaques” on neuropathology	Present in large numbers	Rare or absent
Immunohistochemical analysis of brain tissue	Marked accumulation of PrPres**	Variable accumulation
Agent present in lymphoid tissue	Readily detected	Not readily detected

*An abnormal signal in the posterior thalamus on T2-and diffusion-weighted images and fluid-attenuated inversion recovery sequences on brain MRI; in the appropriate clinical context, this signal is highly specific for vCJD.

** Protease-resistant prion protein

D. Modes of Transmission

The mode of transmission of sCJD, is not known. Approximately 10–15% of human prion disease is familial (i.e., inherited) and <1% is acquired through iatrogenic transmission or consumption of BSE infected animal tissues. Rare cases of human prion disease have been acquired during medical procedures from contaminated human-derived pituitary hormones, dura mater grafts, corneal grafts or neurosurgical equipment. Acquisition of vCJD was associated with consumption of beef products contaminated with the BSE prion but food protection measures have been implemented to prevent suspected or confirmed BSE infected cattle from being sold for consumption. Three UK cases of vCJD provided evidence for transmission of vCJD through blood transfusion; however other human prion diseases are not known to be transmitted by transfusions. Prion diseases of humans are not transmitted through casual or intimate person-to-person contact. No recent cases of iatrogenic CJD have been identified in the United States.

E. Incubation Period

The incubation period for the few prion diseases with known sources (i.e., vCJD, iatrogenically-acquired prion disease) is variable and extremely long, in the order of several years to decades.

F. Period of Communicability

There is no general communicable period as there is no evidence of transmission through casual or intimate person-to-person contact. In rare circumstances,

transmission occurred through contaminated neurosurgical instruments, transplanted dura mater and corneas, human-derived pituitary hormones, and possibly for vCJD only, in transfused blood.

G. Treatment

No curative treatment; invariably fatal. Supportive care is needed and medications may be used to control aggressive or agitated behaviors.

NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

The Kansas Department of Health and Environment's (KDHE) Bureau of Epidemiology and Public Health Informatics will identify potential cases from three sources:

1. Reports from health care providers, upon the suspicion of disease
2. Death certificates, listing a TSE as the cause of death
3. National Prion Disease Pathology Surveillance Center (NPDPSC) reports

Suspected cases of TSE or prion disease 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:

1. Health care providers and hospitals: report to local health jurisdiction
2. Laboratories: report to KDHE
3. Local health jurisdiction: report to KDHE

KDHE Bureau of Epidemiology and Public Health Informatics receives ALL test reports for specimens submitted to the NPDPSC and then faxes the laboratory reports to the local health jurisdiction.

NPDPSC laboratory reports do NOT have to be reported to the local health jurisdiction or KDHE by other entities, but physicians and hospitals should still report any suspicion of TSE or prion disease to the local health jurisdiction.

INVESTIGATOR RESPONSIBILITIES

- 1) Complete the [TSE Patient Questionnaire](#).
- 2) If the report is from a physician suspecting prion disease, inform the physician of the autopsy and laboratory services provided by the NPDPSC and provide the physician with the phone number (216-368-0587) and website information (<http://case.edu/medicine/pathology/divisions/prion-center/>).
- 3) For deaths, encourage the physician to discuss the role of autopsy in confirming the diagnosis of prion disease with the family.
- 4) Provide physicians with the contact information for the Creutzfeldt-Jakob Disease Foundation, which provides support to individuals and families dealing with CJD and other prion disease. (www.cjdfoundation.org/ or 1-800-659-1991)
- 5) Emphasize the importance of appropriate infection control procedures if invasive neurologic diagnostic testing is being considered.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

If any assistance is needed, the local investigator can contact the KDHE Bureau of Epidemiology and Public Health Informatics at 1-877-427-7317

Case Investigation

1) Evaluate the diagnosis.

- Follow the sequence described in the patient record form. In addition to discussions with the neurologist, medical record review may be required.
(*Note: A definitive brain biopsy or autopsy results may preclude the need to obtain all clinical data listed on the worksheet/case report form.*)
- Determine the status (alive or deceased) of the patient.
- There is no need to interview the next of kin unless after consultation with KDHE: vCJD, iatrogenically transmitted CJD, a novel prion disease, or a disease cluster is suspected.
- If the patient is alive but not expected to survive, strongly encourage the provider to discuss the essential role of autopsy for diagnosis with the patient's family.
 - If the family consents to having an autopsy performed, a completed NPDPSA autopsy consent form should be sent to NPDPSA (available at www.cjdsurveillance.com/pdf/consent-autopsy.pdf).
 - NPDPSA covers all arrangements and expenses including transport of the body to a facility that can perform a brain-only autopsy, collection of brain tissue, return of the body, and specimen shipping and testing.
- If the patient is deceased, determine the date of death and whether brain tissue has been collected postmortem for laboratory testing at a facility other than NPDS. Ascertain which laboratory has the tissues and forward any pathology report with the case report form.
- Refer to Appendix A for definitions of neurologic terms found on the case report form.

2) Identify Potential Sources of Infection

- Ask the provider if the patient ever received human-derived pituitary hormones (especially human-derived growth hormone), dura mater or corneal grafts, had a neurosurgical procedure, or is biologically related to a person with heritable prion disease.
- If a patient is suspected to have iatrogenically-acquired prion disease, vCJD or another novel acquired prion disease, a more extensive evaluation will be conducted.
 - Further instructions on conducting a more extensive evaluation will be provided by KDHE when they are needed.

Contact Investigation

There is no evidence of transmission through casual or intimate person-to-person contact, but iatrogenic transmission of the CJD agent has been linked to the use of contaminated human growth hormone, dura mater and corneal grafts, or neurosurgical equipment.

Of the six cases linked to the use of contaminated equipment, four were associated with neurosurgical instruments, and two with stereotactic EEG depth electrodes. All of these equipment-related cases occurred before the routine implementation of sterilization procedures currently used in health care facilities. No such cases have been reported since 1976, and no iatrogenic CJD cases associated with exposure to the CJD agent from surfaces such as floors, walls, or countertops have been identified.

- To identify potentially exposed persons: determine if the patient had a neurosurgical procedure during this illness.
- Notify the hospital where neurosurgical procedures were performed of the patient's diagnostic status.

Infection Control Recommendations

Information about infection control measures related to CJD is available from the CDC (<https://www.cdc.gov/prions/cjd/infection-control.html>) and the World Health Organization (<http://whqlibdoc.who.int/publications/2003/9241545887.pdf>).

- Standard precautions are recommended for hospitalized patients; additional special precautions are necessary during invasive neurosurgical or ophthalmic procedures.
- Neurosurgical procedures: The brain and spinal cord of patients with prion disease are highly infectious and prions are resistant to routine physical and chemical sterilization methods used in medical facilities. As a result, neurosurgical equipment, surfaces and other objects in contact with nervous tissue of a person with a prion disease require special decontamination procedures. If a patient with confirmed or suspected prion disease requires or recently had a neurosurgical procedure or invasive EEG monitoring (implanted electrodes) that facility's infection control division should be informed of the patient's diagnostic status with reference to CJD. Additional updates to the facility may be necessary if a procedure has been performed and higher diagnostic specificity is obtained at a later date. If you suspect a patient had a neurosurgical procedure or invasive EEG monitoring when the hospital was unaware of the suspected prion disease status, contact KDHE.
- Autopsy: The World Health Organization (WHO) Infection Control Guidelines for Transmissible Spongiform Encephalopathies should be followed during autopsy of a patient with confirmed or suspected human prion disease. (<http://whqlibdoc.who.int/publications/2003/9241545887.pdf>)

- **Embalming:** The Centers for Disease Control and Prevention guidelines 'Information on Creutzfeldt-Jakob Disease for Funeral Home, Cemetery and Crematory Practitioners' should be followed (see <https://www.cdc.gov/prions/cjd/funeral-directors.html>).
- **Tissue/Organ Donation:** Tissues and organs from patients with confirmed or suspected prion disease should not be donated for transplantation or teaching purposes.

Note: Additional infection control measures are recommended in some circumstances for persons 'at risk' for developing prion disease. These persons are defined as asymptomatic persons who meet any of the following criteria: 1) received dura mater or human-derived pituitary hormones, especially human-derived growth hormone or at risk cornea transplants, 2) have undergone at risk neurosurgery, or 3) are members of families with heritable prion disease.

Source: World Health Organization Communicable Disease Surveillance and Response. WHO Manual for surveillance of human transmissible spongiform encephalopathies including variant Creutzfeldt-Jakob disease. Geneva, Switzerland: 2003

Case Management

If routine case investigation activities have been completed, no case follow-up is typically needed after an autopsy is arranged. Once pathology results are available, the case can be classified.

Contact Management

No follow-up is needed for close contacts of the patient since there is no evidence that any human prion disease is transmitted through casual or intimate person-to-person contact.

If neurosurgical procedures were performed, the hospital notified should internally review infection control practices; see [Infection Control](#) section. Consultation with KDHE is provided, as needed.

Environmental Measures

If neurosurgery has been performed, see [Infection Control](#) section.

Education

The CFD Foundation provides support to individuals and families dealing with CJD and other prion disease. Contact information: <http://www.cjdfoundation.org/> or 1-800-659-1991.

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:
 - The [TSE Patient Questionnaire](#) can be used to collect information.
 - During outbreak investigations, refer to guidance from a KDHE epidemiologist for appropriate collection tools.
- C. Report data collected during the course of the investigation via EpiTrax.
 - Verify that all data requested has been recorded on an appropriate EpiTrax **[tab]**, or that actions are completed for a case lost to follow-up as outlined below.
 - Some data that cannot be reported on an EpiTrax **[tab]** may need to be recorded in **[Notes]** or scanned and attached to the record.
 - Scan and attach the [TSE Patient Questionnaire](#) to the EpiTrax 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. If a case is lost to follow-up, after the appropriate attempts to contact the case have been made:
 - Indicate 'lost to follow-up' on the **[Administration]** tab with the number of attempts to contact the case recorded.
 - Record at least the information that was collected from the initial reporter.
 - Record a reason for 'lost to follow-up' in **[Notes]**.
- E. 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

- A. Treatment / Differential Diagnosis:** Red Book: 2015 Report of the Committee on Infectious Diseases. 30th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2015.
- B. Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual (CCDM), 20th Edition. Washington, DC, American Public Health Association, 2015.
- C. Case Definitions:** CDC Division of Public Health Surveillance and Informatics, Available at: www.cdc.gov/nndss/
- D. Additional Information**
- **CDC:** www.cdc.gov/prions/cjd/index.html
 - **National Institute of Neurological Disorders and Stroke – Fact sheet:** www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Creutzfeldt-Jakob-Disease-Fact-Sheet
 - **Creutzfeldt-Jakob Disease Foundation:** <https://cjdfoundation.org/>
 - **National Prion Disease Pathology Surveillance Center:** <http://case.edu/medicine/pathology/divisions/prion-center/>

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 _____
 Affiliation _____ 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

Form Approved
 OMB No. 0920-0009
 Exp Date: 06/30/2019

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: _____
 3. Sex: M F 4. Date of birth ___/___/___ Residence: 5. State _____ 6. County _____
 7. Race: American Indian or Alaska Native Asian Black or African American 8. Ethnicity: Hispanic or Latino
 Native Hawaiian or Other Pacific Islander White (check all that apply) Not 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 ___/___/___

SIGNS/SYMPTOMS/CONDITION:												
	Right Arm			Left Arm			Right Leg			Left Leg		
15. Weakness? [indicate yes(y), no (n), unknown (u) for each limb]	Y	N	U	Y	N	U	Y	N	U	Y	N	U
15a. Tone in affected limb(s) [flaccid, spastic, normal for each limb]	<input type="checkbox"/> flaccid			<input type="checkbox"/> flaccid			<input type="checkbox"/> flaccid			<input type="checkbox"/> flaccid		
	<input type="checkbox"/> spastic			<input type="checkbox"/> spastic			<input type="checkbox"/> spastic			<input type="checkbox"/> spastic		
	<input type="checkbox"/> normal			<input type="checkbox"/> normal			<input type="checkbox"/> normal			<input type="checkbox"/> normal		
	<input type="checkbox"/> unknown			<input type="checkbox"/> unknown			<input type="checkbox"/> unknown			<input type="checkbox"/> unknown		
	Yes	No	Unk									
16. Was patient admitted to ICU?				17. If yes, admit date: ___/___/___								
In the 4-weeks BEFORE onset of limb weakness, did patient:	Yes	No	Unk									
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 $\geq 38.0^{\circ}\text{C}/100.4^{\circ}\text{F}$?				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)

	Date of lumbar puncture	WBC/mm ³	% neutrophils	% lymphocytes	% monocytes	% eosinophils	RBC/mm ³	Glucose mg/dl	Protein mg/dl
32a. CSF from LP1									
32b. CSF from LP2									

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

(<http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/2017PS/2017PSFinal/17-ID-01.pdf>)

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 specimen collection information

(<https://www.cdc.gov/acute-flaccid-myelitis/hcp/instructions.html>)

Acute Flaccid Myelitis job aid

(<https://www.cdc.gov/acute-flaccid-myelitis/downloads/job-aid-for-clinicians.pdf>)

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.

APPENDIX A

The following terms and their definitions may assist with the questions on the prion disease case report form and terms that you may find during CJD chart reviews.

Akinetic mutism: Akinetic mutism is the loss of the voluntary ability to speak and move. This term should be specifically stated. Unless it is clearly stated that the patient is awake and not comatose, do not substitute the term “unresponsive.”

Ataxia: failure of muscular coordination due to cerebellar dysfunction. Affected patients have coordination, postural and balance problems early in the disease process and as the disease progresses, severe ataxia leads to loss of ability to walk.

Cerebellar syndrome: in addition to ataxia, other cerebellar signs of CJD may include:

- Opsoclonus (horizontal and vertical oscillations of the eyes)
- Nystagmus (involuntary rapid rhythmic movement of the eyeball)
- Truncal titubation / truncal ataxia (staggering, stumbling gait with shaking of the trunk)
- Appendicular ataxia (lack of coordination in a limb)
- Movement tremor (involuntary trembling/quivering)
- Termination or terminal tremor would be included in CJD signs, however “tremor” alone is not necessarily a cerebellar or CJD sign.

Chorea: Writhing movements of the body / extremities. Rapid, highly complex jerky movements that appear to be well coordinated but occur involuntarily.

Dementia: Dementia refers to cognitive decline, including disorientation and or impaired memory, judgment, and intellect.

Dysesthesia and painful sensory symptoms: New onset of pain or other uncomfortable sensations that is unrelated to injury or stimulus.

Dystonia: Abnormal tonicity in muscles resulting in impairment of voluntary movement.

Electroencephalography (EEG): A characteristic EEG pattern of periodic synchronous bi- or triphasic sharp wave complexes (PSWC) is observed in 67 to 95 percent of patients with sCJD at some time during the course of the illness. PSWCs have a very high specificity for the diagnosis of sCJD. Absence of PSWCs does not rule out the diagnosis of CJD. PSWCs are not found in patients with new variant CJD.

Hyperreflexia: Exaggerated reflexes

Myoclonus: Sudden, involuntary contractions or jerking of a muscle or group of muscles. Terms such as “myoclonic jerks”, “myoclonic jerking”, and “myoclonic activity” are also acceptable. These variants of myoclonus may be mentioned:

- Nocturnal myoclonus
- Facial myoclonus
- Action myoclonus
- Startle myoclonus

Terms such as “twitching”, “tremulousness”, or “shaking / shakiness” are not equivalent and the term “clonus” represents a separate neurologic sign.

Progressive Dementia: Ongoing cognitive decline. The development of dementia in CJD patients is very pronounced over a short period of time (weeks-months) unlike dementia associated with Alzheimer's disease. Terms like "delirium", "altered mental status", or "unresponsiveness" should not be interpreted as representing progressive dementia, unless there is clear evidence in the chart that the condition has been ongoing for weeks / months and that the patient is progressively getting worse in terms of cognitive ability.

Progressive neuropsychiatric disorder: Abnormalities in the nervous system and in mental processes. In the variant form of CJD, the first symptoms are psychiatric and patients experience a progressive neuropsychiatric disorder lasting at least 6 months. In the sporadic form, if neuropsychiatric disorders are present, they usually are concurrent with the physical manifestations of the disease.

Pyramidal signs refer to disorders of the upper motor neuron pathway going from the motor cortex through the brainstem and down to the spinal cord. Pyramidal signs would include:

- Upper motor neuron weakness
- Hemiplegia (paralysis of one side of the body)
- Spastic (limb) paralysis / paresis
- Hyperreflexia
- Presence of Babinski's sign / "upgoing toes"
- Spasticity
- Clonus (alternate muscular contraction and relaxation in rapid succession)

Extrapyramidal signs refer to disorders of brain structures controlling movement; mainly with reference to the basal ganglia and related structures. The most commonly recognized extrapyramidal signs are those that we associate with Parkinson's disease. Extrapyramidal signs of CJD may include:

- Bradykinesia / hypokinesia (slowness of movement)
- Rigidity (limb or neck)
- Tremor
- Hypomimia (flat facies, masked facies, lack of facial expression)
- Postural instability
- Shuffling gait
- Ballismus / hemiballismus (sudden flinging movements of the extremities)
- Chorea / choreoathetosis (writhing movements of the body / extremities)

Visual Deficits: The visual abnormalities in CJD most commonly are complex visual disturbances, such as hallucinations or cortical blindness. Do not count terms such as "blurred vision" or "decreased visual acuity." Terms that may be to describe CJD-associated visual deficits include the following:

- Visual hallucinations
- Hemianopsia (defective vision or blindness in half of the visual field)
- Visual field cut / visual field deficit
- Blindness
- Opsoclonus (horizontal and vertical oscillations of the eyes)
- Diplopia / double vision