Free-Living Amebic Infections Investigation Checklist for Local Health Departments

Local health department staff should follow these steps, not necessarily always in order, when investigating reports of free-living amebic infections. For more detailed information refer to the free-living amebic infections Disease Chapter. Free-living amebic infections are a Priority Level 1 disease and critical details should be entered into the Communicable Disease Reporting and Surveillance System (CDRSS) within 6 hours.

- ☐ Review laboratory details to confirm the test result. If the case has not been submitted via CDRSS, create a case.
- ☐ Interview the case-patient (parent/guardian if case patient is a minor) via phone using the "Free Living Ameba (FLA) Case Report Form". Do not fax the form to the physician or mail to the case-patient for completion.
- ☐ Provide education to the case-patient; additional information can be found on the NJDOH and CDC disease pages.
- ☐ Enter critical details (demographics, signs/symptoms, clinical status, additional laboratory information) into the CDRSS case.
- ☐ Enter relevant exposures (recreational water exposures and activities, nasal irrigation, soil exposures) into the *Sources of Infection and Risk Factors* section within the CDRSS case.
- ☐ Inform the Foodborne and Waterborne Disease Unit at cds.fwd.epi@doh.nj.gov if an outbreak is suspected.
- ☐ Submit the completed "Free Living Ameba (FLA) Case Report Form" via email to the Foodborne and Waterborne Disease Unit at cds.fwd.epi@doh.nj.gov or fax to 609-826-5972 or 609-292-5811.
- ☐ Document dates/times of at least three attempts made to reach the case-patient, parent or guardian into the *Comments* section within CDRSS if they remain unreachable.
- ☐ Determine *Case Status* based on NNDSS case definitions and mark *Report Status* as "LHD CLOSED" in CDRSS.

For use as a visual reference guide only. Please do not return completed form to CDC.

U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

Free Living Ameba (FLA) Case Report Form

*=required field

FORM APPROVED
OMB NO. 0920-0728

***Year of Diagnosis:** _____ ***Pathogen Type:** ☐ Acanthamoeba ☐ Balamuthia ☐ Naegleria fowleri

1. Demographics

Patient's Name *(Last, First M.I.)*: _____ **Age** *(in years)*: _____

Sex:
☐ Male
☐ Female

Ethnicity:
☐ Hispanic
☐ Non-Hispanic
☐ Unknown

Race:
☐ White
☐ Black or African American
☐ Asian
☐ Native Hawaiian or Other Pacific Islander
☐ American Indian or Alaskan Native
☐ Middle Eastern or North African
☐ Unknown
☐ Other: _____

***County/State of Residence:** _____

County/State of Treatment: _____

2. Exposure History

County/State of Suspected Exposure: _____

Source of possible exposure, if known ***(please check all that apply and provide best estimates of dates)*:**

Recreational Water Exposures

Did patient have any recreational water exposures? ☐ **Yes** ☐ **No** ☐ **Unknown**

Name of Water Exposure: _____

Type of Recreational Water Exposure				Date Exposed
Lake, pond, reservoir	☐ Yes	☐ No	☐ Unknown	
River/stream	☐ Yes	☐ No	☐ Unknown	
Canal, ditch, or puddle	☐ Yes	☐ No	☐ Unknown	
Tap water used in temporary venue (ex. fill-and-drain pool)	☐ Yes	☐ No	☐ Unknown	
Aquatic venue	☐ Yes	☐ No	☐ Unknown	
Geothermally heated water (ex. hot spring)	☐ Yes	☐ No	☐ Unknown	
Ocean or brackish water	☐ Yes	☐ No	☐ Unknown	
Other recreational water exposure Specify other recreational water exposure: _____	☐ Yes	☐ No	☐ Unknown	

If *aquatic venue* water exposure occurred, please select specific types of venues:			
Public swimming pool	☐ Yes	☐ No	☐ Unknown
Home swimming pool	☐ Yes	☐ No	☐ Unknown
Waterpark	☐ Yes	☐ No	☐ Unknown
Splash pad	☐ Yes	☐ No	☐ Unknown
Hot tub/spa	☐ Yes	☐ No	☐ Unknown

Recreational Water Activities

Did patient participate in any recreational water activities? ☐ **Yes** ☐ **No** ☐ **Unknown**

Type of Recreational Water Activities			
Water sports (i.e. tubing, skiing, etc.)	☐ Yes	☐ No	☐ Unknown
Swimming, diving, or splashing	☐ Yes	☐ No	☐ Unknown
Other water activity Specify other water activity: _____	☐ Yes	☐ No	☐ Unknown

Nasal Irrigation

Did patient perform nasal irrigation/rinsing? ☐ **Yes** ☐ **No** ☐ **Unknown**

What water source was used for nasal irrigation? *(select all that apply)*

☐ Tap water ☐ Sterilized water ☐ Unknown ☐ Other, specify: _____

Was nasal irrigation performed for ritual or spiritual ablution? ☐ Yes ☐ No ☐ Unknown

Date of most recent nasal irrigation: _____

What method(s) did patient use for nasal irrigation?

Nasal Irrigation Methods				Date Exposed
Netipot	☐ Yes	☐ No	☐ Unknown	
Squeeze bottle	☐ Yes	☐ No	☐ Unknown	
Other nasal irrigation method Specify: _____	☐ Yes	☐ No	☐ Unknown	

Soil Exposures

Did patient have any soil exposures? ☐ **Yes** ☐ **No** ☐ **Unknown**

Soil Exposures				Date Exposed
Gardening	☐ Yes	☐ No	☐ Unknown	
Composting	☐ Yes	☐ No	☐ Unknown	
Farm or ranch exposure	☐ Yes	☐ No	☐ Unknown	
Other soil exposure at another location or source Specify: _____	☐ Yes	☐ No	☐ Unknown	

What is the patient's occupation? _____

Did the patient travel within the last 2 years? ☐ **Yes** ☐ **No** ☐ **Unknown**

If *YES*, please provide travel locations and dates *(maximum of 3 travel locations)*:

Country	State	City	Travel From Date	Travel To Date

3. Past Medical History

Please check all conditions/symptoms that patient has currently or has had within past two (2) years:

Illicit drug use If ***YES***, specify: _____	☐ Yes	☐ No
Immunosuppressants	☐ Yes	☐ No
Radiation Therapy	☐ Yes	☐ No
Steroid use	☐ Yes	☐ No
Alcohol misuse	☐ Yes	☐ No
History of HIV or AIDS If ***YES***, CD4 count (per mm3): _____	☐ Yes	☐ No
Malnourishment	☐ Yes	☐ No
Renal failure	☐ Yes	☐ No
Systemic Lupus Erythematosus (SLE)	☐ Yes	☐ No
Diabetes mellitus	☐ Yes	☐ No
Liver cirrhosis	☐ Yes	☐ No
Pregnancy (recent)	☐ Yes	☐ No

Cancer If ***YES***, specify: _____	☐ Yes	☐ No
Hematologic disease If ***YES***, specify: _____	☐ Yes	☐ No
Other autoimmune disease If ***YES***, specify: _____	☐ Yes	☐ No
Solid organ transplant If ***YES***, specify: _____	☐ Yes	☐ No
Bone marrow or stem cell transplant	☐ Yes	☐ No
Chronic or Acute Sinusitis	☐ Yes	☐ No
Other ENT condition If ***YES***, specify: _____	☐ Yes	☐ No
Other respiratory condition If ***YES***, specify: _____	☐ Yes	☐ No
Dermatitis	☐ Yes	☐ No
Other condition If ***YES***, specify: _____	☐ Yes	☐ No

4. Current Illness and History

Date of illness onset *(MM/DD/YYYY)*: _____

Was patient admitted to hospital for current illness? ☐ Yes ☐ No ☐ Unknown

***If YES*, date of most recent hospitalization** *(MM/DD/YYYY)*: _____

***If YES*, has the patient been hospitalized more than once for this illness in the past 90 days:** ☐ Yes ☐ No ☐ Unknown

Please provide a brief description of the patient's clinical course, prior to hospitalization:

5. Outcome

Patient Outcome: ☐ Died ☐ Survived ☐ Unknown

Date of discharge *(MM/DD/YYYY)*: _____ **OR** **Date of death** *(MM/DD/YYYY)*: _____

***If survived*, does the patient have residual neurologic deficits?** ☐ Yes ☐ No ☐ Unknown

***If YES*, please describe neurological deficits:** _____

If died, cause of death *(select all that apply)*: ☐ Brain death ☐ Cardiorespiratory failure ☐ Herniation ☐ Removed life support ☐ Other, specify: _____

***If died*, was the patient an organ donor?** ☐ Yes ☐ No ☐ Unknown

***If YES*, please specify which organs were transplanted:** _____

Please provide a brief description of the patient's clinical course, complications, and any additional comments:

6. Signs/Symptoms

General

Onset date of first general sign/symptom *(MM/DD/YYYY)*: _____

- ☐ Anorexia
- ☐ Back pain
- ☐ Cough
- ☐ Disorientation or confusion
- ☐ Fever
- ☐ Headache
- ☐ Lethargy/fatigue
- ☐ Myalgia
- ☐ Nausea or vomiting
- ☐ Shortness of breath
- ☐ Stiff neck
- ☐ Weight loss
- ☐ Any visual signs/symptoms (such as blurred vision or diplopia)
- ☐ Photophobia
- ☐ Other general sign/symptom, specify: _____

Neurologic

Onset date of first neurological sign/symptom *(MM/DD/YYYY)*: _____

- ☐ Abnormal reflexes, including hyperreflexia
- ☐ Altered mental status
- ☐ Altered sense of smell
- ☐ Altered sense of taste
- ☐ Aphasia
- ☐ Ataxia or loss of balance
- ☐ Behavioral change
- ☐ Coma
- ☐ Any cranial nerve deficit, specify: _____
- ☐ Dysphagia
- ☐ Hallucinations
- ☐ Hemiparesis
- ☐ Numbness
- ☐ Nystagmus
- ☐ Seizures
- ☐ Weakness
- ☐ Other neurologic deficit, specify: _____

Skin Lesions

Skin Lesions Present: ☐ Yes ☐ No ☐ Unknown

***If YES*, please specify in table below:**

Lesion Type	Present?	Anatomic location *(select all that apply)*	Number
Ulcers	☐ Yes ☐ No	☐ Head/face/neck ☐ Back/chest/abdomen/pelvis ☐ Upper extremities ☐ Lower extremities	☐ 1 ☐ 2-5 ☐ 6-10 ☐ 10+
Plaques	☐ Yes ☐ No	☐ Head/face/neck ☐ Back/chest/abdomen/pelvis ☐ Upper extremities ☐ Lower extremities	☐ 1 ☐ 2-5 ☐ 6-10 ☐ 10+
Erythematous Nodules	☐ Yes ☐ No	☐ Head/face/neck ☐ Back/chest/abdomen/pelvis ☐ Upper extremities ☐ Lower extremities	☐ 1 ☐ 2-5 ☐ 6-10 ☐ 10+
Other	☐ Yes ☐ No	☐ Head/face/neck ☐ Back/chest/abdomen/pelvis ☐ Upper extremities ☐ Lower extremities	☐ 1 ☐ 2-5 ☐ 6-10 ☐ 10+

7a. CSF Lab Results

General CSF Testing: (Note: If needed, >3 CSF testing results can be entered into the FLA CRF in the SEDRIC platform)

	Date *(MM/DD/YYYY)*: _____	**Date** *(MM/DD/YYYY)*: _____	**Date** *(MM/DD/YYYY)*: _____
CSF	**Results**	**Results**	**Results**
Opening pressure (mmH2O)			
WBC count (per mm3)			
RBC count (per mm3)			
Neutrophil %			
Monocyte %			
Lymphocyte %			
Bands %			
Eosinophil %			
Protein (mg/100ml)			
Glucose (mg/100ml)			

7b. Diagnostic Imaging

Was diagnostic imaging performed? ☐ Yes ☐ No ☐ Unknown

***If YES*, what imaging was performed?** *(select all that apply)*

☐ CT ☐ MRI ☐ Other ☐ Unknown *(do not select in combination with CT, MRI, or Other)*

***If Other*, specify other type of imaging performed:** _____

Which of the following findings were present? *(select all that apply)*

☐ Normal ☐ Cerebral edema ☐ Hydrocephalus
☐ Brain lesions ☐ Leptomeningeal enhancement ☐ Other, specify: _____

***If YES* to brain lesions:**

How many brain lesions? ☐ Single ☐ Multiple ☐ Unknown

Were brain lesions ring-enhancing? ☐ Yes ☐ No ☐ Unknown

Were brain lesions hemorrhagic? ☐ Yes ☐ No ☐ Unknown

Location of brain lesions: _____

Timing of Diagnosis

When was a laboratory diagnosis of a free-living ameba infection made? *(MM/DD/YYYY):* _____

Genotype: _____ Species: _____

7c. Specimen Lab Results

Please provide results for all testing performed.
Note: If needed, >3 specimen lab results can be entered into the FLA CRF in the SEDRIC platform.

Specimen Collection Information

Laboratory	Result	If Positive, Pathogen	Tissue Type	Test Method
☐ CDC ☐ Mayo Clinic ☐ UWASH ☐ UCSF ☐ Karius ☐ Other, specify: _____	☐ Positive ☐ Negative ☐ Unknown	☐ Acanthamoeba ☐ Balamuthia ☐ Naegleria fowleri	☐ CSF ☐ Brain ☐ Skin ☐ Sinus ☐ Bone ☐ Lung ☐ Eye ☐ Serum/Blood ☐ Other, specify: _____	☐ Polymerase chain reaction (PCR) ☐ Indirect immunofluorescence (IIF) ☐ Immunohistochemistry (IHC) ☐ Visualized amebas on wet mount or stained CSF ☐ Sequencing based testing (e.g. Karius or metagenomics) ☐ Histopathology ☐ Other, specify: _____
☐ CDC ☐ Mayo Clinic ☐ UWASH ☐ UCSF ☐ Karius ☐ Other, specify: _____	☐ Positive ☐ Negative ☐ Unknown	☐ Acanthamoeba ☐ Balamuthia ☐ Naegleria fowler	☐ CSF ☐ Brain ☐ Skin ☐ Sinus ☐ Bone ☐ Lung ☐ Eye ☐ Serum/Blood ☐ Other, specify: _____	☐ Polymerase chain reaction (PCR) ☐ Indirect immunofluorescence (IIF) ☐ Immunohistochemistry (IHC) ☐ Visualized amebas on wet mount or stained CSF ☐ Sequencing based testing (e.g. Karius or metagenomics) ☐ Histopathology ☐ Other, specify: _____
☐ CDC ☐ Mayo Clinic ☐ UWASH ☐ UCSF ☐ Karius ☐ Other, specify: _____	☐ Positive ☐ Negative ☐ Unknown	☐ Acanthamoeba ☐ Balamuthia ☐ Naegleria fowler	☐ CSF ☐ Brain ☐ Skin ☐ Sinus ☐ Bone ☐ Lung ☐ Eye ☐ Serum/Blood ☐ Other, specify: _____	☐ Polymerase chain reaction (PCR) ☐ Indirect immunofluorescence (IIF) ☐ Immunohistochemistry (IHC) ☐ Visualized amebas on wet mount or stained CSF ☐ Sequencing based testing (e.g. Karius or metagenomics) ☐ Histopathology ☐ Other, specify: _____

7d. Case Attachments

If available, please upload relevant files to the CRF in the SEDRIC platform. For each file, please select the appropriate category below:

☐ Image report
☐ Environmental report
☐ Published case report/scientific article
☐ Other, specify: _____

8a. Treatment

Was Surgical resection performed? ☐ Yes ☐ No ☐ Unknown

8b. Medications

Medications: ***(please check all that apply; enter all dates as MM/DD/YYYY)***

Medication	Start Date	End Date	Route of Administration *(select all that apply)*
☐ **Amphotericin B (conventional/deoxycholate)**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Amphotericin B (lipid complex)**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Amphotericin B (liposomal)**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Azithromycin**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Clarithromycin**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Fluconazole**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Flucytosine**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Itraconazole**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Miltefosine**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Nitroxoline**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Pentamidine**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Rifampin**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Steroids**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Sulfadiazine**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Sulfamethoxazole/Trimethoprim**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Voriconazole**			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Other antimicrobial drug used to treat FLA infection:** _____			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Other antimicrobial drug used to treat FLA infection:** _____			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____
☐ **Other antimicrobial drug used to treat FLA infection:** _____			☐ Intravenous (IV) ☐ Oral ☐ Intrathecal ☐ Other: _____

Note: If needed, >3 other antimicrobial drugs can be entered into the FLA CRF in the SEDRIC platform.