

# Amebiasis

*Entamoeba Histolytica*

## **DISEASE REPORTABLE WITHIN 24 HOURS OF DIAGNOSIS**

Per N.J.A.C. 8:57, healthcare providers and administrators shall report by mail or by electronic reporting within 24 hours of diagnosis, confirmed cases of amebiasis to the health officer of the jurisdiction where the ill or infected person lives, or if unknown, wherein the diagnosis is made. A directory of local health departments in New Jersey is available at <http://www.state.nj.us/health/lh/directory/lhdselectcounty.shtml>.

If the health officer is unavailable, the healthcare provider or administrator shall make the report to the Department by telephone to 609.826.5964, between 8:00 A.M. and 5:00 P.M. on non-holiday weekdays or to 609.392.2020 during all other days and hours.



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# 1 THE DISEASE AND ITS EPIDEMIOLOGY

### A. Etiologic Agent

*Entamoeba histolytica* is a protozoan parasite that exists in two forms: the metabolically active trophozoite (potentially pathogenic form) and the infective, environmentally resistant cyst. *E. histolytica* should not be confused with *E. dispar* (nonpathogenic and morphologically identical to *E. histolytica*), *E. hartmanni*, *E. coli*, or other intestinal amoebas. *E. histolytica* may act as a commensal organism or invade the tissues and give rise to intestinal or extraintestinal disease.

### B. Clinical Description and Laboratory Diagnosis

Most infections are asymptomatic. Intestinal disease varies from acute dysentery with fever, chills, and bloody diarrhea to mild abdominal discomfort with diarrhea containing blood or mucus alternating with periods of constipation or remission. Extraintestinal forms of infection, including liver, lung, or brain abscesses, can occur after dissemination of parasites via the bloodstream. The amebic liver abscess can appear concurrently with colitis, but more frequently there is no evidence or history of recent intestinal infection by *E. histolytica*. Amebic colitis may be confused with inflammatory bowel disease, such as ulcerative colitis.

Laboratory diagnosis is made by microscopic identification of trophozoites or cysts in stool, aspirates, tissue, or tissue scrapings. Differentiation of pathogenic *E. histolytica* from nonpathogenic *E. dispar* is based on immunologic differences and on isoenzyme patterns. Serologic tests are available as adjuncts in the diagnosis of extraintestinal amebiasis.

### C. Reservoirs

Humans, primarily chronic or asymptomatic carriers, are reservoirs for amebiasis.

### D. Modes of Transmission

This parasite is transmitted fecal-orally by ingestion of cysts. This can happen via contaminated food or water or through person-to-person spread, particularly among preschool children, within households, and through certain types of sexual contact (e.g., oral-anal contact).

## E. Incubation Period

The incubation period is commonly from two to four weeks, but it can vary from a few days to several months or years.

## F. Period of Communicability or Infectious Period

The disease is communicable for as long as the infected person excretes *E. histolytica* cysts, which may continue for years. Asymptomatically infected persons tend to excrete a much higher proportion of cysts and hence are more likely to transmit infection than are persons who are acutely ill, who tend to excrete trophozoites.

## G. Epidemiology

Amebiasis has a worldwide distribution but is typically rare in children younger than five years. Prevalence is higher in areas with poor sanitation (such as parts of the tropics), in institutions for the developmentally disabled, and among men who have sex with men. The estimated prevalence in the United States is 4%. In New Jersey, an average of 42 cases of amebiasis are reported every year to the New Jersey Department of Health and Senior Services.

# 2 CASE DEFINITION

## A. New Jersey Department of Health and Senior Services (NJDHSS) Case Definition

### 1. Clinical Description

Most infections are asymptomatic. Intestinal disease varies from acute dysentery with fever, chills, and bloody diarrhea to mild abdominal discomfort with diarrhea containing blood or mucus alternating with periods of constipation or remission. Extraintestinal forms of infection, including liver, lung, or brain abscesses, can occur after dissemination of parasites via the bloodstream. The amebic liver abscess can appear concurrently with colitis, but more frequently there is no evidence or history of recent intestinal infection by *E. histolytica*. Amebic colitis may be confused with inflammatory bowel disease, such as ulcerative colitis.

### 2. Laboratory Criteria for Diagnosis

Laboratory diagnosis is made by microscopic identification of trophozoites or cysts in stool, aspirates, tissue, or tissue scrapings. Differentiation of pathogenic *E. histolytica* from nonpathogenic *E. dispar* is based on immunologic differences and on isoenzyme patterns. Serologic tests are available as adjuncts in the diagnosis of extraintestinal amebiasis.

### 3. Case Classification

#### CONFIRMED

##### Intestinal amebiasis:

A clinically compatible case, AND

Demonstration of *E. histolytica* cysts or trophozoites in the stool, OR

Demonstration of trophozoites of *E. histolytica* in tissue biopsy or ulcer scrapings by histopathology or culture.

**NOTE: Asymptomatic carriers should not be reported.**

##### Extraintestinal amebiasis:

Demonstration of trophozoites of *E. histolytica* in extraintestinal tissue, OR

Presence of specific antibody against *E. histolytica* as measured by indirect hemagglutination or other reliable immunodiagnostic test such as enzyme-linked immunosorbent assay, in a **symptomatic person** with clinical and/or radiological findings consistent with extraintestinal infection.

**NOTE: A positive serologic test in an asymptomatic person does not necessarily indicate extraintestinal amebiasis.**

#### PROBABLE

Not used.

#### POSSIBLE

Not used.

### B. Difference from CDC Case Definition

The formal Centers for Disease Control and Prevention (CDC) surveillance case definition for amebiasis is the same as the criteria outlined in section 2A. CDC case definitions are used by state health departments and CDC to maintain uniform standards for national reporting. For reporting to NJDHSS, always refer to section 2A.

## 3 LABORATORY TESTING AVAILABLE

The Public Health and Environmental Laboratories (PHEL) will test stool specimens for the presence of ova and parasites, including *E. histolytica/dispar*. Serological testing is not provided; however, arrangements can be made through PHEL for appropriate sample types to be sent to CDC for diagnostic testing. Contact PHEL at 609.292.7879 for more information.

# 4 PURPOSE OF SURVEILLANCE AND REPORTING AND REPORTING REQUIREMENTS

## A. Purpose of Surveillance and Reporting

- To identify whether the patient may be a source of infection for other persons (e.g., a diapered child, daycare attendee, or food handler) and, if so, to prevent further transmission.
- To identify transmission sources of public health concern (e.g., a contaminated public water supply) and to stop transmission from such a source.

## B. Laboratory and Healthcare Provider Reporting Requirements

The New Jersey Administrative Code (NJAC 8:57-1.8) stipulates that laboratories and healthcare providers report (by telephone, confidential fax, over the Internet using the Communicable Disease Reporting and Surveillance System [CDRSS], or in writing) all cases of amebiasis to the local health officer having jurisdiction over the locality in which the patient lives or, if unknown, to the health officer in whose jurisdiction the healthcare provider requesting the laboratory examination is located.

## C. Healthcare Provider Reporting Requirements and Follow-Up Responsibilities

### 1. Reporting Requirements

NJAC 8:57-1.8 stipulates that each local health officer must report the occurrence of any case of amebiasis, as defined by the reporting criteria in section 2A above. Cases are required to be reported to NJDHSS Infectious and Zoonotic Diseases Program (IZDP) using the Amebiasis Reporting Form. A report can be filed electronically over the Internet using the confidential and secure CDRSS.

### 2. Case Investigation

It is the local health officer's responsibility to complete an Amebiasis Reporting Form by interviewing the patient and others who may be able to provide pertinent information. Much of the information required on the form can be obtained from the patient's healthcare provider or the medical record.

- a. Use the following guidelines for assistance in completing the form:
  - (1) Accurately record the demographic information, date of symptom onset, symptoms, and medical information. **If the patient does not have any symptoms related to infection, this is not a reportable case (carrier state).**
  - (2) When asking about exposure history (food, travel, activities, and so forth), use the incubation period range for amebiasis (two to four weeks). Specifically,

focus on the period beginning a minimum of two weeks prior to the patient's onset date back to no more than four weeks before onset.

- (3) If possible, record any restaurants at which the case-patient ate, including food item(s) and date items were consumed. If you suspect that the case-patient became infected through food and an outbreak is suspected, use the Patient Food History Listing, Patient Symptoms Line, and Food-Specific Attack Rate forms to facilitate recording additional information. Ask about travel history and outdoor activities to help identify where the patient became infected.
- (4) Ask about water sources, because amebiasis may be acquired through water consumption.
- (5) Ask about household/close contacts. Check whether the patient attends or works at a daycare facility and/or is a food handler to examine the patient's risk of having acquired the illness from, or potential for transmitting it to, these contacts.
- (6) If there have been several unsuccessful attempts to obtain patient information (e.g., the patient or healthcare provider does not return calls or does not respond to a letter, or the patient refuses to divulge information or is too ill to be interviewed), please fill out the form with as much information as possible. Please note on the form why it could not be filled out completely. If CDRSS is used to report, enter collected information into the "Comments" section.

Mail the completed form (in an envelope marked "Confidential") to NJDHSS IZDP, or file the report electronically using CDRSS. The mailing address is:

NJDHSS  
Division of Epidemiology, Environmental and Occupational Health  
Infectious and Zoonotic Diseases Program  
PO Box 369  
Trenton, NJ 08625-0369

- b. Institution of disease control measures is an integral part of case investigation. It is the local health officer's responsibility to understand and, if necessary, to institute the control guidelines listed below in section 5.

### **3. Entry into CDRSS**

The mandatory fields in CDRSS include: disease, last name, county, municipality, gender, race, ethnicity, case status, report status.

The following table can be used as a quick reference guide to determine which CDRSS fields need to be completed for accurate and complete reporting of amebiasis cases. The "Tab" column includes the tabs which appear along the top of the CDRSS screen. The "Required Information" column provides detailed explanations of what data should be entered.

CDRSS Screen	Required Information
<b>Patient Info</b>	Enter the disease name (“AMEBIASIS”) in patient demographic information, illness onset date, and the date the case was reported to the local health department (LHD). There are no subgroups for <i>Entamoeba histolytica</i> .
<b>Addresses</b>	Enter any alternate address (e.g., a daycare address). Use the <b>Comments</b> section in this screen to record any pertinent information about the alternate address (e.g., the times per week the case-patient attends daycare). Entering an alternate address will allow other disease investigators access to the case if the alternate address falls within their jurisdiction.
<b>Clinical Status</b>	Enter any treatment that the patient received and record the names of the medical facilities and physician(s) involved in the patient’s care. If the patient received care from two or more hospitals, be sure that all are entered so the case can be accessed by all infection control professionals (ICPs) covering these facilities. If immunization status is known, it should also be entered here. If the patient died, date of death should be recorded under the <b>Mortality</b> section.
<b>Signs/Symptoms</b>	Check appropriate boxes for signs and symptoms and indicate their onset. Make every effort to get complete information by interviewing the physician, family members, ICP, or others who might have knowledge of the patient’s illness. Also, information regarding the resolution of signs and symptoms should be entered.
<b>Risk Factors</b>	Enter complete information about risk factors to facilitate study of amebiasis in New Jersey.
<b>Laboratory Eval</b>	Select the appropriate laboratory test that indicates what type of test was performed, and when appropriate, include what was found or observed, such as “ENTAMOEBIA HISTOLYTICA” in the value box.
<b>Contact Tracing</b>	Information regarding contacts is not required for this disease.
<b>Case Comments</b>	Enter general comments (i.e., information that is not discretely captured by a specific topic screen or drop-down menu) in the <b>Comments</b> section. <b>NOTE:</b> Select pieces of information entered in the <b>Comments</b> section CANNOT be automatically exported when generating reports. Therefore, whenever possible, record information about the case in the fields that have been designated to capture this

CDRSS Screen	Required Information
	<p>information; information included in these fields CAN be automatically exported when generating reports.</p>
<p><b>Epidemiology</b></p>	<p>Under the <b>Other Control Measures</b> section, indicate if the patient falls into any of the categories listed under <b>Patient Role(s)/Function(s)</b> (e.g., “DAYCARE ATTENDEE,” “DAYCARE PROVIDER”). Record name of and contact information for case investigators from other agencies (e.g., CDC, out-of-state health departments). Document communication between investigators in the <b>Comments</b> section.</p>
<p><b>Case Classification Report Status</b></p>	<p>Case status options are: “REPORT UNDER INVESTIGATION (RUI),” “CONFIRMED,” “PROBABLE,” “POSSIBLE,” and “NOT A CASE.”</p> <ul style="list-style-type: none"> <li>• All cases entered by laboratories (including LabCorp electronic submissions) should be assigned a case status of “REPORT UNDER INVESTIGATION (RUI).”</li> <li>• Cases still under investigation by the LHD should be assigned a case status of “REPORT UNDER INVESTIGATION (RUI).”</li> <li>• Upon completion of the investigation, the LHD should assign a case status on the basis of the case definition. “CONFIRMED” and “NOT A CASE” are the only appropriate options for classifying a case of <i>Entamoeba histolytica</i> (see section 2A).</li> </ul> <p>Report status options are: “PENDING,” “LHD OPEN,” “LHD REVIEW,” “LHD CLOSED,” “DELETE,” “REOPENED,” “DHSS OPEN,” “DHSS REVIEW,” and “DHSS APPROVED.”</p> <ul style="list-style-type: none"> <li>• Cases reported by laboratories (including LabCorp electronic submissions) should be assigned a report status of “PENDING.”</li> <li>• Once the LHD begins investigating a case, the report status should be changed to “LHD OPEN.”</li> <li>• The “LHD REVIEW” option can be used if the LHD has a person who reviews the case before it is closed (e.g., health officer or director of nursing).</li> <li>• Once the LHD investigation is complete and all the data are entered into CDRSS, the LHD should change the report status to “LHD CLOSED.”</li> <li>• “LHD CLOSED” cases will be reviewed by DHSS and be</li> </ul>

CDRSS Screen	Required Information
	<p>assigned one of the DHSS-specific report status categories. If additional information is needed on a particular case, the report status will be changed to “REOPENED” and the LHD will be notified by e-mail. Cases that are “DHSS APPROVED” cannot be edited by LHD staff (see Section C below).</p>

## 5 CONTROLLING FURTHER SPREAD

### A. Isolation and Quarantine Requirements (NJAC 8:57-1.12)

Food handlers with amebiasis must be excluded from work.

**NOTE: A case of amebiasis is defined by the reporting criteria in section 2A.**

#### 1. Minimum Period of Isolation of Patient

After diarrhea has resolved, food-handling facility employees may return to work only after producing one negative stool specimen. If a case-patient has been treated with an antimicrobial, the stool specimen shall not be submitted until at least 48 hours after cessation of therapy. **In outbreak circumstances, a second consecutive negative stool specimen will be required before the case-patient can return to work.**

#### 2. Minimum Period of Quarantine of Contacts

Contacts with diarrhea who are employees of food-handling facilities shall be quarantined in the same manner as a case-patient (see above paragraph) and handled in the same fashion.

**NOTE: A food handler is any person directly preparing or handling food. This can include a patientcare or childcare provider.**

### B. Protection of Contacts of a Case

None.

## C. Managing Special Situations

### 1. Daycare

Since amebiasis may be transmitted person-to-person through fecal-oral transmission, it is important to carefully follow patients with amebiasis in a daycare setting. General recommendations include the following:

- Children with amebiasis who have diarrhea should be excluded until their diarrhea has resolved.
- Children with amebiasis who have no diarrhea and who are otherwise not ill may remain in the program if heightened precautions are taken.
- Since most staff in childcare programs are considered food handlers, those with *E. histolytica* in their stools (symptomatic or not) may remain on site but must not prepare food or feed children until their diarrhea has resolved and they have one negative stool test for *E. histolytica* (submitted at least 48 hours after completion of antibiotic therapy, if antibiotics are given).

### 2. School

Since amebiasis may be transmitted person-to-person through fecal-oral transmission, it is important to carefully follow patients with amebiasis in a school setting. General recommendations include the following:

- Students or staff with amebiasis who have diarrhea should be excluded until their diarrhea has resolved.
- Students or staff who do NOT handle food but have amebiasis with no diarrhea or mild diarrhea and are not otherwise sick may remain in school if special precautions are taken.
- Students or staff who handle food and have *E. histolytica* infection (symptomatic or not) must not prepare food until their diarrhea has resolved and they have one negative stool test (submitted at least 48 hours after completion of antibiotic therapy, if antibiotics are given).

### 3. Community Residential Programs

Actions taken in response to a patient with amebiasis in a community residential program will depend on the type of program and the level of functioning of the residents.

In long-term care facilities, residents with *E. histolytica* infection should be placed on standard (including enteric) precautions until their symptoms subside AND they have one negative stool test. Staff members with *E. histolytica* infection who give direct patientcare (e.g., feed patients, give mouth or denturecare, or give medications) are considered food handlers and are subject to restrictions as in section 5A. In addition, staff members with *E. histolytica* infection who are not considered food handlers should not work until their diarrhea has resolved.

In residential facilities for the developmentally disabled, staff and clients with amebiasis must refrain from handling or preparing food for other residents until their diarrhea has

subsided and they have one negative stool test (submitted at least 48 hours after completion of antibiotic therapy, if antibiotics are given).

Staff members with *E. histolytica* infection who are NOT food handlers should not work until their diarrhea has resolved.

#### **4. Reported Incidence is Higher than Usual/Outbreak Suspected**

If the number of reported cases of amebiasis in a city/town is higher than usual, or if an outbreak is suspected, investigate to determine the source of infection and mode of transmission. A common vehicle (such as water, food, or association with a daycare center) should be sought, and applicable preventive or control measures should be instituted (e.g., removing implicated food items from the environment). Control of person-to-person transmission requires special emphasis on personal cleanliness and sanitary disposal of feces. Consult with NJDHSS IZDP at 609.588.7500. IZDP staff can help determine a course of action to prevent further cases and can perform surveillance for cases across several jurisdictions that would be difficult to identify at a local level.

### **D. Preventive Measures**

#### **1. Personal Preventive Measures/Education**

To prevent future exposures, recommend that individuals do the following:

- Always wash their hands thoroughly with soap and water before eating or preparing food, after using the toilet, and after changing diapers.
- After changing diapers, wash the child's hands as well as their own.
- Dispose of feces in a sanitary manner.
- When caring for others with diarrhea, scrub their hands with plenty of soap and water after cleaning the bathroom, helping persons use the toilet, or changing diapers, soiled clothes, or soiled sheets. Wash their hands properly with plenty of soap and water, especially before handling food, before eating, and after toilet use.
- Avoid sexual practices that may permit fecal-oral transmission. Latex barrier protection should be emphasized as a way to prevent the spread of amebiasis to a patient's sexual partners as well as to prevent exposure to and transmission of other pathogens.

#### **2. International Travel**

Travelers to developing countries should do the following:

- Drink only bottled water, carbonated water, or canned or bottled sodas. Boiling water for one minute will kill parasites, including *E. histolytica*, bacteria, or viruses that may be present. However, *E. histolytica* is not killed by low doses of chlorine or iodine; chemical water purification tablets (such as halide tablets) will not prevent amebiasis.
- Cook food thoroughly to kill parasites, bacteria, or viruses that may be present. If you plan to eat raw vegetables that may be contaminated, they should first be washed with a strong detergent soap.

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- Do not eat fruit that has already been peeled or cut.
- Drink only pasteurized milk or dairy products. Avoid eating unpasteurized dairy products or drinking raw milk. They can be contaminated with unclean water.

**NOTE: For more information regarding international travel and amebiasis, contact CDC's Traveler's Health Office at 877.394.8747 or <http://www.cdc.gov/travel>.**

## Additional Information

An Amebiasis Fact Sheet can be obtained at the NJDHSS Web site at <http://www.state.nj.us/health>.

## References

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