



## Healthcare-Associated Infections (HAIs)

# Fungal Meningitis Outbreak Associated with Procedures Performed under Epidural Anesthesia in Matamoros, Mexico

This page was last updated on 6/7/23. Updates will be made as new information becomes available.

### Summary of Recent Changes ^

- Re-emphasizing that all exposed patients, regardless of symptoms, should receive a lumbar puncture (spinal tap) to test for fungal meningitis.
- Noting that an MRI of the brain is not required for patients with normal lumbar puncture test results.

### June 1, 2023 Updates ^

- Recommending widespread outreach, including word of mouth, to help inform people with potential exposure.
- Additional emphasis on the need to test people without symptoms if they are potentially exposed and at risk of fungal meningitis.
- Detection of the fungus *Fusarium solani* species complex from the CSF (cerebrospinal fluid) of some affected patients.

## Background

CDC, the Mexican Ministry of Health, and U.S. state and local health departments are responding to a multinational outbreak of fungal meningitis among patients who had procedures under epidural anesthesia in Matamoros, Tamaulipas, Mexico. Officials identified two clinics associated with the outbreak: River Side Surgical Center and Clinica K-3. These clinics were closed on May 13, 2023. **Anyone who had procedures under epidural anesthesia in these clinics from January 1 to May 13, 2023, is potentially exposed and is at risk for fungal meningitis.** Learn [what to do if you are at risk](#).

As part of the collaboration between the United States and Mexico, the Mexican Ministry of Health provided CDC a list of U.S. residents who had procedures at River Side Surgical Center or Clinica K-3 from January 1 to May 13, 2023. CDC and state and local health departments are working to reach all people with potential exposures and advise them to go to their nearest emergency room for diagnostic testing for fungal meningitis. Testing involves a lumbar puncture (LP), also called a spinal tap.

Additional people with potential exposure who were not included on the original list are being found and contacted through public health investigation, outreach efforts, social media, and by family and friends as they learn about the outbreak.

## Information for People with Potential Exposure

*If you had epidural anesthesia in Matamoros, Mexico, at River Side Surgical Center or Clinica K-3 from January 1 to May 13, 2023:*

**Early testing and treatment, especially before symptoms start or worsen, can save lives.**

**Symptoms of fungal meningitis** include fever, headache, stiff neck, nausea, vomiting, sensitivity to light, and confusion.

It can take weeks for symptoms to develop, and they may be very mild or absent at first. However, **once symptoms start, they can quickly become severe and life-threatening. Early testing and treatment can save lives.**

- Go to the nearest emergency room as soon as possible to be evaluated for fungal meningitis, **even if you do not currently have symptoms.**
  - Some people without symptoms or with mild symptoms have tested positive for infection and started treatment. Receiving treatment early can prevent severe illness.
  - Fungal meningitis can start off mild and very quickly become a life-threatening illness.
  - Consider printing and sharing this web page to help make sure staff and healthcare providers are aware of the situation and recommended tests.
- If you cannot go to an emergency room (for example, because it is too far away), consider calling your local health center or urgent care facility to see if they can do spinal taps. In most situations, the emergency room will be the best or only option for testing.
- When you arrive, tell emergency room staff that you need to be evaluated for possible fungal meningitis. Tell them that you recently had epidural anesthesia at one of the clinics in Mexico involved in this outbreak.

## Important Points

- If you had epidural anesthesia in Matamoros, Mexico, at River Side Surgical Center or Clinica K-3 from January 1 to May 13, 2023, you are at risk for fungal meningitis: Go to the nearest emergency room as soon as possible to be evaluated for fungal meningitis, **even if you do not currently have symptoms.**
- Starting treatment right away if you are found to have fungal meningitis greatly increases the likelihood of survival.
- Fungal meningitis infections are not contagious and are not spread from person to person.
- Cancel any elective procedure that involves an epidural injection of an anesthetic in Matamoros, Mexico—and any [travel](#) associated with such a procedure—until there is evidence that there is no longer a risk for infection at these clinics.
- Share information about this outbreak and reach out to any friends or family members that may have had procedures at River Side Surgical Center or Clinica K-3 from January 1 to May 13, 2023.

## What to Expect

- Healthcare providers will perform a spinal tap by inserting a needle into your lower back in a space around your spine to collect fluid for laboratory testing. **This is recommended even if you do not currently have symptoms.**
- The fluid will be tested in a laboratory to determine if you have fungal meningitis.
- **If you test positive for infection:** your healthcare team will treat you with antifungal medicines in the hospital. When you go home, it is possible that you will need to take antifungal medicine for several months to completely cure the infection.
- **If you test negative for infection:** continue to watch for symptoms for at least 4 weeks after the spinal tap.
  - **It is possible to test negative at first but still develop meningitis later.** Return to the emergency room as soon as possible if you develop new or worsening symptoms.
  - If you remain without symptoms, some clinicians may recommend repeating the spinal tap around 2 weeks after your first spinal tap to ensure that you have not developed an infection.

## Information for Healthcare Providers

See collaborative [webinar on epidemiology, diagnostics, and treatment](#) by CDC and the Mycosis Study Group.

- Healthcare providers should immediately report suspected fungal meningitis cases, including those possibly related to this outbreak, to their state or local health department. [Find contact information for your jurisdictional HAI program](#)

coordinator.

- See the full [Interim Recommendations](#) for diagnosis and management of cases (with or without symptoms) of possible fungal meningitis associated with epidural anesthesia administered in Matamoros, Mexico. The Interim Recommendations document:
  - Provides detailed diagnostic and management recommendations for clinicians caring for patients who underwent a procedure under epidural anesthesia in the city of Matamoros.
  - Is based on the clinical experience and expert opinion of clinicians caring for patients during the current outbreak or during previous outbreaks of healthcare-associated fungal meningitis in Durango, Mexico, and the United States. It will be updated as additional information becomes available.
  - This assessment involves a lumbar puncture to collect cerebrospinal fluid (CSF) for diagnostic laboratory testing.

## Testing Asymptomatic Patients

- Performing the diagnostic assessments in the interim recommendations on all patients with potential exposure, regardless of symptoms, will provide the best chance of preventing widespread morbidity and mortality from this outbreak for the following reasons:
  1. The latency of symptom onset in some affected patients provides a window of opportunity to identify infection and begin treatment early enough to prevent severe or life-threatening illness:
    - Patients without symptoms or with mild symptoms have tested positive for infection.
    - Symptom onset ranges from 3 days to 4 weeks after the date of exposure among reported cases to date.
    - Fungal meningitis may progress rapidly once symptoms start, causing more severe and harder to treat illness.
  2. The potential of high case-fatality rates related to this illness:
    - Three U.S. laboratories (CDC Mycotic Diseases Branch's Laboratory, UCSF Clinical Microbiology Laboratory, and UW Medicine Molecular Microbiology Laboratory) and the Mexican national laboratory (InDRE) have detected fungal signals consistent with the *Fusarium solani* species complex from the CSF of patients receiving care in Mexico or the United States.
    - A >40% case-fatality rate was seen in a recent outbreak of central nervous system *Fusarium* infections in Durango, Mexico (data not published).

## Information for Health Departments

### Notified Health Departments

- CDC has notified states and local jurisdictions where any patients live who were listed by the Mexican Ministry of Health as potentially at risk.
  - Health departments are notifying patients and telling them to seek care (or be evaluated).
  - CDC developed resources to assist with patient notification.
  - Health departments can email CDC at [FungalOutbreak@cdc.gov](mailto:FungalOutbreak@cdc.gov) for resources and additional support.

### All Health Departments

- Health departments are encouraged to raise awareness among healthcare providers and the general public in their jurisdictions.
- Additional people with potential exposure who were missing from the original list are being found and contacted through public health investigation, outreach efforts, social media, and by family and friends as they learn about the outbreak.
- For more information about medical tourism and risk mitigation, see [CDC Yellow Book 2024: Medical Tourism](#) or contact [medicaltourism@cdc.gov](mailto:medicaltourism@cdc.gov).

U.S. Cases under Investigation, Case Counts, and Deaths as of 6/7/23

Case Types	Case Counts
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<b>Persons under investigation</b> (People with no symptoms <sup>1</sup> or symptoms are unknown, spinal tap results pending or unknown)	184
<b>Suspected cases</b> (Symptoms consistent with meningitis, spinal tap results pending or unknown)	13
<b>Probable cases</b> (Spinal tap results suggest meningitis; <sup>2</sup> fungus not isolated)	10
<b>Confirmed cases</b> (Fungus detected from samples <sup>3</sup> )	4
<b>Deaths<sup>4</sup></b>	3

<sup>1</sup> Meningitis symptoms include fever, headache, stiff neck, nausea, vomiting, photophobia, and altered mental status.

<sup>2</sup> Cerebrospinal fluid (CSF) profile with >5 WBCs/mm<sup>3</sup>, accounting for the presence of red cells (i.e., subtracting 1 white cell for every 500 RBCs present).

<sup>3</sup> Fungus could be detected by culture, polymerase chain reaction (PCR) testing, or metagenomic next generation sequencing (mNGS) testing of CSF or tissue.

<sup>4</sup> One probable case and two confirmed cases.

## Findings and Investigations

*Select key findings:*

- Elevated levels of Beta-d-glucan, a biomarker of fungal infection, have been detected in the CSF of some U.S. patients.
- Three U.S. laboratories (CDC Mycotic Diseases Branch's Laboratory, UCSF Clinical Microbiology Laboratory, and UW Medicine Molecular Microbiology Laboratory) and the Mexican national laboratory (InDRE) have detected fungal signals consistent with the *Fusarium solani* species complex from the CSF of patients receiving care in Mexico or the United States.

*Continuing investigations:*

- CDC and partners are investigating to determine how people were exposed to the infectious organism(s) during the procedures.
- Officials are investigating whether any additional clinics were involved.

## What CDC Is Doing

- Published a [Travel Health Notice](#)
- Distributed a Health Alert Notice (HAN) [Health Advisory](#) and [HAN Health Advisory Update](#)
- Collaborated with the Mycoses Study Group to develop [Interim Recommendations](#) [↗](#)
- Collaborated with the Mycoses Study Group to produce a [webinar](#) discussing epidemiology, diagnostics, and treatment
- Facilitating outreach to potentially impacted patients
- Coordinating and performing specimen testing
- Continuing to investigate the source of the outbreak with colleagues in Mexico
- Disseminating information and strategic outreach to clinicians, the public, and partners
- Providing technical, diagnostic, and clinical advice as requested

Last Reviewed: June 7, 2023

