

## **Instructions for Clinical Teams Regarding Diagnostic Testing and Specimen Submission to CDC – Outbreak Associated With Injection of Potentially Contaminated Steroid Products**

As of October 6, 2012

The pathogens involved in this cluster of infections are still under investigation. At present, there is culture and/or histopathologic evidence of fungal infection in at least 9 patients; isolates have included *Aspergillus* spp. and *Exserohilum* spp. At least one patient also had *Propionibacterium acnes* of unclear clinical significance isolated from a post-mortem central nervous system (CNS) specimen. Because the pathogens associated with this outbreak may not have been fully determined, it is important to perform a thorough diagnostic work-up in exposed patient with signs and symptoms of CNS and/or parameningeal infections or septic arthritis. The following algorithm has been developed to help guide clinicians in their diagnostic work-up. These instructions are meant to supplement routine laboratory and microbiologic test deemed necessary by the clinical team and should not replace existing diagnostic protocol.

### Cerebrospinal fluid (CSF):

- When possible collect a large volume of cerebrospinal fluid (CSF).
- Obtain routine gram stain and bacterial cultures (including aerobic and anaerobic). The priority for remaining CSF specimens is fungal culture, conducted at the local hospital or state lab. When possible submit a large volume of CSF (minimum 10mL) for fungal culture.
- Remaining CSF should be sent to CDC for PCR analysis, minimum amount should be 1mL; 5mL is preferred. Samples sent to CDC should be unspun samples or a freshly collected, unadulterated sample.
- Specifically for the work-up of possible fungal pathogens:
  - If patients have intraventricular shunts/drains, obtain large volume of CSF to culture for fungi from this source
  - Send CSF sample for *Aspergillus* galactomannan assay<sup>1</sup> if there is any remaining CSF available after fungal culture and sample for PCR have been sent to CDC
- All cultures should be held for at least 2 weeks prior to discarding

### Serum:

- Send specimen for *Aspergillus* galactomannan assay

### Other tests:

- In addition to routine blood cultures, consider obtaining fungal and AFB blood cultures
- Other potentially infected fluid collections should be sampled (e.g., aspiration of epidural abscess, synovial fluid) and sent for microbiologic testing as described above for CSF specimens (including fungal smear).

### Tissue specimens (including post mortem specimens):

- Any relevant tissue specimens sent for histopathology should be stained and reviewed for infectious agents, including fungi (silver stain). Please save specimens to send to state health departments and CDC for further evaluation.
- Please send available autopsy specimens to CDC for further evaluation. See attached guidance for specimen collection and processing.

**Specimen shipping information:** Please contact the State Health Department and State Public Health Laboratory to coordinate shipment of specimens to CDC for further testing. Please refer to the attached documents for handling of specimens and shipment instructions.

- CSF (should be sent **frozen**):
  - Please ship CSF specimens to:  
  
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Centers for Disease Control and Prevention  
1600 Clifton Rd NE  
DASH Unit 40  
Atlanta, GA 30333  
404-639-2569
  - Please include DASH form, found on the CDC website, with all shipped CSF specimens
- Tissue specimens
  - Please use IDPB CNS submission guidelines and General Unexplained Illness Submission Guidelines posted on CDC website.

<sup>1</sup> The *Aspergillus* galactomannan assay (Platelia; BioRad) has been FDA approved only for serum. However, there are some published case series reporting its utility in identifying cases of *Aspergillus* meningitis, where the test has been done on CSF samples on a research basis.