Sphingomonas paucimobilis Bloodstream Infections Associated with Contaminated Intravenous Fentanyl[1]

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CME ACTIVITY

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Learning Objectives

Upon completion of this activity, participants will be able to:

- Describe the types of bacterial contamination associated with different compounding pharmacy medications.
- Describe the features of *Sphingomonas paucimobilis* bacteria.
- Identify the types of exposure associated with transmission of *S. paucimobilis* infection with contaminated fentanyl.
- Describe a strategy that would limit the occurrence of compounding pharmacy product contamination.

Editor

Lynne Stockton, Copy Editor, *Emerging Infectious Diseases*. *Disclosure: Lynne Stockton has disclosed no relevant financial relationships.*

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Nationally distributed medications from compounding pharmacies, which typically adhere to less stringent quality-control standards than pharmaceutical manufacturers, can lead to multistate outbreaks. We investigated a cluster of 6 patients in a Maryland hospital who had *Sphingomonas paucimobilis* bloodstream infections in November 2007. Of the 6 case-patients, 5 (83%) had received intravenous fentanyl within 48 hours before bacteremia developed. Cultures of unopened samples of fentanyl grew *S. paucimobilis;* the pulsed-field gel electrophoresis pattern was indistinguishable from that of the isolates of 5 case-patients. The contaminated fentanyl lot had been prepared at a compounding pharmacy and distributed to 4 states. Subsequently, in California, *S. paucimobilis* bacteremia was diagnosed for 2 patients who had received intravenous fentanyl from the same compounding pharmacy. These pharmacies should adopt more stringent quality-control measures, including prerelease product testing, when compounding and distributing large quantities of sterile preparations.

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Article Title

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CME Questions

1. Which of the following organisms is most likely to have been reported as a contaminant associated with betamethasone injection?

A. *Sphingomonas paucimobilis*
B. *Serratia marcescens*
C. *Pseudomonas putida*
D. *Exophiala* spp.

2. Which of the following is least likely to be an accurate description of *S. paucimobilis*?

A. Gram-positive
B. Glucose-nonfermenting
C. Yellow-pigmented
D. Found in soil and water

3. In this case series, which of the following was investigated as a source of exposure to fentanyl that resulted in *S. paucimobilis* bacteremia infection in patients?

A. Intravenous infusions
B. Contrast agents
C. Medications
D. All of the above

4. Which of the following strategies was recommended by the study authors to reduce the incidence of bacterial contamination by compounding pharmacies?

A. Inspect source of drugs before preparation
B. End-product sterility testing
C. Elimination of compounding pharmacies
D. None of the above

Activity Evaluation

1. The activity supported the learning objectives.				
Strongly Disagree				Strongly Agree
1	2	3	4	5
2. The material was organized clearly for learning to occur.				
Strongly Disagree				Strongly Agree
1	2	3	4	5
3. The content learned from this activity will impact my practice.				
Strongly Disagree				Strongly Agree
1	2	3	4	5
4. The activity was presented objectively and free of commercial bias.				
Strongly Disagree				Strongly Agree
1	2	3	4	5