

Contaminated Biocides

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In the Literature

Wong JK, Chambers LC, Elsmo EJ, et al. Cellulitis caused by the *Burkholderia cepacia* complex associated with contaminated chlorhexidine 2% scrub in five domestic cats. *J Vet Diagn Invest*. 2018;30(5):763-769.

FROM THE PAGE ...

This study describes a cluster of soft tissue infections in cats caused by *Burkholderia cepacia* complex (BCC), a gram-negative bacterial group related to and previously known as *Pseudomonas cepacia*. Resistance to biocides (eg, chlorhexidine) is a common property of BCC.¹⁻⁴ Although BCC infections are uncommonly reported in animals, there have been ample reports of clusters of infections in humans from contaminated substances (eg, surgical preparation solutions, wash solutions, catheter flushes).¹⁻⁵

In this study, BCC infections were identified in 5 cats in a clinic over an 18-month period. Concerns were not identified until late in the cluster, and cultures were not submitted early in the course of disease for the first 4 cases. Once the fifth case was identified, culture of various clinic supplies was performed; the bacterium was isolated from 3 chlorhexidine bottles (ie, 1 stock 2% chlorhexidine scrub bottle, 2 diluted with tap water). Similar antimicrobial susceptibility results suggest that the bacterium from the chlorhexidine bottles and the cats was the same. All infected cats had open wounds, and inoculation of BCC during wound care was suspected to be the source of infection. It is possible that contamination was present in the clinic throughout the 18-month outbreak period, and the low number of confirmed infections could have been due to the organism's limited virulence. Failure to identify additional cases due to unsubmitted culture specimens or due to the inherent difficulty in isolating this bacterium are other potential reasons for the low number of confirmed infections.

Although uncommon in veterinary medicine, clusters of infections resulting from contaminated biocides, particularly surgical preparation solutions, occur^{6,7} and are likely underreported. When containers (eg, bottles, dishes containing presoaked surgical gauze) are refilled, are opened, or have contact with hands, there is a chance of transfer of environmental organisms such as BCC. The cumulative chance of contamination with a biocide-resistant bacterium increases over time and, in some situations, can lead to hospital-associated infections.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Biocides (eg, chlorhexidine) can become contaminated with resistant bacteria, particularly if containers or bottles are repeatedly refilled and handled without sterilization.
- 2** Identification of infection caused by bacteria that can contaminate biocides (eg, *Burkholderia* spp, *Serratia* spp, *Bacillus* spp, *Stenotrophomonas* spp) should prompt investigation of possible sources.
- 3** Review of biocide-handling practices, particularly use of containers of presoaked gauze and refillable biocide bottles, is recommended to reduce the risk for contamination.⁸
- 4** Culture of potential hospital-associated infections is important to promptly identify clusters of infection and allow for early intervention.

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