Fig. 1.

Fig. 2.

ammonium product sprayed through an electrostatic sprayer system effectively reduced the bacterial contamination on boots. **Conclusions:** PCFR recognizes firefighter boots as a critical vector of contamination between the environment encountered on emergency medical calls and the fire station environment and, as a result, has started a preliminary education campaign for agency firefighters regarding the need for regular boot disinfection. These efforts include regular submissions to the biweekly employee newsletter, as well as reminders on interoffice mailing envelopes (see example below) in hopes of increasing informal, self-directed boot cleaning and disinfection efforts. The next steps include verifying the effectiveness of specific disinfectant cleaners on boots; addressing logistical and practical barriers to routine cleaning and disinfection of boots; and developing, implementing, and evaluating a protocol for regular boot cleaning and disinfection.

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Bronchoscope-Related Outbreaks and Pseudo-Outbreaks: CDC Consultations—United States, 2014–2019

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Background: Exposure to medical devices can be a risk factor for the development of healthcare-associated infections; bronchoscopes are a leading cause of device-associated outbreaks. We describe bronchoscope-related outbreaks and pseudo-outbreaks reported to the Centers for Disease Control and Prevention's Division of Healthcare Quality Promotion (DHQP), and we summarize investigation steps and control measures. **Methods:** We identified bronchoscope-related consultations with state and local health departments between July 1, 2014, and September 30, 2019, in the DHQP database. We abstracted data on patient symptoms, clinical culture results, investigation findings, and subsequent infection prevention and control interventions. **Results:** We identified 15 consultations involving 150 patients (range, 3–31 patients per consultation). Each consultation involved at least 1 cluster of the same organism. Organisms associated with bronchoscope-associated clusters were nontuberculous mycobacteria (n = 7), *Candida* spp (n = 3), *Exophiala* spp (n = 2), *Pseudomonas aeruginosa* (n = 2), *Enterobacter* spp (n = 2), and *Raoultella planticola*, *Stenotrophomonas maltophilia*, *Achromobacter* spp, *Mycobacterium tuberculosis*, and *Aspergillus* spp (1 each; 2 consultations involved multiple pathogens). Procedures from which these patient specimens were collected included bronchoalveolar lavage, bronchial wash, bronchial brushing, sputum swab, and lymph node biopsy. For the 7 outbreaks in which clinical data were available, 5 did not have patients with clinical infections related to the pathogen recovered. Two consultations involved pseudo-outbreaks: one involved contamination of specimen collection tubes and the other involved contamination of cultures within the laboratory. Potential underlying pathogen sources included contaminated bronchoscopes (inadequate reprocessing or device damage) (n = 10, 67%), use of nonsterile ice, water, or saline during the procedure (n = 4, 27%), contaminated specimen collection tubes (n = 1, 7%), contaminated bronchoscope suite (n = 1, 7%), and clinical laboratory contamination (n = 1, 7%). The most common interventions included improvement of reprocessing procedures (n = 5), removal of possibly damaged bronchoscopes (n = 4), and eliminating nonsterile ice and water exposures in bronchoscopy (n = 3). **Conclusions:** Water-related organisms were the most commonly identified pathogens in bronchoscope-related consultations, highlighting the important role that exposure to contaminated water during bronchoscopy and bronchoscope reprocessing might play in bronchoscopy-associated outbreaks and pseudo-outbreaks. During bronchoscope-related outbreaks identifying a common pathogen could indicate problems in bronchoscope handling or reprocessing, device damage, or exposure to nonsterile water.

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