Exposure of emergency medical responders to methicillin-resistant Staphylococcus aureus

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Abstract

Background
Methicillin-resistant Staphylococcus aureus (MRSA) infections result in 19,000 deaths a year in the United States. Epidemiologic studies have shown that community-acquired infections are increasing dramatically, and strains typical of community infections are increasingly detected in hospital populations. Emergency medical responders (EMR) are exposed to both community and hospital MRSA patients, which, combined with their communal lifestyles in fire stations, results in higher risk of exposure. This study determined the occurrence and frequency of MRSA and other bacterial indicators on environmental surfaces in fire stations, training sites, and offices of EMR.

Methods
Handled sponges were used for collection of targeted bacteria from commonly contacted environmental surfaces at EMR facilities. Biochemical tests confirmed isolates as S. aureus, and MRSA was confirmed by growth on selective and differential media. An initial set of 500 samples was collected at 9 fire-related facilities to identify areas of increased exposure. Subsequent studies targeted sites (n = 160) for repeat sampling that were MRSA positive.

Results
S. aureus was isolated from 10.6% (17/160) of the sampled sites. The couch and the classroom desks were the most contaminated at 20% (4/20 and 2/10, respectively). Of the S. aureus isolated, 64.7% (11/17) were confirmed as MRSA.

Conclusion
EMR have a high potential for exposure to MRSA, not only through patient and hospital contacts but also in the fire station environment. MRSA was isolated with the highest frequency on the couches and the class desks. Although the true health significance of these exposures is unknown, improved infection control practices, such as routine handwashing and surface disinfection, are warranted to reduce MRSA exposures.

Key Words: Methicillin-resistant Staphylococcus aureus, MRSA, fomites, emergency medical responders, infection control, fire stations

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