

Environmental MRSA disinfection using dry-mist hydrogen peroxide in hospitals

Quantification of MRSA after decontamination in the experimental hospital setting

Study project: In a Danish study*, four strains of methicillin-resistant *Staphylococcus aureus* (MRSA) associated with outbreaks were placed at five locations in a hospital room (upholstered chair, patient table, eiderdown, carpet, and bed railing). After one week, MRSA was placed in a similar manner on five new spots. Test patches were sampled with dipslides for both the first and second spottings. The room (with ventilation system turned off and doors and windows sealed) then was disinfected with three cycles of a dry-mist of hydrogen peroxide (Gloster Sante Europe; standard cycle).

Findings: For all strains, the number of colony-forming units fell during the week after inoculation. While all of the initially placed strains survived the week (MRSA recovered from 17 of 20 spots), none from either spotting survived disinfection with three cycles of hydrogen peroxide dry-mist.

One month later in the same room, which had been standing vacant, the experiment was varied to use only one cycle of dry-mist hydrogen peroxide. This time, none of the MRSA strains survived the week between inoculation and disinfection. However, strains inoculated just before disinfection could be recovered before disinfection but not after one cycle of hydrogen peroxide dry-mist; no growth was found during 14 days of follow-up.

Disinfection of upholstered hospital chairs contaminated with environmental MRSA

Study project: Fourteen upholstered chairs involved in an outbreak of MRSA were left for one month in a closed room. The chairs were sampled with dipslides. Then, the room containing the chairs was disinfected with hydrogen peroxide dry-mist (standard cycle).

Findings: MRSA can survive on upholstered furniture for at least one month: MRSA was found on the upholstery of four of the stored chairs. Immediately after disinfection with three cycles of a dry-mist of hydrogen peroxide, three of those chairs were MRSA-negative. The fourth chair tested negative for MRSA 24h later.

Conclusions: The authors concluded that decontamination with dry-mist hydrogen peroxide is effective in eliminating experimental MRSA from hospital furniture and MRSA from upholstered chairs contaminated by patients.

“We have shown that MRSA can survive on hospital furniture and fabrics for at least one month and that [dry-mist hydrogen peroxide] is effective in eliminating experimental MRSA from hospital furniture and MRSA from upholstered chairs contaminated by patients.”

Source*: Bartels D, Kristoffersen K, Slotsbjerg T, et al. Environmental meticillin-resistant *Staphylococcus aureus* (MRSA) disinfection using dry-mist-generated hydrogen peroxide. *J Hosp Infect* 2008;70:35-41.

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