

Variations In Disinfectants Used By Nurses In Us Healthcare Facilities

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Rationale: Healthcare workers commonly use a wide range of cleaning products and disinfectants. While the frequency of disinfection tasks is increasing in hospitals (to protect patients against healthcare-associated infections), there is growing evidence that exposure to disinfectants is associated with respiratory disorders, such as asthma. However, detailed information about the chemicals used in healthcare facilities are lacking. We aimed to describe types of disinfection tasks and products used by nurses in US healthcare facilities, and to investigate differences according to hospital characteristics.

Methods: Disinfectant use was assessed by an occupational questionnaire in 8,851 nurses (49-68 years) drawn from the Nurses' Health Study II cohort. Information was collected on the frequency of use of disinfectants to clean medical instruments or surfaces, use of spray, and use of specific disinfectants (eg, glutaraldehyde, hypochlorite bleach, quaternary ammonium compounds). For nurses who reported working in a hospital (52%), workplace address was recorded and matched to the corresponding hospital in the 2011 American Hospital Association database, which provided data on hospital characteristics. Associations of type of healthcare facility, hospital size, and US region with disinfectant use were evaluated by multivariable logistic regression.

Results: Nurses commonly reported weekly use of disinfectants to clean surfaces (50%), and to a lower extent, to clean instruments (19%); 19% reported weekly use of sprays. The most common disinfectants used by all nurses were alcohol (38%), hypochlorite bleach (21%), and quaternary ammonium compounds (12%). Working in a hospital was associated with higher disinfectant use (surfaces: odds ratio: 2.06 [95% confidence interval: 1.89-2.24] and instruments: 1.70 [1.53-1.90]), but lower spray use (0.74 [0.66-0.82]). Among nurses working in a hospital, nurses working in small hospitals (<50 beds, 6%) were more likely to use disinfectants to clean surfaces (1.69 [1.23-2.32]) and to use sprays (1.69 [1.20-2.38]) than those in large hospitals (≥200 beds, 69%). Compared to nurses in the Northeast, nurses in the West had lower spray use (0.75 [0.58-0.97]). Use of quaternary ammonium compounds was more common in smaller hospitals (1.58 [1.08-2.33]), and in the Midwest (1.51 [1.17-1.94]) and West (1.36 [1.02-1.83]) compared to the Northeast.

Conclusion: In a large study of US nurses, disinfectant use was more common among nurses working in smaller hospitals, possibly because they perform more diverse tasks. Moreover, the observed variations in spray use across hospital size and US region are notable; indeed, reducing spray use among nurses may be a relevant strategy for occupational asthma prevention.

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