



Enhanced risk of HAI by exposure to infected or colonised roommates and prior room occupants

Meta-analysis

WHAT WAS INVESTIGATED?

Meta-analysis examining the risk of HAI due to transmission of pathogens from roommates or prior room occupants.

18 studies meeting the following criteria were included:

- Original study
- Human study
- Conducted in the health care setting
- Comparative analysis on infection or colonisation rates of patients subjected to infected/colonised roommates or prior room occupants versus patients with no such contacts
- Outcome: infection or colonisation with the same organism

WHAT WAS THE RESULT?

2.69x higher risk of HAI when sharing a patient room with an infected or colonised **roommate**.

1.96x higher risk of HAI when **previous room occupants** were either infected or colonised.

Enhanced intermittent and terminal disinfection standards are needed to reduce the risk of an HAI with the same pathogen as colonised/infected roommates or previous room occupants.





BACKGROUND

Contaminated surfaces can be a risk factor in the development of HAI. Remaining pathogenic organisms on cleaned/disinfected surfaces from infected/colonised roommates or former occupants might be a source of HAIs.

GOAL

The aim of this study was to find out whether the risk of acquiring an HAI is increased by transmission of pathogens from colonised or infected roommates and prior room occupants, respectively.

DESIGN AND METHODS

The study was designed as a meta-analysis according to the standard methodological guidelines of Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA).

The study search covered the period from 1966 (PubMed) or 1974 (Embase) to March 2018. A total of 2,618 studies were identified of which 18 met the selection criteria, involving 59,372 subjects. To be included in the analysis, a study had to be original and conducted on humans in the healthcare setting.

All studies were investigating the risk of an HAI from infected/colonised roommates or prior room occupants. Outcome parameter was an infection or colonisation with the same organism.



Two authors independently assessed the quality of the studies using the Newcastle-Ottawa Scale.

RESULTS

The risk from exposure to infected/colonised roommates was reported by 12 studies including 33,153 subjects. The risk from exposure to infected/colonised prior room occupants was reported by 9 studies including 49,839 subjects.

Meta-analysis suggests an association of exposure to infected/colonised roommates or previous room occupants and the risk of an HAI with the same pathogen. In fact, the risk of acquiring an HAI is 2.69-times higher when exposed to an infected/colonised roommate and 1.96-times higher when subjected to a previous room occupant (infected or colonised) (Table 1).

Table 1: Risk of HAI by exposure to infected or colonised roommates or prior room occupants

	HAI	
Exposure to infected/colonised roommates (all studies)	OR = 2.69	
	CI = 1.61–4.49	
	P < 0.001	
Exposure to infected/colonised prior room occupants (all studies)	OR = 1.96	
	CI = 1.36–2.68	
	P < 0.001	

OR: odds ratio; CI: confidence interval

CONCLUSION

The analysis shows that the exposure to infected/colonised roommates or prior room occupants in hospitals is associated with an increased risk of HAI with the same organism. The standard disinfection and isolation procedures should be optimised to further reduce HAIs.