

Quantitative study - other

Visualising the invisible; why cleaning is important in the control of hospital-acquired infection

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Implications for practice and research

- ▶ Nurses must give environmental cleaning the same level of priority as hand hygiene for infection prevention.
- ▶ More study is required into the most effective equipment, products and techniques for cleaning hospitals.

Context

The problem with controlling hospital pathogens is that they are invisible to the human eye. From pioneers such as Pasteur, Koch and Lister, who purported microscopic ‘insects’, to early infection preventionists advocating clean hands, air and surfaces, all were shunned by peers and public alike.¹ Evidence for the role of cleaning itself is only just gathering pace, probably because it is deemed menial, repetitive and low status – performed only as an aesthetic gesture.² Yet staff who clean hospitals do a lot more than make the place look clean and tidy. Mopping up pathogens is a crucial component of infection control, but still pales into insignificance when compared with more palatable prevention strategies such as hand hygiene. Thus, a multisite study investigating the role of the patient room as a pertinent risk for hospital-acquired infection (HAI) is noteworthy.³

Methods

Administrative and clinical data were analysed for patients admitted into four New York City hospitals from 2006 to 2012. A computer algorithm identified concurrent organism detection among roommates, defined as two patients who shared a room for at least 1 day and who submitted positive cultures for the same organism within 3 days of cohabitation.

Findings

The 6-year study of nearly 750 000 patients identified 373 defined transmission events of ostensibly the same pathogen between patients sharing a room.³

Commentary

Support for the environmental role of HAI should come as no surprise if a patient has an increased risk of acquiring the same pathogen as a previous occupant. In fact, this risk has already been recognised and arguably constitutes the best evidence that we have for cleaning.⁴ The non-believers remain, however, because we cannot actually see where the pathogens are, or how they reach the patient. As the authors themselves point out, ‘tracing an infection to a specific exposure is challenging’.³ There are a dozen or more ways a microbe transmits between staff; visitors; surfaces and patients, and reservoirs include furniture, equipment, personal belongings, foodstuffs, clothing, bedding and air, the latter still searching for a place on the infection prevention agenda.⁵ Added to this is the uncertainty garnered through lack of genotyping, application of which would ratify transmission pathways and silence the sceptics.⁶ Such detail also negates the ever present possibility of long-term outbreaks grumbling along beneath the alert threshold.

Some of the transmission events in this paper could have been coincidental. *Staphylococcus aureus* is habitually carried by one in three people, so maybe two carriers collided within the study definitions and no transmission occurred, direct or indirect. *Pseudomonas* spp, *Klebsiella* spp and *Streptococcus pneumoniae*, as with enterococci, are endogenous and do not necessarily have to be externally acquired—unless, of course, they are part of an outbreak or display unique resistance or virulence markers.² Indeed, the pathogen shortlist did not even include *Clostridium difficile*, arguably one of the most durable microbial survivors.^{2,4} In defence of the figures, however, the total length of stay was 41 days for linked roommates and only 7 days for the overall patient population; this rather neatly underpins the study findings because extended stay patients are far more likely to acquire an exogenous pathogen and/or pass it on to the nearest contender.³

Has hospital cleaning finally ‘come of age’, rather than trailing behind Team Hand Hygiene? One would like to think so. The balance between hand hygiene and cleaning hand-touch sites should be equal and opposite but domestic duties rarely generate the type of universal flag waving seen for hand hygiene. Studies like this will help to address the imbalance. It is time for the Cinderella of infection control, cleaning, to step into the spotlight.²

Competing interests None declared.

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