

Invited Commentary

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Hand hygiene infrastructure and behaviours in resource-limited healthcare facilities

The World Health Organization recently highlighted the scarcity of research, and a 'call for action' on water, sanitation and hygiene (WASH) provision in healthcare facilities in settings with limited resources, such as those in many low- and middle-income countries.¹ The shortage of data from Asia in particular has been reported.¹

The article by Horng and co-authors in this issue provides valuable data to fill these gaps in knowledge. The authors report on a nationally representative survey of hand hygiene infrastructure and behaviours in healthcare facilities in Bangladesh.

Bangladesh is one of the most densely populated countries in the world, with high infectious disease morbidity and an under-resourced pluralistic healthcare system provided by government, private sector and non-government organisations.² Healthcare associated infections are largely unquantified in such settings.³

Horng and co-authors surveyed healthcare facilities within paediatric inpatient wards, or adult female wards, stratified by type of provider; healthcare worker category; gender and urban-rural locality. The inclusion of detailed hand hygiene observations of family members and carers, as well as the patients and healthcare workers, is an important element of the study. This is particularly relevant for contexts where family members are responsible for many aspects of patient care including feeding, bathing, clothing and dressing wounds.

Contrary to what might be expected, hand hygiene infrastructure was not the greatest barrier to effective hand-washing amongst healthcare workers. Most healthcare facilities (96% of the 875 facilities surveyed) had improved water, and soap was available at 72-96% of handwashing locations for doctors and nurses. Alcohol sanitiser was less common than bar soap, but was available in some healthcare worker handwashing locations (ranging from 18% to 51%). Hand hygiene infrastructure was poorer for patients and family; only 4-30% of handwashing locations had soap, and almost none had alcohol sanitiser.

The study highlights the scope for considerable improvement in hand hygiene behaviours among healthcare workers as well as family members. Of 4,676 hand hygiene opportunities across all individuals, handwashing with soap was observed

on 48% of occasions, and effective handwashing (with alcohol sanitiser or washing with soap then drying by air or with a clean cloth) took place on 2% of observations.

In contrast to high income settings, family members had the most contact with patient bodily fluids compared to healthcare workers (67% versus 8% of 636 opportunities respectively). Family members came into contact with patient faeces through cleaning after defecation, but recommended hand hygiene was only performed in 3% of these occurrences. Caregivers also took the main role around food and general hygiene, but washing hands with water was more likely to take place after feeding others or eating, than before. Despite the significant role of family members in patient care, only 1% considered hand hygiene important before clean/aseptic procedures.

Certain paradoxes are apparent from this study. Whilst 96% of water sources were classed as 'improved' following the WHO definition, improved water sources were commonly contaminated by litter (paper/food waste) and in some cases by human faeces. These apparently contradictory conditions were more likely to occur in rural areas, and in government healthcare facilities. Whilst not reported in the present study, feral cats have been observed in hospitals in Bangladesh, scavenging for food and sleeping on patient beds.⁴

In sum, this study provides insights into the complexities of infection control in under-resourced healthcare facilities, and the types of physical environments under which infection prevention and control take place globally. Additional challenges stem from the role of family in patient care for whom hand hygiene may not be a priority. Healthcare associated infections in low income countries lead to prolonged hospital stays, increased financial costs for patients and carers, an increased burden of antimicrobial resistant infections and excess mortality, all of which are exacerbated by undernutrition and immunosuppression in the host.⁵

On a positive note, simple measures such as the installation of low cost handwashing stations and water treatment at healthcare facilities have been shown to improve the quality of care, uptake of services, and can encourage community members to change hygiene practices at home.^{1,6} Horng *et al*, therefore, provide valuable baseline data on which to develop policy and evaluate hand hygiene interventions in countries such as Bangladesh.

References

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