

Review

The 'My five moments for hand hygiene' concept for the overcrowded setting in resource-limited healthcare systems

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SUMMARY

Hand hygiene is a core activity of patient safety for the prevention of healthcare-associated infections (HCAIs). To standardize hand hygiene practices globally the World Health Organization (WHO) released Guidelines on Hand Hygiene in Health Care and introduced the 'My five moments for hand hygiene' concept to define indications for hand hygiene rooted in an evidence-based model for transmission of micro-organisms by healthcare workers' (HCWs) hands. Central to the concept is the division of the healthcare environment into two geographical care zones, the patient zone and the healthcare zone, that requires the HCW to comply with specific hand hygiene moments. In resource-limited, overcrowded healthcare settings inadequate or no spatial separation between beds occurs frequently. These conditions challenge the HCW's ability to visualize and delineate patient zones. The 'My five moments for hand hygiene' concept has been adapted for these conditions with the aim of assisting hand hygiene educators, auditors, and HCWs to minimize ambiguity regarding shared patient zones and achieve the ultimate goal set by the WHO Guidelines – the reduction of infectious risks.

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Introduction

The World Health Organization (WHO) 'My five moments for hand hygiene' was developed with a goal to standardize hand

hygiene in clinical practice and reduce the burden of healthcare-associated infections (HCAIs).^{1,2} This clinician-centred concept delineates indications for hand hygiene by healthcare workers (HCWs) according to the risk for micro-organism cross-transmission to patients and their environment, and provides a resource for educators and auditors assessing performance.^{1,3–11} Hand hygiene is critical for HCAI prevention and the availability of alcohol-based hand rub (ABHR) at the point of care has been pivotal to compliance with

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'My five moments' during clinical practice.^{2,5–7,12–19} An important focus of the 'My five moments' concept is the visualization of the individual patient zone, which defines hand hygiene indications.^{17,19}

In resource-limited healthcare settings, overcrowding in general wards means that it is common for patients to share a bed; furthermore, there is usually limited or no space between beds. As a consequence, HCWs might have difficulties in identifying the patient zones and the healthcare zone and in recognizing the 'My five moments for hand hygiene' indications. This report discusses the practical application of the 'My five moments for hand hygiene' in overcrowded settings in accordance with the corresponding guidance by WHO to assist hand hygiene performance and monitoring.²⁰

The 'Five moments' concept revisited

The central tenet of 'My five moments for hand hygiene' is the separation of micro-organism from one patient zone to the next zone and from critical sites where contamination could lead to infection.¹⁷ Continuous contact with patients, surfaces, devices, medical documents and waste results in a large number of daily opportunities for HCWs' hands to become colonized with potential pathogens.^{18,21,22} In the absence of correct hand hygiene, hand contamination has the potential for cross-transmission to other patients and healthcare surfaces or to cause HCAI in the presence of other risk factors.^{18,22,23} 'My five moments for hand hygiene' was developed around three important conditions necessary for cross-transmission.^{18,24} First, the patient zone that is colonized by patient flora includes the patient's intact skin and inanimate surfaces that are exclusively dedicated to the patient within this zone. Second, the zone that is outside the patient's zone, the healthcare

zone, includes the wider healthcare environment and other patient zones and contains a wide variety of micro-organisms, representing a key source for cross-transmission to patients.^{17,18,25–29} Third, inside the patient zone pathogen transmission to or from critical sites such as skin breaks, invasive equipment, and mucous membranes represents a direct infectious risk. Therefore, the 'My five moments for hand hygiene' concept requires hand hygiene to be practised in accordance with the sequence of hand-to-surface exposures.^{17,18,24}

The challenge for the zone concept in overcrowded hospital settings

During the trialling of 'My five moments for hand hygiene' in an overcrowded setting, we identified a unique challenge for hand hygiene trainers, the HCW, and hand hygiene monitors. Identifying the delineation between patient zones was difficult. Distinct variations in the patient zone exist in the overcrowded settings because of bed sharing; it is common to have patients with varying medical conditions or infectious status sharing a single bed. Bed configurations may include a bed platform that provides bedding for as many as 10 patients, and single beds may be placed so closely together that the minimal spatial distance between beds makes delineation of patient zones for each individual patient impractical and irrelevant (see Figure 1). In overcrowded conditions, patients exchange their flora due to their frequent direct contact and contact with shared surfaces.

Still, the delineation of patient zones has to be clearly determined and communicated to HCWs and hand hygiene observers to allow for accurate hand hygiene performance and monitoring in accordance with the 'My five moments for hand

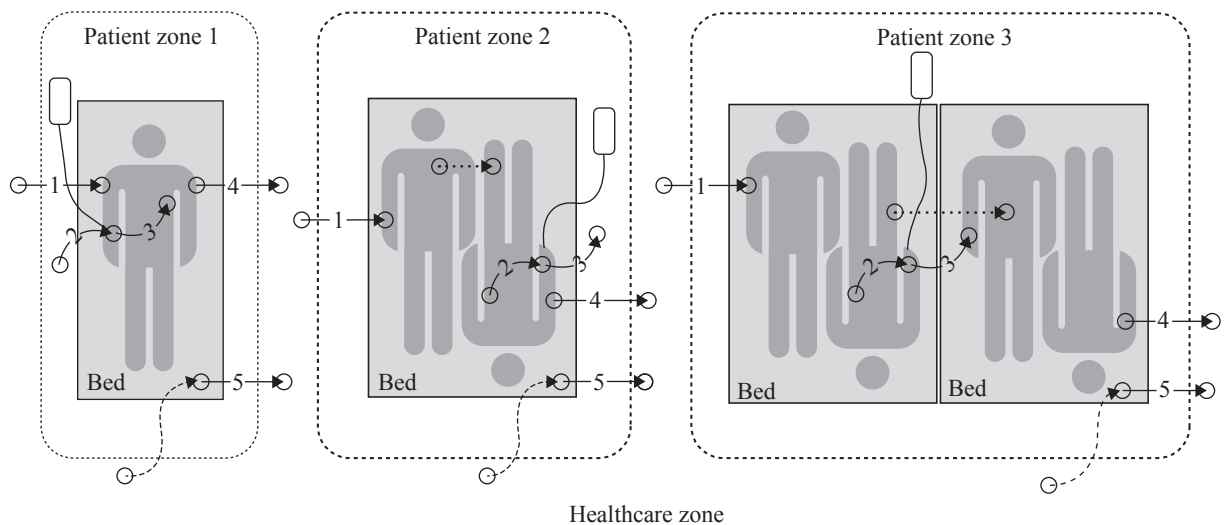


Figure 1. Applying 'My five moments for hand hygiene' in overcrowded settings. Patient zone 1, single-patient occupancy situation; Patient zone 2, situation where two patients are sharing one bed in a unified patient zone; Patient zone 3; situation with several close beddings with inadequate spacing where a common patient zone is established. Circle: hand-to-surface exposure; arrow with number: hand transition with corresponding moment for hand hygiene (1, before touching a patient; 2, before clean/aseptic procedure; 3, after body fluid exposure risk; 4, after touching a patient; 5, after touching patient surroundings (without touching the patient)); dotted arrow: hand transition with no indication for hand hygiene; dashed arrow: hand transition before Moment 5, indicating that no patient is touched during the entire care sequence in this patient zone; grey line: infusion tube leading to peripheral venous access that is exemplifying a critical site (the touching of which is associated with Moments 2 and 3).

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