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Letter to the Editor

Improving hand hygiene practice recommendations for acute-care hospitals

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To the Editor—Hand hygiene (HH) is a fundamental practice to prevent healthcare-associated infections by interrupting a microbe's transmission cycle, and as such, must be performed consistently and in accordance with the current evidence base. To maximize the benefits of HH monitoring programs, it is important to eliminate inconsistencies between how HH is taught and how adherence is measured. We propose an optimized set of HH recommendations that are understandable, operational, and measurable (Table 1). These are intended to improve patient safety by explicitly expecting HH prior to touching the patient environment and specifying the necessity of performing HH before and after glove use. In addition, clearly stating that HH should be performed with entering and exiting the patient's care area, allows the moments to be aligned with existing HH auditing systems and signals healthcare worker (HCW) dedication to patient safety. The proposed times at which HH should be performed conform, with minor modifications, to those that have been set forth by the World Health Organization (WHO) Five Moments for Hand Hygiene and the Centers for Disease Control and Prevention (CDC) Healthcare Infection Control Practices Advisory Committee (HICPAC) recommendations.[1,2] We strongly recommend closely emulating Public Health Ontario's (PHO) Your Four Moments for HH with modifications mentioned to best address identified gaps.[3]

In the publication used to substantiate the adoption of the WHO Five Moments for Hand Hygiene, before patient contact is defined as "occur[ing] between the last hand-to-surface contact with an object belonging to the healthcare zone and the first within the patient zone." The example provided is touching a door handle belonging to the healthcare zone and the patient's hand. Notably, this guidance mentions that not only will HH at this time prevent cross colonization of the patient but "occasionally, exogenous infection" as well.[4] The first moment does not specifically mention the need to perform HH before touching the patient's environment, including commonly touched surfaces by the patient, and others, such as the bedside table. If HCWs strictly adhere to the first WHO moment, or CDC HICPAC recommendations, they likely contribute to cross-contamination of the patient's environment through contact with that environment using contaminated hands. Additionally, during patient care, HCWs may touch contaminated objects within the patient environment, followed by the patient, aiding in transmission. One study demonstrated that 33.5% of visits only included touching the environment, shedding light on the potential frequency at which environmental contamination may occur.[5] The role the environment plays as a reservoir of organisms that can cause infection has been well documented and recognition of the environment as a contributor to multidrug-resistant organism transmission has been mounting.[6,7] Therefore, HH before contact with the patient environment should be incorporated into HH practice recommendations, similar to the PHO's first recommendation, which comprises 2 different moments for HH. The authors of a recently published letter to the editor of *Infection Control and Hospital Epidemiology* eloquently articulate the possibility of recontamination after HH, regardless of glove use, due to touching contaminated surfaces or objects.[8] This plausible and likely common scenario should provide further attention to the need for decreasing the environmental microbial burden by performing HH before contact with surroundings.

The CDC HICPAC recommendations explicitly mention the need to perform HH after gloves are removed, but they do not overtly state the need to perform HH before putting gloves on. Gloves are often used even when not clearly indicated, and use of gloves has been associated with lower HH compliance.[9] HCWs are more likely to perform HH after tasks, than before, regardless if it was deemed critical or noncritical.[10] One study found that 96% of patients (n = 250) thought it important that physicians clean their hands before touching anything in the room.[11] Patient perception or satisfaction can be leveraged to justify the incorporation of adding "before contact with the patient environment" to hand hygiene policies. Moreover, when auditing HH compliance, many inpatient facilities do review whether or not HH was performed prior to donning gloves and additional personal protective equipment in addition to entering or exiting a patient's room. By formalizing these instances to align with HH training programs and policies, HCWs will be more cognizant of their expectations.

This letter serves as an impetus for institutions to conduct a thorough assessment of their HH practice recommendations alongside the current evidence base. In our opinion, it is necessary to incorporate HH before touching the patient environment, before donning gloves, and after doffing gloves when providing patient care. Alignment with institutional policy, education (eg, new or annual training modules, introductory videos, health professional education), and methods for measuring compliance should also be evaluated. These recommendations have the potential to improve patient safety by preventing healthcare-associated

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Table 1. World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), Public Health Ontario (PHO), and Proposed Hand Hygiene Practice Recommendations

WHO Five Moments for Hand Hygiene	CDC HICPAC Recommendations for Hand Hygiene in Healthcare Settings	PHO Your Four Moments for Hand Hygiene	Proposed Revisions
Before touching a patient	Immediately before touching a patient	Before initial patient or patient environment contact	Before patient or patient environment contact, including entering the patient's care area
Before clean/aseptic procedure	Before performing an aseptic task or handling invasive medical devices	Before aseptic procedure	Before clean or aseptic procedure and donning gloves
After body fluid exposure risk	Before moving from work on a soiled body site to a clean body site on the same patient	After body fluid exposure risk	After body fluid exposure risk and doffing gloves
After touching a patient	After touching a patient or the patient's immediate environment	After patient or patient environment contact	After patient or patient environment contact, including exiting the patient's care area
After touching patient surroundings	After contact with blood, body fluids, or contaminated surfaces		
	Immediately after glove removal		

infections. Additional benefits, such as improved patient satisfaction or perception, and alignment with existing auditing programs, may also result.

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In vitro comparison of 3 different brushes for manual cleaning of endoscopes

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To the Editor—Flexible endoscopes may become heavily contaminated with blood, secretions, and microorganisms during use. Over the last several years an increasing number of cases have been reported in which patients have been exposed to infectious microorganisms by contaminated gastrointestinal (GI) endoscopes.[1]

The complete and accurate reprocessing of flexible endoscopes is a multistep procedure involving manual cleaning followed by high-level disinfection (HLD) and active drying before storage.[2] Because almost all reported outbreaks are related to breaches in reprocessing techniques, it is crucial that endoscope cleaning, disinfection, and drying are performed according to a strict protocol.

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