

Challenges and Pitfalls in Hand Hygiene Culture

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Hand hygiene is one of the key practices to prevent healthcare-associated infections (HAI) and interrupt the transmission of pathogens that are transmitted by contact, particularly multidrug-resistant organisms (MDRO), which can cause high mortality. Since its first intervention by Dr. Ignaz Philipp Semmelweis, the science and practice of hand hygiene have progressed, but gradually. It was not until the late 1990s when Professor Didier Pittet demonstrated an inverse correlation between methicillin-resistant *Staphylococcus aureus* infection rates and hand hygiene compliance⁽¹⁾. Furthermore, he found that alcohol-based hand rub solutions cannot only significantly decrease the amount of time healthcare workers (HCWs) spend on hand hygiene but also have better efficacy than soap and water. Subsequently, the World Health Organization (WHO) introduced the campaign ‘SAVE LIVES: Clean Your Hands’ worldwide, which included the 5-strategy approach and 5-moment framework for hand hygiene. Later studies suggested that adding three more strategies—namely, goal setting, incentive and accountability—to the existing ones could further increase hand hygiene compliance⁽²⁾.

However, it is still very difficult to achieve and maintaining high hand hygiene compliance in healthcare facilities worldwide. The average hand hygiene compliance rate ranges between 20% in low-income and 40% in high-income countries^(3,4). Some of the barriers to hand hygiene include suboptimal infrastructure, such as lack of adequate hand washing sinks and good quality alcohol-based hand rub solutions, high workload, understaffing, and inappropriate behaviour norms, patterns and role modelling⁽⁵⁾. Time constraint has been a major barrier to hand hygiene, but it was resolved after shifting toward using alcohol-based hand rub solution instead of soap and water. Using alcohol-based hand rub solutions also partially downgrades the magnitude of tension created by understaffing and high workload.

Wearing gloves is increasingly recognised as a predictor of non-compliance with hand hygiene. This is because many HCWs perceive that gloves are absolute protection against hand contamination. Simultaneously, HCWs also tend to perceive that hand hygiene interrupts the workflow. Consequently, they would incline to wear gloves for every patient care activity and omit hand hygiene. Therefore, the WHO promoted ‘It might be gloves. It’s always hand hygiene’ as the main theme of 2025’s World Hand Hygiene Day. Furthermore, countries with limited resources continue to use powdered gloves because they are widely available at lower cost. However, using powdered gloves makes hand hygiene with alcohol-based hand rub solutions difficult, because residual powder can aggregate on the hands, interfering with the antimicrobial properties of alcohol, and can also create uncomfortable feeling. In addition, powdered gloves are associated with latex allergy and may trigger asthmatic attacks among people with asthma. The healthcare system, therefore, should focus on using non-powdered gloves, and industries manufacturing them should prioritise making good-quality and cost-effective gloves.

Sustainable hand hygiene requires the implementation of the multifaceted approaches mentioned above, and leadership is a critical part of this process. It is important for hospital administrators to understand that investment in hand hygiene is cost-effective, not a financial burden. A recent study in Vietnam showed a 10% reduction HAI when hand hygiene compliance increased from 26% to 58%, saving \$1,074 per HAI prevented, while the hand hygiene program costed only \$6.5 per patient⁽⁶⁾. Hospital administrators can support hand hygiene programs by providing adequate resources to establish an adequate handwash basins, continuous supply of alcohol-based hand rub solutions at the point of care and non-powdered gloves.

Being the role model of good hand hygiene practices by hospital leaders can significantly influence the norms of HCWs. Thus, in addition to managing the budget, leaders at all levels of the hospital units must consistently perform hand hygiene according to the 5-moment guidance and provide direct feedback to HCWs and the hand hygiene (HH) team. Monitoring and feedback both in terms of overall compliance within specific areas of the hospital or among HCWs (e.g., physicians, nurses and students) and direct feedback when non-compliance is detected may lead to change in behaviour of HCWs. Hand hygiene compliance rates should be reported to each sector of the hospital along with HAI rate and prevalence of MDRO so that all stakeholders can easily recognize the benefit of hand hygiene. On the other hand, hospitals should not set the goal to achieve 100% hand hygiene without emphasizing the ultimate outcomes—HAI and MDRO rates, because that will likely lead to falsely high rates of hand hygiene compliance.

Hand hygiene technique has been a topic of interest. Recent research indicated that a 3-step hand rub takes less time and may increase compliance while maintaining similar HAI and MDRO rates as compared to the traditional 6-step suggested by the WHO⁽⁷⁾. The three steps include (1) rubbing all surfaces of the hands, particularly both palms, (2) rotationally rubbing the fingertips on the palm of the alternate hand and (3) rotationally rubbing both thumbs. The total HH median time for the 3-step process was half that of the 6-step process, and the observed hand hygiene compliance rates were 84.88% and 76.85%, respectively⁽⁷⁾. While this is important in HCW training, in real-life practice, during hand hygiene observation, the observers usually focus only on whether the hand hygiene is performed rather than how the HCW rubs his/her hands.

Finally, the hand hygiene campaign is an endless activity in healthcare system because hand hygiene is a learned behaviour that needs repetitive reminding. Therefore, having a permanent group of people working in this area as well as support from hospital administrators are vital for this sustainable hand hygiene program. Linking HAI and MDRO rates with hand hygiene compliance could eventually create a safety culture in the healthcare system, which is the ultimate goal of a hand hygiene campaign.

References

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日本語要約

手指衛生文化の課題と落とし穴

手指衛生は医療関連感染(HAI)を防ぎ、多剤耐性菌(MDRO)などによる感染拡大を防止する対策の1つです。しかし、手指衛生遵守率の平均は、低所得国で20%、高所得国で40%に留まっています。手袋着用が感染予防における完全な手段であると考えられる医療従事者も多く、遵守率が低い一因となっています。持続可能な手指衛生には多角的アプローチが必要ですが、中でもリーダーシップは重要です。管理者は模範的行動を示し、手指衛生が費用対効果の高いものであると理解すべきです。ベトナムで行われた調査では、手指衛生の遵守率が26%から58%に向上したことで、HAIが10%減少し、予防されたHAI1件あたり1,074ドルの節約となった一方、手指衛生に係る費用は患者1人あたりわずか6.5ドルでした。手指衛生は繰り返し注意喚起する必要があり、終わりのない活動です。その為、スタッフや管理者の支援が不可欠です。HAIやMDROの発生率と手指衛生遵守率を関連付けることで、最終的には医療システムにおける安全文化の醸成につながり、それが手指衛生キャンペーンの最大の目標となります。

