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Editorial

Utility of Hand Hygiene in Indian Hospitals

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INTRODUCTION

Healthcare-associated infections (HAIs) are the most undesired outcomes in healthcare delivery. Multidrug-resistant organisms account for a significant portion of these infections, posing challenges in their management, compromising patient safety, and increasing mortality rates. They may also affect the visitors, health care workers (HCWs), and the environment and significantly burden health systems with associated increased costs. Globally, out of every 100 hospitalised patients, seven in high-income countries (HICs) and 15 in low- and middle-income countries (LMICs) acquire at least one HAI during their hospital stay.[1] In countries such as India, HAIs pose a significant concern, as their rates and associated mortality rates are higher than those in developed countries due to various factors.

History has proven that hand hygiene (HH) is one of the most effective methods for controlling HAIs. A pioneering observation by Sir Ignaz Semmelweis in the mid-1800s demonstrated that the maternal mortality rates, primarily attributable to puerperal fever, were drastically reduced after the implementation of hand scrubbing in a chlorinated lime solution before every patient contact by HCWs. However, the World Health Organisation (WHO) only published the first national hand hygiene guidelines in the 1980s, marking the evolution of hand hygiene concepts in health care, with several other countries following suit in more recent years.[2]

The WHO pledged to tackle the problem of HAIs at its First Global Patient Safety Challenge, “Clean Care is Safer Care,” launched in 2005 with a comprehensive set of guidelines for use in both developed and developing countries worldwide. In March 2009, the WHO issued the final version of the Guidelines on Hand Hygiene in Health Care, which includes recommendations on indications, techniques, and products for HH under the campaign "SAVE LIVES: Clean your Hands."

With the availability of guidelines, awareness about this simple yet effective technique to avert HAIs has increased among the healthcare community. As the scientific evidence emerged for its effectiveness, WHO, in its latest report on global infection prevention and control, emphasised HH as one of the most important evidence-based interventions with the maximum impact on reducing HAIs and Antimicrobial resistance (AMR). [1] Despite this, reports indicate that the global average for HH compliance, without specific improvement interventions, hovers around 40%. Even in intensive care units, the average HH compliance reported is around 60%, with significant differences between HICs and LICs (64.5% vs. 9.1%).[3]

HAND HYGIENE IN INDIAN HOSPITALS

Reports on the measurement of HCWs' compliance with HH practices in Indian hospitals are relatively sparse compared to those in the Western world. Studies conducted on HH by a few authors after the launch of WHO HH guidelines until the emergence of the COVID-19 pandemic (approximately from 2009 to 2019) show compliance rates ranging from as low as 23% to

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as high as 80%. Despite conducting most of these studies in academic institutes and targeting intensive-care units (ICUs) or critical care settings to measure HH compliance, there is a significant variability in the compliance rates observed. The lack of uniformity in HH audit data collection and analysis methodology may cause this variability. In most of these studies, the observation period was low, with fewer opportunities observed. Sastry A et al. conducted a landmark study in JIPMER, Puducherry, from 2015 to 2016, involving 18 locations and a total of 1,080 observation periods, with approximately 64,800 minutes of observation.[4] This study highlighted all the important aspects of hand hygiene performance in Indian public health hospital setups during the pre-COVID era. They have reported the HHCAR (HH complete adherence rate) and HHPAR (HH partial adherence rate) of 45.5% and 21.17%, respectively, accounting for the total compliance rate (HHTAR) of 66.7%. After this study, another report from the same institute published after a year reported similar rates of 34.7%, 35%, and 69.7%, respectively.[5] In both these studies, it was found that nurses were more compliant than doctors in performing HH, which contrasts with earlier studies that found physicians/doctors to be more compliant. Furthermore, these are the only two reports from India during the pre-COVID era that have analysed HH compliance according to the WHO's Moments of Hand Hygiene. They found that HCWs were more compliant with the 'after moments' (moments 3, 4, and 5) than the 'before moments' (moments 1 and 2).

The COVID-19 pandemic redefined the importance of HH in healthcare and the community globally. Since HH was one of the crucial measures to prevent its transmission, the worldwide healthcare fraternity recognised its importance in saving lives. It assisted many hospitals already practising it in enhancing their efforts, and many hospitals started implementing these interventions afresh. As a result, we observed an increase in overall compliance with HH across all hospitals. In one of the largest multicentric evaluations conducted in 92 different health-care facilities (HCFs) of India, including government teaching, government non-teaching, private teaching, and private nonteaching hospitals involved in COVID care, an average HHTAR of 61.4% was documented in COVID wards, which was higher than COVID ICUs (57.8%).[6] The compliance was even higher (OR-1.37, $p < 0.05$) in non-COVID care areas (65.4%) than in COVID care areas (57.8%).[7] In both these studies, nurses were more compliant with HH practices, and WHO moment 3 was the most compliant.

As a lesson learnt during the pandemic, it was highly anticipated that HH compliance post-pandemic will remain maintained. Many hospitals have adopted a multimodal approach to strengthen the HH component of their existing HIC program to improve compliance. At the same time, few have initiated HH training, monitoring, and feedback as the low-hanging fruit to initiate infection control activities at their hospitals. However, we again lack national data on HH behaviour after the pandemic. Only one report published in recent years discusses HCWs' HH adherence with promising figures. Gupta S et al. from one of the apex government institutes observed an overall compliance of 69.2%.[8] Sanitation workers demonstrated the highest compliance (73.1%; 95% confidence interval [CI]: 70.6–75.4), with nurses following closely at 71.2% (95% CI: 70.4–72.1). Surprisingly, WHO's Moment Five was the most frequently followed, at 79.1% (95% CI: 77.4–80.7), and Moment One was the least frequently followed, at 55.8% (95% CI: 54.5–57.1), in their study.[8]

Aligning with the global observations, Indian studies have also demonstrated HH as an effective intervention to reduce HAIs. Many of them practised multimodal interventions, quality improvement projects involving multiple Plan-Do-Study-Act (PDSA) cycles, and the use of modern technology (self-directed learning, participatory learning, closed-circuit TV (CCTV) monitoring) for improving the HH compliance and HAI rates of their hospital. Laskar et al. introduced multimodal interventions in their hospital, which led to an increase in HHCAR from 3% in the pre-intervention phase to 70% in the post-intervention phase.[5] Some hospitals tried multiple Plan-Do-Study-Act (PDSA) cycles to improve the HH compliance rates significantly. A simple practice of auditing and giving feedback to the stakeholders improved the HH adherence rates significantly. It led to a significant decrease in device-associated infection (DAI) rate from 24.7 to 11.5 per 1,000 device days and 10.6 to 3.9 per 1,000 device days.[4,9] Apart from this, appropriate HH can reduce microbial transmission during outbreaks and can also save a lot of healthcare costs.

The major challenge Indian institutions face in implementing this most straightforward intervention is limited resources. The hospitals, especially public health hospitals, face a continuous crunch of adequate infrastructure, sufficient hand hygiene products and access to clean water and sanitation. Apart from this, high volumes of patients, especially in public hospitals, make it difficult to maintain the staff-to-patient ratio and compromise the quality of patient care provided, including non-compliance to HH and other IPC measures. A lack of knowledge and awareness about

IPC parameters is still witnessed in some hospitals, keeping them away from the benefits of this life-saving measure. Additionally, lack of positive role models, lack of positive reinforcements (e.g., awards, praises, monetary benefits, etc.), negative reinforcements (such as answerability to superiors, fines, etc.), or poor attitude lead to ineffective HH procedures, complaints of skin irritation and dryness, no HH and sepsis audits, and no formal training of new personnel are some of the factors responsible for poor HH compliance in general.

India is rapidly moving towards achieving Goal 6.2 of the Sustainable Development Goals (SDGs) by the United Nations on Sanitation and hygiene by 2030. To fulfil the requirement, the Ministry of Health and Family Welfare (MOHFW) launched the 'Kayakalp' initiative following the 'Swachh Bharat Mission' launch to complement the latter's goals. To improve and promote cleanliness, hygiene, waste management and infection control practices in public health care facilities, Kayakalp provides a list of indicators against which public health centres are to be scored. One of the indicators listed under the section of infection control is hand hygiene, which is scored based on the availability of sink and running water at the point of use, display of Hand washing Instructions, adherence to 6 steps of Hand washing, awareness of staff in terms of when to hand wash. With the introduction of this scheme, public health facilities at primary, secondary, and tertiary care levels have provided the necessary infrastructure to show their competitive optimum performance. While this is a welcome initiative to promote HH adherence across health care, it does not provide data on its utility as an HH performance indicator.[10]

Besides Kayakalp, hand hygiene is promoted through two national WASH flagship programmes – the Swachh Bharat Mission Phase 1 and 2 and the Jal Jeevan Mission on rural drinking water. In addition, the Government upscaled the Hand Washing Days celebrations on 15th October as a Swachhta Pakhwada (cleanliness fortnight) from 2015 onwards with a focus on promoting HH. National guidelines on infection prevention and control in healthcare facilities were also launched by MOHFW in 2020, guiding the implementation, monitoring, and assessment of HH practices in Indian hospitals.

Practice Points

- Hand hygiene compliance can reduce over 50% of HAIs and should be prioritized in clinical practice.
- Ensuring the availability of adequate resources for hand hygiene practices is imperative in Indian settings.
- Doctors/clinicians should enhance their hand hygiene actions and serve as role models for others.
- Compliance with all the WHO's HH moments must be ensured by HCWs, with equal emphasis on "before" (1 and 2) and "after" moments (3, 4, 5).
- Conducting hand hygiene practice audits and offering feedback can have a long-term impact and should be included as a quality measure in Indian healthcare delivery systems.
- Commitment to excellence in hand hygiene at all levels is the need of the hour.

CONCLUSION

Hand hygiene is critical in preventing and managing healthcare-associated infections, associated AMR, and mortality, given their considerable burden in India. The healthcare workers and hospital administrators of Indian hospitals must realise its importance and make necessary changes in their setups to facilitate optimum compliance with this life-saving measure. In addition to regularly training and educating HCWs on hand hygiene, it's crucial to ensure the availability and accessibility of hand hygiene products. Doctors need to improve their compliance with all the WHO's moments of HH and lead by example in demonstrating excellent HH behaviour during their clinical practice. Regular monitoring and providing feedback, along with positive reinforcements to the HCWs, must be practised to sustain the change. In addition, one must adapt the new technologies and solutions to facilitate HH adherence by HCWs and rationalise the available resources to combat the current challenges.

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CONFLICTS OF INTEREST STATEMENT

The authors declare no conflict of interest

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The author are qualified for authorship as per ICMJE criteria. They approved the manuscript.

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