

Hand hygiene adherence rate before and after the plan-do-check-act strategy

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ABSTRACT

Introduction: *The study explored implementing the PDCA cycle to enhance hand hygiene practices among healthcare workers. Utilizing this cycle, the investigation identified issues with medical staff's hand hygiene and developed a comprehensive strategy to enhance compliance with hand hygiene protocols in healthcare providers.*

Aim: *This study aimed to compare the Hand hygiene adherence rate before and after the PDCA strategy was applied.*

Methods: *Over six months, the head nurses, guided by the infection control nurses, diligently conducted thorough observations throughout the entire hospital. Employing the "Five Moments for Hand Hygiene," this comprehensive scrutiny aimed to ensure optimal healthcare practices. The meticulous process involved monitoring the hand hygiene compliance of healthcare workers. Both pre- and post-implementation of measures, this scrutiny was managed using the PDCA cycle, emphasizing a systematic approach to continuous improvement in hand hygiene practices.*

Results: *Before adopting the PDCA cycle, the recorded rate of hand-washing implementation stood at 50.31%. Following the integration of the PDCA cycle methodology, there was a notable surge, with the implementation rate of hand-washing escalating to 94.83%. This considerable increase highlights the efficacy and impact of employing the PDCA cycle in enhancing hand-washing practices.*

Conclusion: *The PDCA cycle strategy can improve healthcare workers' hand hygiene compliance in hospitals.*

KEYWORDS: Hand hygiene audit, Plan-do-check-act (PDCA), Hand hygiene adherence rate

INTRODUCTION

Healthcare-associated infections (HAI) represent a prevalent occurrence within healthcare facilities and are among the most frequent adverse events observed in such settings. Healthcare-associated infections have many impacts on public health leading to morbidity, mortality, and decreased quality of life. Hand hygiene is one of the main components of standard precautions taken to prevent: Healthcare-associated infections. [1,2] WHO has given “My 5 moments of hand hygiene” to control infections that can transfer through hands (FIG 1). [3,4] The most common approach to improving hand hygiene compliance surveillance is by direct observation. [5] Plan-Do-Check-Act (PDCA) strategy is the standard method for health care to achieve quality and safety (FIG 2). The objective of this study was to analyze the differences in compliance rates concerning hand hygiene before and after implementing the PDCA procedure.

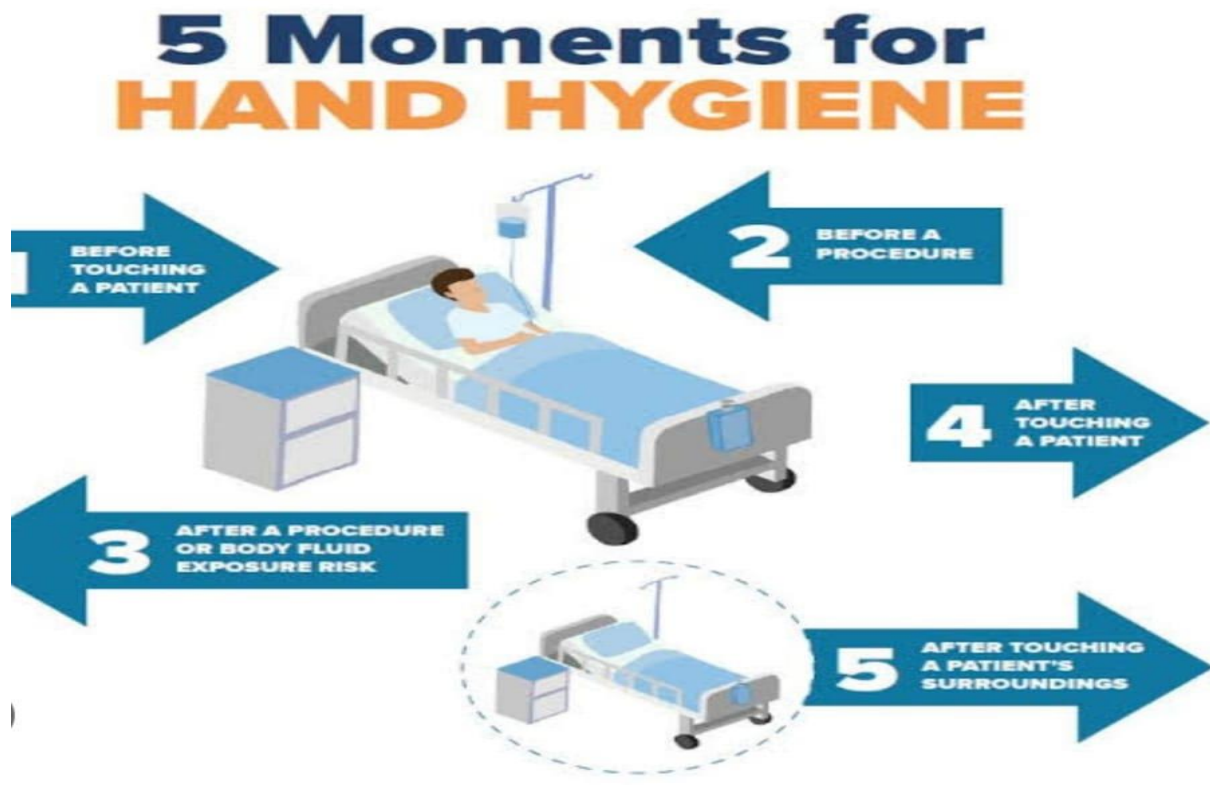


FIG 1: WHO “my 5 moments of hand hygiene



FIG 2: PDCA CYCLE

METHODS

The research took place at the Microbiology department within LNCT Medical College and Sewakunj Hospital, Indore. Conducted as an interventional study, it spanned a duration of six months, commencing on March 1st, 2022, and concluding on August 31st, 2022. In this study, a total of 280 Health care workers were observed after taking informed consent. The entire hospital was observed for five moments of hand hygiene developed by WHO for 6 months. The Observation was done by the Nurse in charge of the ward under the leadership of the infection control nurse. The compliance rate was recorded in the Hand hygiene audit form (FIG2). For the initial 3 months (01-03-2022 to 31-05-2022), only a hand hygiene audit was done and for the later 3 months (01-06-2022 to 31-08-2022), the PDCA strategy was followed along with a regular hand hygiene audit.

Dr. Khyati Jain et al.

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RESULTS

Table 1: demographic data

Investigation time	Observed moments	Compliance with hand hygiene (hand hygiene adherence rate)
01-03-2022 to 31-05-2022	326	Doctors – 88/120(73.33%) Nurses- 72/150(48%) New MBBS and Nursing students-4/56(7.14%)
01-06-2022 to 31-08-2022	310	Doctors-112/120(93.33%) Nurses-146/150(97.33%) New MBBS and Nursing students-36/40(90%)

According to Table 1, before the PDCA strategy hand hygiene compliance was poor among all healthcare workers, especially among new MBBS and nursing students. But after the application of the PDCA strategy hand hygiene compliance was increased among all healthcare workers.

Table 2: Assessment of Hand-Washing Implementation Pre and Post-PDCA Integration Among Medical Staff

Investigation time	Observed moments	Compliance with hand hygiene	Hand hygiene adherence rate
01-03-2022 to 31-05-2022	326	164	50.31%
01-06-2022 to 31-08-2022	310	294	94.83%

Table 2 depicts that for the initial 3 months (01-03-2022 to 31-05-2022), 164 actions were observed at 326 appropriate moments. Thus, the hand hygiene adherence rate was 50.31%. For the later 3 months (01-06-2022 to 31-08-2022), 294 actions were observed at 310 appropriate moments. Thus, the hand hygiene adherence rate was found to be 94.83%. Thus, there was a significant increase in hand hygiene adherence rate after applying the PDCA strategy (P value <0.01).

DISCUSSION

Hand hygiene compliance has a major role in preventing infections through contact. Despite the shreds of evidence demonstrating hand hygiene can decrease hospital-associated infection, compliance with hand hygiene is poor among healthcare workers.^[1,2,6,7] The PDCA cycle stands as a management framework pioneered by Dr. Deming, an esteemed American statistician. This model encompasses four integral phases: Plan, Do, Check, and Act, serving as a structured approach for effective management. It presents a circular system aimed at standardizing and systematizing quality management practices, finding extensive application across various quality management initiatives.

In this study, a concerted effort is made to rigorously apply the PDCA cycle's sequential steps in tackling nosocomial infections within hospital settings. The intent is to employ this established framework to effectively manage and mitigate the prevalence of hospital-acquired infections. Before the PDCA strategy hand hygiene adherence rate was found to be 50.31% in our institute which is similar to the study done by Demirel A.^[10] After PDCA, the hand hygiene adherence rate increased to 94.83% which is similar to the study done by Chen P et al.^[11] After running PDCA program to analyze the factors that affected the hand hygiene were taken into account and were taken care off, thus increasing the hand hygiene adherence rate. Key problems that were addressed during the PDCA strategy include poor awareness of healthcare personnel especially new MBBS students and Nursing students, high personnel turnover rate, inadequate availability of hand disinfectant during ward rounds, and fewer number of caution reminders of hand hygiene. Actions taken to overcome these problems included hand hygiene posters display, hand hygiene training compulsory for the induction program of new health care workers, number of hand disinfectants both in wards and OPD and WHO My moments of hand hygiene posters were displayed.

Implementing the PDCA (Plan-Do-Check-Act) cycle within medical facilities can empower the healthcare professionals to effectively introduce and execute protocols dedicated to managing hand hygiene. This structured approach, revolving around continuous improvement, offers a systematic method for the medical staff to plan, execute, evaluate, and refine strategies related to hand hygiene practices within their operational framework.

CONCLUSION

Enhancing hand hygiene through training is a fundamental method. However, implementing the PDCA (Plan-Do-Check-Act) cycle can significantly boost health hygiene compliance. This cycle systematically addresses and ameliorates various issues linked to adherence. By continuously refining each crucial aspect, PDCA ensures a more comprehensive improvement in hygiene practices.

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