

Social Challenges Associated with Implementation of Hand Hygiene Technology

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Proper hand hygiene among healthcare workers (HCWs) is a significant problem that has plagued hospitals for centuries. This issue is a substantial cause for concern because improperly washed hands can lead to hospital-acquired infections (HAIs) or, even worse, death. In fact, it is estimated that one in 31 patients acquires an HAI daily (Centers for Disease Control, 2018). Moreover, the approximate \$28 to \$45 billion costs resulting from not practicing proper hand hygiene are a substantial financial burden to healthcare institutions (Wang et al., 2021). However, although technology such as hand hygiene compliance monitoring systems (HHCMS) are available to aid healthcare workers with improving hand hygiene compliance, it is not being embraced, greatly affecting implementation efforts in hospital settings.

Purpose of the Study

The purpose of the study was to assist the HHCMS manufacturer in identifying why HCWs are resistant to using the equipment and help find a solution to the problem of effectively implementing their product into healthcare facilities. Successful product implementation is necessary to support the organization's goal of reducing HAIs and saving lives. The driving research questions used for this investigation were:

- Despite the healthcare staff's resistance to using HHCMS, how can the organization ensure successful implementation considering concerns, knowledge deficiencies, and lack of buy-in while promoting worker and patient safety?
- What can the organization do to encourage hospital staff's adoption in facilities where their product is being implemented?

Methods

The study was conducted using the mixed-method analysis approach, including quantitative and qualitative data. The methodology captured a broader and more holistic view of the circumstances surrounding the organization's problem. The data sources consisted of:

- *User Compliance Report*—system-generated monitoring data that analyzes how users are performing toward hand hygiene compliance while using the HHCMS.
- *User Experience Survey*—a 13-question customer feedback survey to solicit responses from client staff regarding their perception and experience with the HHCMS.

The quantitative portion of the research was performed using the *User Compliance Report*, data collected by the HHCMS and stored in the organization's proprietary database. In addition to demographic information, data such as total compliant hand-hygiene opportunities, total hand-hygiene opportunities, and overall compliance percentages are captured. The information used in this study was a 30-day snapshot

of monitoring data from four client hospitals, 12 departments, and 228 users. The data were exported and analyzed using Microsoft Excel, pivot tables, charts, and regression analysis tools.

The qualitative data was acquired using the *User Experience Survey*. The survey was previously conducted and not explicitly performed for this study; however, the responses captured the experience and perception of 98 healthcare worker respondents and were deemed appropriate for this research. The questions centered around the frequency of use and reasons why it is not used daily, opportunities for improvement, the helpfulness of the equipment, etc. The results were exported into Microsoft Excel, categorized using pivot tables, and charted.

Research Findings

One of the most compelling findings during the study is the criticality of leadership support and engagement in the process. This involvement is necessary because employees mimic their leadership's actions or inactions, establishing the group's behavior (Geier, 2019). This study found that of the total monitored hospital departments, 25% had little to no management participation using the HHCMS, and 42% of the rest scored below 80% compliance. Further analysis identified a correlation between supervisor and staff HHCMS compliance; departments with higher managerial participation rates had higher department scores and vice versa.

Another significant discovery is that 50% of the HCW survey respondents indicated that the HHCMS was not used daily because they forgot to retrieve it. Although not a close second, inoperability, primarily because the battery was dead, attributed to 9% of the responses. Consequently, this data shows that the organization could alleviate almost 60% of HCW concerns by addressing these two top issues.

Recommendations

The recommended solution is to prioritize and address the top contributing factors preventing HCWs from using HHCMS in one concerted effort. The suggestion is to facilitate a 10-minute leadership-led meeting before and after each shift and implement a check-in/out process for the HHCMS. These activities will allow for:

1. Open the lines of communication to capture any HHCMS-related questions or concerns.
2. Alleviate the ability to forget to retrieve equipment by passing out and collecting during the meeting.
3. Show leadership engagement and commitment by also complying with use.
4. Ensure the product is returned to the base during the check-in process for proper charging.

Report Limitations

The limitations encountered during the study were primarily related to the data availability and volume. The *User Compliance Report* and *User Feedback Survey* sample sizes were lower than expected due to system challenges caused by transitioning to a different data suite and losing information when moving from Google to Microsoft platforms. However, the data collected is believed to be a solid representation of the population.

Implementation

The implementation of the proposed solution is straightforward and can be accomplished relatively quickly due to the small-scale changes required. For the existing 26 customers, communication with the client hospitals is needed to relay the expectations of increasing leadership engagement, the check-in/out process, and time commitments. The organization and the client hospitals will perform a second roll-out of the HHCMS. For future customers, the implementation documentation will be updated to include the new plan; therefore, the changes will be executed from the beginning.

Conclusion

The importance of proper hand hygiene by healthcare workers is much more than the desire to wash hands because it is "what is supposed to be done." It could be the difference between life and death for patients if they acquire an HAI. While technology exists to support hand hygiene compliance, it cannot help if healthcare workers do not use it. Therefore, developing a robust implementation plan is crucial to address any obstacles to using the equipment. If a process can be instituted that includes listening to and addressing employee concerns and showing leadership support and engagement, the organization will be in a great position to effectively implement its HHCMS into hospital settings, reducing HAIs, and ultimately accomplishing its mission of saving lives.

References

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