

Relaunch of Electronic Monitoring System to Sustain Hand Hygiene Opportunities and Compliance

Ashley Brooks, MSN, RN¹, William Roettger, MSN, RN², Alexandra Bates, DNP, RN³, Brad Krier, MPH, CIC¹

¹Infection Prevention and Control, Mayo Clinic Health System – Southwest Minnesota, ²Department of Nursing, Mayo Clinic Health System – Southwest Minnesota, ³Quality, Mayo Clinic Health System – Minnesota

ABSTRACT

BACKGROUND

Hand Hygiene (HH) is a vital component to prevent the spread of infections in hospital settings. Hand Hygiene Electronic Monitoring Systems (HHEMS) have been shown to increase compliance and reduce hospital-acquired infections (HAIs). After implementation of one such system, an initial increase in both HH compliance (HHC) and HH opportunities (HHO) was observed. However, those numbers decreased below established goals in the months following implementation. The objective of this study is to determine the effectiveness of a “relaunch” of the system to provide a sustainable increase to HH opportunities and compliance.

METHODS

A midwestern acute care hospital implemented a HHEMS in fall of 2021. HHO were measured as the total times staff entered and exited the patient room, and HHC was calculated by taking the number of HH events divided by the number of HHO. The relaunch began in February 2023 and utilized Kotter’s 8-Step Change Model. It consisted of a combination of the standardization of expectations of system use, engagement of senior and unit leadership, development of a reference sheet to address staff questions, and the sharing of weekly data to track and trend results.

RESULTS

In the six months of initial implementation a monthly average of 291,811 HHO and HHC of 94.8% were observed. In the nine months following, compliance dropped to a monthly average of 226,104 HHO and HHC of 93.7%. In the nine months post-relaunch, HHO returned and sustained near initial launch numbers with a monthly average of 289,951 HHOs (28.2% increase compared to pre-relaunch) and HHC of 94.6% (P-value <0.0001).

CONCLUSION

While implementation of a HHEMS initially increased HHC and HHO, it is not simply a “set it and forget it” process. This project showed a comprehensive plan is needed to sustain performance and compliance following the implementation of a HHEMS.

BACKGROUND

Hand hygiene (HH) compliance is a critical component of reducing hospital-acquired infections (HAIs). Even small improvements can have a great impact. An increase in compliance from 89.8% to 97.1% was shown to more than halve the incidence of hospital-onset *C. diff*.¹

While hand hygiene electronic monitoring systems (HHEMS) can help increase hand hygiene compliance, there is a gap in the literature as to how to sustain those improvements long-term.

METHODS

- Our Infection Prevention and Control (IPAC) team highlighted the significant decrease in HHO to the inpatient nursing leadership.
- A steering committee was formed, which included members from IPAC, inpatient nurse managers, and quality. This team developed a plan to relaunch our HHEMS.
- Efforts to enhance use of the HHEMS included:
 - Bolstering product confidence by adjusting placement of the overhead beacons to ensure accurate readings of HHC and HHO;
 - Developing and disseminating a reference sheet with tips on how to use the HHEMS and noting frequently asked questions (FAQs) and their answers;
 - Implementing coaching strategies, such as 1:1 conversations between nurse managers and non-compliant staff;
 - Sharing weekly data to track and trend results;
 - Engaging front-line nurse leaders, such as charge nurses and our rapid response team, to encourage use of the system by giving direct feedback to those who were non-compliant;
 - Involving all formal nurse leaders, including our nursing education specialists and clinical nurse specialists, to round on staff and reinforce use of the HHEMS;
 - And lastly, sharing early successes with staff to motivate them and keep the relaunch top of mind.

RESULTS

- In the six months after implementation the compliance was 94.8% with over 80 observations per patient day.
- In the following nine months compliance decreased to 93.7% with only 63 observation per patient day.
- After relaunch compliance and observations per patient day returned to initial implementation levels with 94.6% compliance and 79 observation per patient day.
- The null hypothesis that the pre and post relaunch hand hygiene number of observations and overall compliance would be equal was rejected with a P value of <.00001.

FIGURE 1: Mankato Hand Hygiene Observations and Compliance by Month

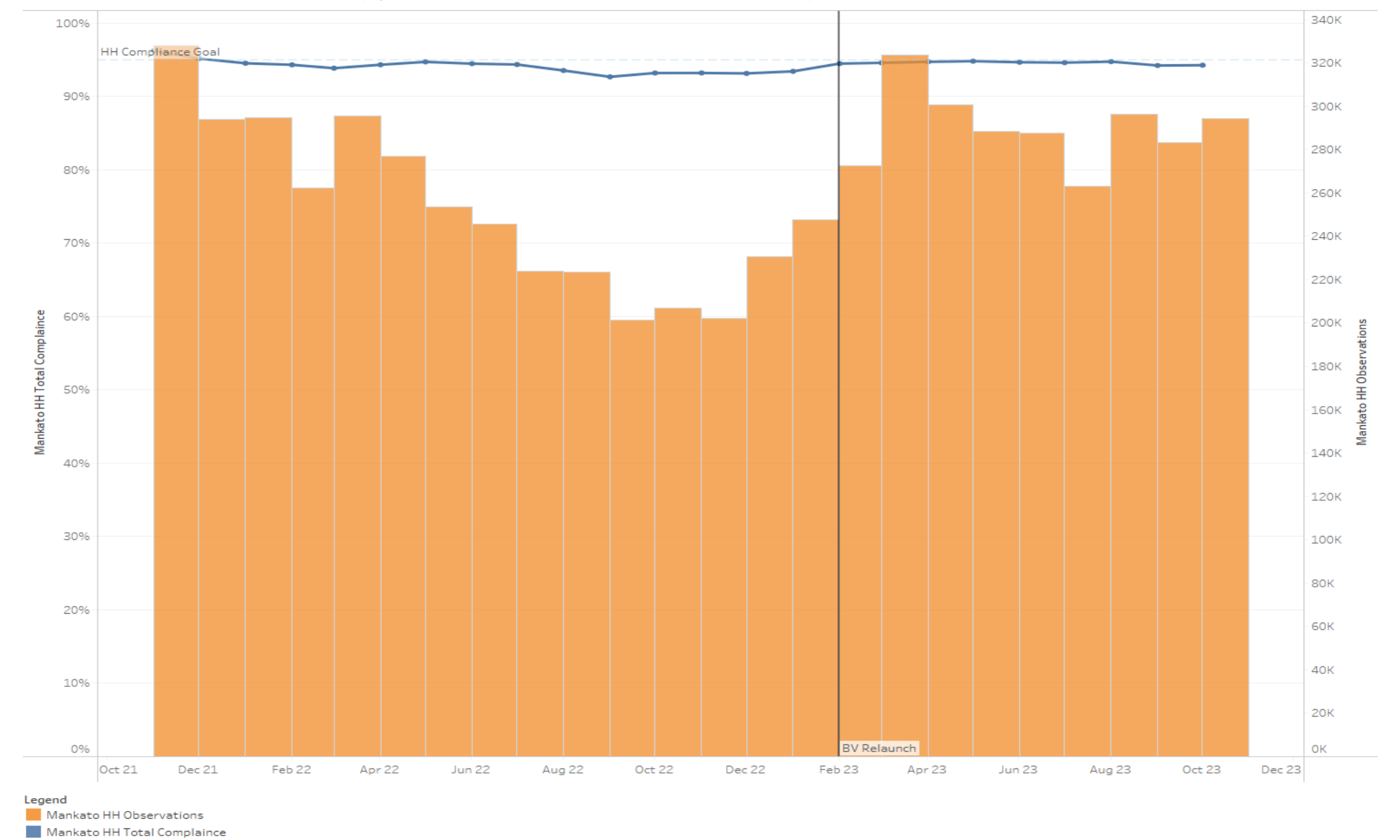


TABLE 1: Total Observations, Compliance, and Observations per Patient Days

Timeframe	Hand Hygiene Observations	Hand Hygiene Compliance	Total Patient Days	Observations Per Patient Day
Initial Launch (Nov 21 - April 22)	1,750,866	94.8%	21806	80.3
Pre-Relaunch (May 22 - Jan 23)	2,034,939	93.7%	32308	63.0
Post-Relaunch (Feb 23-Oct 23)	2,609,560	94.6%	33038	79.0

CONCLUSIONS

Based on this study, HHEMS help monitor and increase hand hygiene compliance, but there may be additional work needed to sustain high utilization of the system. Leadership must set the expectation that all staff wear the HHEMS badges consistently and follow-up with individuals who are not meeting that expectation. A reference sheet with tips for use is also helpful for ensuring utilization of the system, particularly for new staff. Finally, sharing weekly data to track and trend results allows for regular follow-up and a rapid return to high utilization.

REFERENCES

1. Banks, M, & Phillips, A. B. (2021). Evaluating the effect of automated hand hygiene technology on compliance and *C. difficile* rates in a long-term acute care hospital. *American Journal of Infection Control*, 49(6), 727-732.