



# Implementation of Electronic Monitoring Devices to Improve Hand Hygiene Compliance on Hospital Units

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## Introduction

One of the greatest dangers to hospital inpatients is developing a nosocomial infection. Infections increase morbidity and mortality, length of stay, and hospital costs. Reducing the incidence of infection is one of the foremost goals in hospital safety. Hand hygiene at HMC can be improved. In August, direct observation of hand hygiene compliance on 5 Acute Care revealed a compliance rate of 75%. Electronic hand hygiene monitoring is meant to detect if staff are washing in and out with patient contact. We want to know if implementing electronic monitoring will increase the rate of compliance of hand hygiene of healthcare workers on hospital units.

## PICO Question

**Population:** Healthcare workers on inpatient hospital units  
**Intervention:** Implement electronic hand hygiene monitoring to identify compliance  
**Comparison:** Rate of hand hygiene compliance before and after implementation of electronic monitoring  
**Outcome:** Identify HCWs' compliance with hand hygiene; decrease conversions of infection  
**Question:** Does electronic monitoring of hand hygiene improve the rate of hand hygiene compliance of healthcare workers on inpatient hospital units?

## Methods

A literature search was conducted using EbscoHost, CINAHL, Proquest, and Lion Search.

**Key words:** *hand hygiene; electronic hand hygiene; hand hygiene compliance ;Increase in hand hygiene compliance; electronic monitoring of hand hygiene*

**Inclusion Criteria:** Articles within 10 years, inpatient hospitals.

The initial search yielded 175 articles, 5 were included for this project.

## Results

Article	Methods	Results
Morgan, et. al. (2012)	Assess hand hygiene through a quasi-experimental study comparing estimated compliance using automated count technology and direct observation	Over 30 weeks, 424, 682 dispenser counts and 338 hours of human observation that included 1,7832 room entries. Electronic hand hygiene dispenser counts increased significantly.
Cumbler, et. al. (2013)	425 bed unit based QI initiative with an untreated control group using pre- and posttest samples.	Hand hygiene progressively improved from a baseline of 78% in the first half of 2010 to 97.2% in the second quarter of 2012.
Sellers, (2012)	10 nursing units. 6 medical surgical units and 4 critical care units. 88 months of 24/7 electronic hand hygiene monitoring	Increase in hand hygiene compliance to 76.3%. Decrease in healthcare associated infections to 26.8%.
Swoboda, Earsing, Strauss, Lane, Lipsett (2004)	9 room, 14 bed IMC unit. 283,488 entries monitored and 251,526 exits. Phase 1: Electronic monitoring and direct observation. Phase 2: Electronic and computerized voice prompts. Phase 3 Electronic Monitoring only.	Compared with Phase 1, Phase 2 compliance increased 37% and 41% in phase 3.
Cheng, Vincent C.C., Tai, Josepha W. M. Ho, Sara K. Y., Chan, Jasper F. W., Hung, Kwan Ngai, Ho, Pak Leung, Yuen, Kwok Yung, (2011)	Non-experimental observational study in a 6-bed neurosurgical ICU. Use of MedSense electronic monitoring badge system to compare hand hygiene compliance data as analyzed by the electronic system vs direct observation.	Electronic monitoring detected a daily average compliance rate of 35.1%. During direct observation audits, the compliance rate detected by the system rose to 88.9%, suggesting direct observation is inaccurate due to the Hawthorne effect. Compliance was also higher in HCWs who had their own designated badges vs those who shared.

## Conclusion

- Electronic monitoring increases HCWs' compliance with hand hygiene
- Electronic monitoring of hand hygiene may provide a more accurate assessment of compliance than direct observation
- Allows data to be collected continuously with reduced manpower
- Can be used to evaluate effectiveness of compliance interventions
- More research is needed

## Discussion

EBP shows that the implementation of electronic hand hygiene monitoring has the potential to increase hand hygiene compliance and subsequently, decrease infection conversion. With the implementation of an electronic monitoring device on our unit, we could accurately assess our hand hygiene compliance and our need for improvement. Monitoring of individual HCWs provides the ability to recognize quality care and provide positive feedback, therefore increasing awareness and incentive for improved compliance. More information is needed on cost effectiveness of electronic monitoring vs other interventions.

## References

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