

Electronic Hand Hygiene Compliance Interventions: A Descriptive Guide for the Infection Prevention Team

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The first descriptive report of electronic hand hygiene compliance intervention systems that focuses on the industry rather than concept.

Innovations in electronic data gathering have been applied to an increasing number of hand hygiene compliance monitoring systems that are entering the marketplace. This survey provides the Infection Control Team with an educational and comparative tool for evaluation when considering an electronic intervention as part of their multimodal hand hygiene measurement and feedback program.

We identified and invited 38 different intervention systems to complete a questionnaire (questionnaire available in the following pages) in order to investigate exactly what a hospital would need to purchase & install, and what is needed to maintain an electronic system. We also focused on data reporting – how much effort does the IP need to invest to get data from these devices and what do the reports actually provide in terms of feedback. 18 responded.

Our results appear in the American Journal of Medical Quality (Sage Publications), available online now. **This article is a 2-page commentary**; we provide a descriptive overview of what's on the market, including system brand names, summarizing in a succinct table the results of the questionnaire. <http://ajm.sagepub.com/content/early/2012/05/15/1062860612439091.citation>

We can hold device manufacturers to a quality of evaluation that includes rigorous, real-world testing of these devices, and submitting the results for scientific peer review and publication. When inquiring with a manufacturer about installing one of these interventions at your facility, we advise that the device itself, the actual product they are selling you, was tested and the test was peer-reviewed, not just the concept or the technology.

In the words of Sir Liam Donaldson, WHO Patient Safety, "...a device should not only function under ideal conditions – it needs to function for real users, who may have limited training or be tired, in the real world, with all its pressures and distractions. In short, it should be simple, robust and sustainable. *WHO Patient Safety Newsletter, 6/2010*



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The authors disclose no financial relationships. Contact: data@hhreports.com

Please note due to space limitations in the manuscript, the AJMQ article provides a top-level overview of responses by manufacturer. As a brief commentary, we could submit two pages and a short table.

See questionnaire, next page

Electronic Hand Hygiene Compliance Monitoring System Questionnaire

- **DEVELOPMENT**

- Is the system available for purchase and installation now?
- If not yet, what stage of development are you in?
- Is your system a "plug in", or component, of another program or product?

- **SCIENTIFIC EVIDENCE OF CLINICAL TRIAL OR EVALUATION**

- What are the peer-reviewed journal articles/abstracts of clinical study/evaluation in a healthcare setting for your device? Ask for the specific device, not a conceptual study on technology that the manufacturer claims to implement... ask which studies have tested the exact device they are offering for purchase.
- Reference 1
- Reference 2
- Reference 3

- **CAPITAL COSTS**

- What are the costs to my hospital for implementation of your system? Do you have dollar amounts?
- Is hospital required to purchase soap or sanitizer dispensers specific to your system?
- Is hospital required to purchase individual healthcare worker tracking devices (such as badges)?
- If so, what is your replacement badge cost?
- Is hospital required to purchase data receivers/ transmitters and internet hub/s for your system?
- Do you require communications, data, or electricity hardwiring for your system?
- Which aspects are wireless? Does the hospital need to provide Wi-Fi, cellular, or other wireless medium?
- What are the additional required capital costs (specify items and cost)?

- **CONSUMABLES COST**

- Is hospital required to purchase a specific make of soap or sanitizer? If yes, what is the cost?
- Cost of replacement batteries for transmitters, sensors or badges, if required?
- Subscription/access fees for reporting software or web access?
- For how long does the subscription/access last?
- Other consumables cost not mentioned above (specify item and costs)

- **APPROVALS**

- Safety and compliance approvals: Biomedical engineering? Information technology? Legal? Unions?

- **MEASURES**

- Soap hand hygiene activity? Sanitizer hand hygiene activity?
- All opportunities for hand hygiene (including missed opportunities where HH didn't occur)?
- Does system monitor hand hygiene events according to the World Health Organization "My 5 Moments"?
 - WHO Moment 1: room entry (yes/no)
 - WHO Moment 2: before patient contact (yes/no)
 - WHO Moment 3: if risked exposure to fluids (yes/no)
 - WHO Moment 4: after patient contact (yes/no)
 - WHO Moment 5: room exit (yes/no)
- Does system monitor hand hygiene activity when no patient in room (i.e. if a healthcare worker performs hand hygiene in an empty patient room, will that hand hygiene event get counted by your system)?
- Does system monitor missed hand hygiene occurrences when no patient is in room? (i.e. if a healthcare worker is in an empty patient room and does not perform HH, will sensors count as missed occurrence?)

- **HARDWARE (Does your system require the use of...)**
 - Wall-mounted product dispenser with a sensor/counter that is permanent? or removable?
 - Wall-mounted sensor/counter not attached to any dispenser?
 - Pocket/belt/personal dispenser with sensor/counter?
 - Patient proximity sensor/counter (i.e. near the bed or therapy location)?
 - Sensor/counter has an alert/alarm for hand hygiene opportunities?
 - Data receivers or data transmitters are located in... Patient room? Nurse's station? Somewhere else?
 - System offers ongoing maintenance and/or support contract?

- **POWER**
 - Which components require electric hardwiring and which components require batteries?
 - If batteries, which ones use disposable batteries and which ones use rechargeable?
 - How long does the charge last for each type of battery? Cost for replacement batteries?

- **DATA COLLECTION How data get from sensors/counters to a central database**
 - Process is entirely automated?
 - Process requires some manual efforts from healthcare workers? (specify)
 - Process is entirely manual?
 - Does any data leave the healthcare facility (i.e. is data transmitted to a location outside of the hospital?)
 - If data is transmitted to an external party, is there a contract to ensure data confidentiality?

- **ANALYSIS AND REPORTING**
 - Data analysis and reporting requires specialized software installed on a computer in the hospital?
 - Data analysis and reporting is via web based analytical tools available from any computer?
 - Other modes not mentioned above? (specify)
 - Indicate all possible levels of compliance results reported back to the hospital team (yes/no)
 - Multiple facilities...Facility-wide...Unit...Room...Healthcare worker type...Individual healthcare worker...
 - How are hospital data/compliance results measured? (or, what are results measured against?)
 - Baseline? Goals? Benchmarks? Other?
 - If there are goals, how were they established?
 - If there are benchmarks, what data are the results benchmarked against?