



## DebMed, the world's first evidence based Group Monitoring System (GMS) electronically monitors, tracks and reports compliance rates in real-time to create a safety culture where hand hygiene is a habit for all.

### What is DebMed® GMS™?

The DebMed® GMS™ (Group Monitoring System) electronically monitors, tracks and reports compliance rates in real-time, based on the World Health Organization's (WHO) "Five Moments for Hand Hygiene".

- The DebMed® GMS™ is driven by simple wireless messaging from radiofrequency enabled soap and sanitizer dispensers.
- It draws on a breakthrough study, published in the American Journal of Infection Control in February 2011, known as the "HOW2 Benchmark Study" which established statistically significant numbers of hand hygiene opportunities in various types of units in different hospital settings.
- The stand alone system can be installed in any hospital without the need for pre-existing real-time locating systems (RTLS) or radio-frequency identification (RFID) infrastructure.
- The DebMed® GMS™ requires no capital investment.
- The DebMed® GMS™ is a significant advancement over current methods used to determine compliance rates in healthcare settings, including routine direct observation, manual product utilization calculations, self reporting and patient surveys.
- It is predicated on healthcare workers in a specific unit routinely reviewing hand hygiene compliance and taking appropriate action.

The DebMed® GMS™ is part of a broader DebMed® Program comprised of hand hygiene products designed for high frequency hand hygiene, point-of-care dispensing systems and web-based, real-time reporting of compliance rates and other actionable information such as missed hand hygiene opportunities.

### Benefits of DebMed®

- Reduce Hospital Associated Infections by increasing good hand hygiene practice
- Measure performance in real-time and develop good hand hygiene habits
- Provide statistically reliable hand hygiene compliance rates

For more information on DebMed® see reverse or visit:

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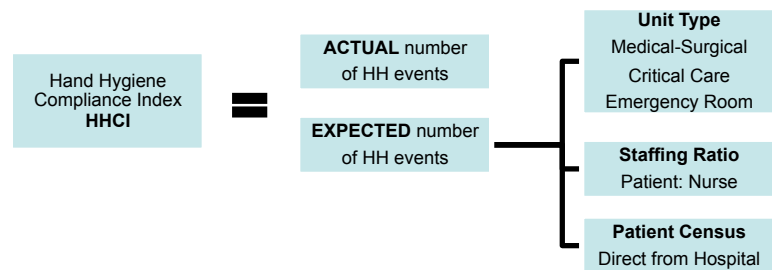
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## Issue

- Hand hygiene (HH) compliance may improve when healthcare workers (HCW) receive feedback about their HH rates.<sup>1</sup>
- Infection Preventionists monitor and report HH rates as part of their infection prevention plan.<sup>2</sup>
- HH compliance monitoring is resource-intensive and can yield erroneous results if not carefully done.<sup>3</sup>
- Electronic HH group monitoring systems (GMS) are promising<sup>4</sup>
  - Less affected by biases inherent in self-reporting and direct observation
  - Require fewer person-hours than observation
  - More precise than product usage measurement
- The World Health Organization (WHO) has identified 5 Moments or opportunities for HH during direct patient care.<sup>5</sup>
- Research has demonstrated a strong correlation of HH opportunities with unit type and staffing ratios.<sup>6</sup>

## Project

We implemented a GMS at a 140-bed non-profit acute care community hospital in Massachusetts.



## Results

- Overall, the Hand Hygiene Compliance Index (HHCI) for 5 medical-surgical units, the critical care unit, and the emergency room combined was significantly higher after the GMS feedback compared to before (mean difference = 4.9% compliance, SD = 4.3, paired t = 3.06, p = 0.02).
- We faced several challenges during implementation of the GMS. (See Table 1.)
- The staff, research team and vendor worked collaboratively to find workable solutions to the challenges.

1. Ivers N, Jamtvedt G, Flottorp S, et al. Audit and feedback: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev.* 2012;6:CD000259.  
 2. The Joint Commission. *Measuring Hand Hygiene Adherence: Overcoming the Challenges.* Oakbrook Terrace, IL: The Joint Commission;2009.  
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 4. Boyce JM. Measuring healthcare worker hand hygiene activity: current practices and emerging technologies. *Infect Control Hosp Epidemiol.* Oct 2011;32(10):1016-1028.  
 5. World Health Organization. WHO Guidelines on Hand Hygiene in Healthcare. 2009.  
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Table 1. Challenges in Implementing an Electronic Hand Hygiene Group Monitoring System

Challenges	Examples	Solutions
Determining the number of expected HH events	<ul style="list-style-type: none"> <li>• There was no benchmark for some types of units (e.g., psychiatry).</li> <li>• The critical care unit housed a mix of intensive care patients and medical-surgical patients.</li> <li>• Initial estimates of nurse staffing were not precise</li> </ul>	<ul style="list-style-type: none"> <li>• For units where the HHCI did not fit the patient population, compliance data were reported as events per patient hour or events per patient visit.</li> <li>• Using an average of actual nursing hours rather than an estimate yielded a more accurate compliance index.</li> </ul>
Obtaining accurate census data	<ul style="list-style-type: none"> <li>• Census data originated in multiple administrative systems.</li> <li>• Patients who were pre-scheduled for admission were counted in the census hours before actually arriving on the unit.</li> <li>• Distinct subunits existed within one geographic unit.</li> </ul>	<ul style="list-style-type: none"> <li>• The vendor worked with the hospital's Information Technology Department to establish and revise direct feeds of census information.</li> <li>• Unit reports were adapted to include or exclude specific dispensers or geographic areas as appropriate.</li> </ul>
Engendering confidence in the GMS	<ul style="list-style-type: none"> <li>• HH rates reported by the GMS were lower than those previously reported based on direct observation.</li> <li>• HCW were unfamiliar with the WHO 5 Moments for HH.</li> <li>• Information about the GMS was slow to reach some groups of HCW.</li> </ul>	<ul style="list-style-type: none"> <li>• Managers and staff were trained regarding                             <ul style="list-style-type: none"> <li>• How the GMS works</li> <li>• How the expected events denominator was developed and validated</li> <li>• How to read and interpret the reports</li> </ul> </li> <li>• HCW preferred the automated system, despite initial shock at lower compliance rates.</li> <li>• An illustration of the WHO 5 Moments was posted as a screen saver on hospital computers.</li> <li>• Night supervisors were enlisted to disseminate and discuss the HH compliance reports with night staff.</li> </ul>
Utilizing the data to drive improvement	<ul style="list-style-type: none"> <li>• Managers had difficulty interpreting the reports.</li> <li>• HH improvement was one of multiple competing institutional priorities.</li> </ul>	<ul style="list-style-type: none"> <li>• The reports were reformatted for clarity.</li> <li>• Generic tips for HH improvement were included in the reports each month.</li> </ul>
Trouble-shooting technical glitches	<ul style="list-style-type: none"> <li>• Some dispensers did not transmit HH event data.</li> <li>• Dispensers could not transmit from some radiation therapy rooms.</li> </ul>	<ul style="list-style-type: none"> <li>• The vendor checked all dispensers and replaced non-functioning transmitters.</li> </ul>

## Lessons Learned

- A substantial investment of human capital is required to fully adopt a GMS.
- A team of champions is needed to communicate information about the GMS, answer questions, engender confidence in the automated data, optimize use of the data for improvement, and troubleshoot problems.
- Administrative and vendor support is essential to successful implementation of a GMS.
- HCW and managers accustomed to HH being monitored at room entry and exit need to be trained on the WHO 5 Moments.
- Data reported as events per patient visit or per patient hour may be more meaningful to HCW than the HHCI.
- Further research is needed to validate the number of HH opportunities (expected events) in multiple settings with different patient populations.



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