Enhanced Hand Hygiene Monitoring: Consider the Impact

Content developed by ICT and sponsored by: GOJO
Today’s Speaker

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Jane Kirk is the healthcare clinical director for GOJO Industries, and is responsible for bringing the clinical perspective to GOJO’s acute care and long-term care businesses. Prior to joining GOJO in 2008, she was director of infection control at a 600-plus bed hospital in Northeast Ohio where she initiated a robust hand hygiene program. Jane’s experience in nursing also includes public health, emergency nursing, critical care, ambulatory nursing, and clinical instructor at Walsh University in Canton, Ohio.

Jane holds a master of science in nursing degree from Walden University and an undergraduate degree from the University of Detroit Mercy.
Today’s Speaker

Jeff Hall
Compliance Program Director, North America
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Jeff Hall is the compliance program director for North America at GOJO Industries, Inc. He is responsible for the commercialization and ongoing development of GOJO’s hand hygiene solutions for electronic compliance monitoring. He has been in healthcare sales and marketing for more than 20 years, with experience in developing businesses and products for the healthcare market, and leading sales teams on a national level.
Learning Objectives

After completing this Webinar the participant will be able to:

- Explain the potential impact of enhanced hand hygiene data collection on patient outcomes.
- Describe current methods for measuring hand hygiene compliance.
- Describe 3 electronic compliance monitoring solutions.
- Discuss peer-reviewed publications that support enhanced hand hygiene compliance monitoring.
Leveraging technology, products and clinical interventions to drive sustained improvements in hand hygiene compliance, thereby reducing the incidence of HAIs, reducing the cost of healthcare and improving patient outcomes.
POTENTIAL IMPACT OF ENHANCED DATA COLLECTION

(Or why is hand hygiene so important?)
Annual Burden of HAIs

1.7M Infections

5-10% of all hospitalized patients

$36B - $45B Excess Costs

Length of Stay +18 Days

Over 99,000 Deaths


Source: Pennsylvania Health Care Cost Containment Council, PHC4 Research Brief, March 2006


After instructing doctors to rub hands with chlorinated lime, he observed a 10-fold drop in mortality!
Good Hand Hygiene Reduces HAIs

Measuring Hand Hygiene Compliance

- Joint Commission and CMS requirements
- CDC and WHO recommendations
- Hospitals report 90 percent compliance with direct observation
HCW Hand Hygiene Compliance

Hand Hygiene Adherence %

TRADITIONAL METHODS OF MEASURING COMPLIANCE

Direct Observation
Consumption Modeling
Patient Surveys
Current gold standard with limitations:

- Labor-intensive
- Small sample sizes (1 percent of total HH activity)
- Requires training
- Data are not standardized
- Difficult to combine and analyze data
- Subject to Hawthorne effect
- Data may not be monitored and/or reported frequently enough
- Can compromise patient privacy
iScrub Lite – Direct Observation

- Apple® iPhone/iPod Touch application for the collection of direct observations (versus) the time-consuming and error-prone use of clipboards and transcription

- Record observations, and when finished, the program e-mails the resulting file for easy analysis

- Available for download, free of charge, on the Apple iTunes store

- Developed by the Computational Epidemiology Research Group at the University of Iowa
Traditional Methods

Product Consumption Modeling

- Very indirect proxy
- Does not reveal who is performing hand hygiene
- Does not assess technique
- Does not capture opportunities
- Does not account for factors such as spillage and visitor usage
Traditional Methods

*Self Reporting Surveys*

- Inadequate reliability and validity
- Validity depends on quality of survey development
- HCWs tend to overestimate their compliance
- Patients often say what they believe the surveyor wants to hear
ELECTRONIC MONITORING SOLUTIONS
HH Compliance Management Approaches

- Manual Audit/Observation
- Activity/Group Monitoring
- Person Specific Tracking (RTLS)
- Video Surveillance

Cost vs. Impact Graph
Activity Monitoring Solution
Affordable, Automated Reporting Solution

- Near-real-time metrics
  - Dispenser events (numerator)
  - Wash-in/wash-out opportunities (denominator)
- Compliance by location
  - Building, floor, unit, room
- Automated Reporting – 24/7

- Not “Big Brother”
  - “Community” metric
  - Team based performance tool
  - Feedback to help caregiver manage staff, patients, and visitors
- Group-level reporting structure
Activity Monitoring System

*How is activity measured?*

- Collects basic hand hygiene usage and opportunities
  - Transmits actual hand hygiene usage to the system *(numerator)*
  - Transmits hand hygiene opportunities *(denominator)*
- Calculates performance rate in near-real time

"**Smart** dispenser transmits hand cleaning events

**Numerator**

**Activity monitor** transmits opportunities

**Denominator**

![Performance Dashboard Image](image-url)

55%
Activity Monitoring System

Performance rate calculation

Events (dispenser actuations) \[ \frac{\text{Events}}{\text{Opportunities}} \times 100 = \text{Performance rate} \]

Opportunities (room entry or exit)

Hand hygiene activity monitoring measures group performance and should not be compared to observational compliance rates that rely on observations of individual hand hygiene behavior.
Activity Monitoring System

Benefits Summary

- Cost-efficient, stand-alone monitoring system
- Evidence-based approach with large data pool
- Automated, 24/7, near-real-time data gathering
- Standardized measurement—minimizes Hawthorne effect
- Customizable footprint / dashboard / reports
- Community-level measurement ➔ Not tracking individuals
- “Minimally invasive”—requires little support from hospital IT
- Empowers IPs to observe and coach—not gather data
Real Time Location System (RTLS) in Healthcare

**Hand Hygiene**
- Reduce HAIs, Improve outcomes

- **Asset Management**
  - Fewer purchases, reduced rentals, loss prevention

- **Equipment Maintenance**
  - PMs, locating, change in status

- **Condition Monitoring**
  - Productivity, quality performance, safety

- **Patient & Staff Safety**
  - Spoilage - pharmaceuticals, blood, organs

- **Patient Flow**
  - ER wait times, OR/bed scheduling

**Improve patient care** • **Reduce costs** • **Increase safety**
Integrating Hand Hygiene into RTLS

Dispensers transmit HH events

Badges

Sensory Network

RTLS Software
Benefits of RTLS Integration

- Utilizes existing hospital investment in RTLS infrastructure
- Individual accountability ➔ Role or Person-specific monitoring
- Interfaces with key hospital information systems (HIS)
- Badges provide feedback/cueing to encourage proper hand hygiene
- Works with various wireless technologies (Wi-Fi, RF, LF, IR, etc.)
- Empowers IPs to observe and coach—not gather data
Video Surveillance

Monitoring hand hygiene

- This approach utilizes a video system that can capture all aspects of hand hygiene to include: technique, whether or not patient contact was made, and adherence to specific protocol
  - Limited solutions, products that address this approach
  - Issues with patient privacy must be addressed

- Requires video translation and/or real-time observation

- Empowers IPs to observe and coach (versus) gather data alone
STUDIES TO SUPPORT ENHANCED HAND HYGIENE COMPLIANCE MONITORING
Automated Devices Measure Hand Hygiene Better Than Observation

- Hand hygiene compliance was measured before and after a feedback intervention
- Over 30 weeks, there were 424,682 dispenser counts and 338 hours of direct observation
  - During the intervention phase, daily average dispenser counts per patient-day increased significantly (by 22.7 in a neuro ICU and by 7.3 in cardiac ICU).
  - No significant change was detected by direct observation
- Institutions relying on direct observation could be missing important trends of intervention effects

Sample Size with Direct Observation is Inadequate

• Example
  
  - 12-bed ICU with 10 hand hygiene opportunities per hour: 12 patients X 10 HH per hour x 24 hours = 2,880 HH opportunities per hour or 86,500 HH opportunities per month
  
  - If 100 observations are completed each month, only one-tenth on 1% (0.12%) of all opportunities are observed

Observer Bias Documented with Direct Observation

- Unit based hand hygiene compliance rates were much higher when observations were conducted by unit-based observers than non-unit-based observers.

Observer Bias in Hand Hygiene Compliance Reporting

Sample Size with Direct Observation is Inadequate

- Despite observing a high number (2,249) of hand hygiene opportunities, direct observation captured only 1.3% of hand hygiene opportunities.

- There was no correlation between observed compliance and electronically monitored dispenser events.

Costs Associated with Direct Observation

- Direct observation is associated with relatively high resource and labor costs.
- At Virginia Commonwealth University Medical Center the labor cost for only the observers was $0.66 per observation.
Importance of Real-time Feedback

- When healthcare workers received near real-time electronic reports of their compliance for the current week, the previous week and for the last 30 days, compliance rates increased from less than 10% to 81.6%.
Importance of Real-time Feedback

• Before behavioral perceptions can change, one must be aware of one’s current perceptions and behaviors.

• Unless information about hand hygiene rates is provided to staff, it is highly unlikely that anything will change.
Healthcare Personnel cautiously accept Electronic Monitoring

- As trends toward transparency and accountability continue with health reform and increased surveillance of HAIs, automated hand hygiene compliance systems are likely to proliferate.

- Frontline healthcare personnel (HCP) are not knowledgeable about automated hand hygiene compliance monitoring and have concerns about privacy and punitive implications. However, most indicate a tolerance for technology that could measure hand hygiene activity and room entry/exit.

- Frontline HCP recognize that automated hand hygiene monitoring could be a mechanism for change and advise that “If people trust in the data, they respond to the data.”

Electronic Devices Provide Details About ABHR Use

- Electronic devices can provide highly specific information about how frequently healthcare workers use ABHR (i.e., the time of day and the day of the week) and reveal the locations of dispensers with the highest and lowest rate of use.

- With electronic devices, it is feasible to record large numbers of HH events. Such devices are useful for monitoring hand hygiene events before and after various types of interventions designed to improve hand hygiene performance among healthcare workers.

- Electronic device with automated data-analysis capabilities reduce the amount of time infection control practitioners spend on data analysis.

FREQUENTLY ASKED QUESTIONS

For Hospitals Considering Electronic Compliance Monitoring
Questions for the Vendor

- How are compliance data presented/reported?
- How is the compliance or performance rate calculated? Can we automate reports?
- What type of support do you provide after the system is purchased? Is there a clinical component?
- What will be required of me to facilitate the clinical component?
- Are you able to measure compliance at the point of care?
- Are there plans to update the technology in the future?
- How much IT support would be necessary?
Questions for the Vendor (cont’d)

- What is the power source to the dispenser (A/C or battery) and what is the battery life of the components if battery?
- Besides monitoring events and opportunities, are there any other features?
- How can you improve compliance if you don’t have badges and know who is non-compliant?
- What reduction in HAIs can we expect?
- What is the upfront and ongoing cost to run a system?
Questions for the Hospital to ask

- How much are we currently spending on observation or our current measurement method?
- Are we collecting data that are representative of the total population (all shifts, all times, all locations, statistically relevant sample size)?
- Are we ready to support the implementation of an electronic hand hygiene monitoring system? (Data alone won’t drive compliance; it will need support.)
- What is our total available budget for an electronic hand hygiene monitoring system?
THANK YOU FOR YOUR TIME AND ATTENTION!

Questions:

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