

# **Driving Sustainable Change in Hand Hygiene Compliance**

**SFBA APIC Chapter  
July 13, 2016**

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- Vice President, Patient Safety Strategy, DebMed
- Chairman, EHCO – The Electronic Hand Hygiene Compliance Organization
- Member APIC
- Member IPS (Infection Prevention Society of the UK)
- Member Private Organizations for Patient Safety (POPS) Led by Didier Pittet
- Patient Safety Movement (PSM) Open Data Pledge Signee

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## Disclosures

- **Employee of DebMed**

**Slides and All Research/Articles cited will be posted on  
Chapter Web Site**



# Objectives – After Our Session You Will



- Be able to describe a multi modal and evidence based approach for sustainable hand hygiene compliance improvement,
- Understand the key findings of the newest peer reviewed evidence in support of improving hand hygiene compliance to reduce HAIs and costs (to be published in AJIC, August 2016)
- Learn about how three facilities in Greenville, SC, suburban Chicago and upstate NY have achieved sustainable improvement and what they all have in common in terms of evidence based practice and standards of care

## Hand Hygiene – Game Changers

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- 1970s – Transition from “pour” style gallons to sealed containers
- 1980s – 1990s – Transition to Alcohol Based Hand Sanitizers
- **2010 - On Going – Migration to Electronic Measurement of HHC from Direct Observation (the so called “gold standard” – or is it really?)**

1.2% Captured  
hand hygiene events  
captured by  
direct observation



98.8% Missed  
hand hygiene events  
missed by  
direct observation



## COMPLIANCE MYTH:

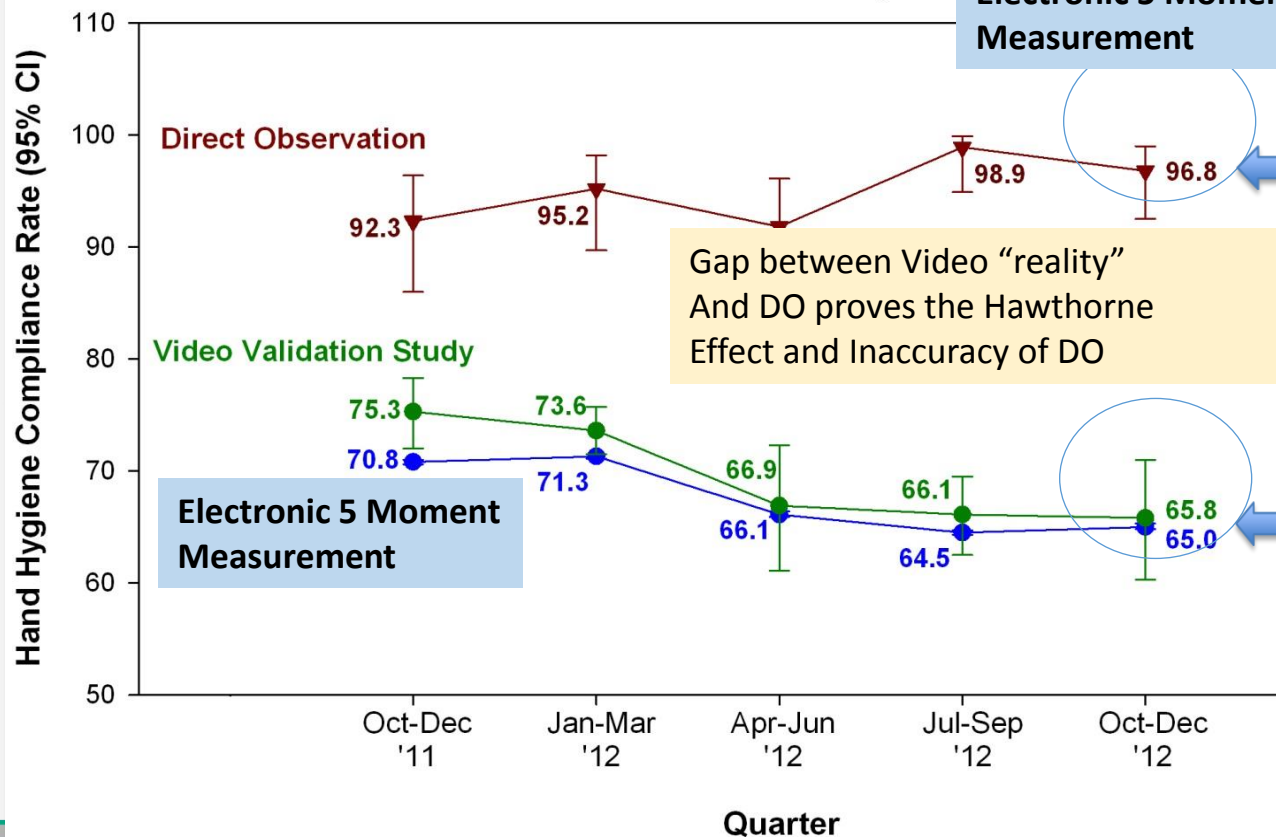
Direct Observation (DO) is the best way to measure compliance. **Fact:** Small sample size with DO (**only 1.2–3.5% of all events are captured**)<sup>3</sup> and the Hawthorne Effect leads to hand hygiene compliance rates **overstated by up to 300%**.<sup>4</sup>

Srigley et al demonstrated, in 2014, that HCWs were 3x more likely to clean hands when in the line of sight with a direct observer

# Denominator Accuracy Validated



Hand Hygiene Compliance Rates on Research Study Unit  
Direct Observation vs. Video Validation Study vs. Electronic 5 Moment Measurement



Substantial Hawthorne Effect Revealed:

Compliance Rates with DO Overstated by almost 50% at study end (study average = 33%)

Video taping and Electronic Rates are Equivalent for 12 straight months

## **Pre Electronic Measurement Best Practice Model**

Practically speaking: Rethinking hand hygiene improvement programs in health care settings – AJIC, 2010 Son et al - MSKCC

# **Facility wide implementation of 5 Moment Measurement and Feedback with DO**

**Baseline HHC 60-70% 2006-2008**

**Units followed a process based on the model for actionable feedback to drive improvement:**

- 5 Moment Feedback at the Group/Unit Level
- Unit specific barriers/obstacles identified
- Action plans to remove them implemented
- Unit specific goals were set
- Routine feedback on performance against goals was given

**Results – HHC reached and maintained 97% (5 Moments with DO) post 2008 implementation**

**The challenge -**

**Where do you go from here if your real rate is NOT 97%?**

**What is the sense of urgency to drive improvement?**

## Assessment?

- **Good process**
- **Questionable measurement**



# A Universal Principal of Quality Improvement



“Without data, you’re just another person with an opinion.”

– W. Edwards Deming

# A Universal Principal of Quality Improvement



“Without [accurate] data,  
you’re just another person  
with an opinion.”

## A Tale of 3 Hospitals

- **Embraced Importance of 5 Moments Measurement and Feedback**
- **Adopted Electronic Measurement**
- **Drove positive behavior, clinical and economic outcomes**

- **Champlain Valley Hospital**
- **Riverside Medical Center**
- **Greenville Memorial Hospital  
(Flagship of Greenville Health System  
– GHS)**

**CVPH – Champlain Valley Physicians Hospital**  
**341 Beds in Plattsburgh, NY**  
**Erica Wood, IP**

**Fall of 2014 made the decision to focus on hand hygiene**

## **The program elements:**

- **Migrated to 5 Moment electronic measurement and feedback – recognized missing in room opportunities put patients at risk**
- **Use of real time and actionable reports and data**
- **Leadership support – leadership “champions”**
- **Front line staff HH champions**

## **RESULTS?**

- **HHC Grew by 50% in 4 months and is being maintained**
- **Goal was set for 1 year but achieved in 4 months – 67% ahead of time**
- **Built a stronger patient safety culture**

**Riverside Medical Center**

**300+ Beds Kankakee, IL**

**Martha Bouk, IP**

**Dec 2013 Commencement of Quality  
Improvement Initiative Focused on HH – Steps:**





- **Adopted 5 Moment Training and Measurement – all staff trained via CBT**
- **Implemented Electronic Measurement Technology Capable of 5 Moment Measurement**
- **Weekly and Monthly Reports were emailed automatically to Unit Managers**
- **Data discussed weekly; action plans created**
- **Ensured psychological safety in support of an enhanced patient safety environment (goal was to create a just culture)**

- **Early gains were not sustained**
- **IP leader engaged senior leadership and HHC became a Strategic Leadership Goal**
- **HH behavior became part of performance evaluation and bonus calculations; basis for promotions and salary increases**
- **360 Feedback on HH encouraged and supported**

- **Implemented front line staff HH Champions**
- **Daily email of rolling 7 day reports**
- **One minute sharing of data/reminder of the HH Goal with all staff at huddles/hand offs**

**Results?**

- **HHC grew from 57% (Dec 2013) – 79% (Sept 2015) or +39%**
- **Hospital onset MRSA HAI rate dropped 50%**
- **Readmission penalty (0.24% of total CMS revenue) was eliminated – Riverside was one of only 7 IL hospitals that paid no ACA penalties in 2015**

**Paper Accepted for Presentation at APIC 2016**

## **Greenville Memorial Hospital**

- **746-bed teaching hospital in Greenville, SC**
- **Connie Steed, IP**
- **23 of their units**
- **647 total beds**
- **87% of the total that had both electronic hand hygiene compliance index data and MRSA surveillance data between July 2012 and March 2015**



## **The Process:**

- **5 Moment training along with electronic measurement and feedback were implemented**
- **Direct Observation used for real time feedback and barrier/obstacle identification but NOT measurement**
- **Hand Hygiene champions were designated (front line staff members)**
- **Fostered a just culture and created a psychologically safe work environment**

## **The Process:**

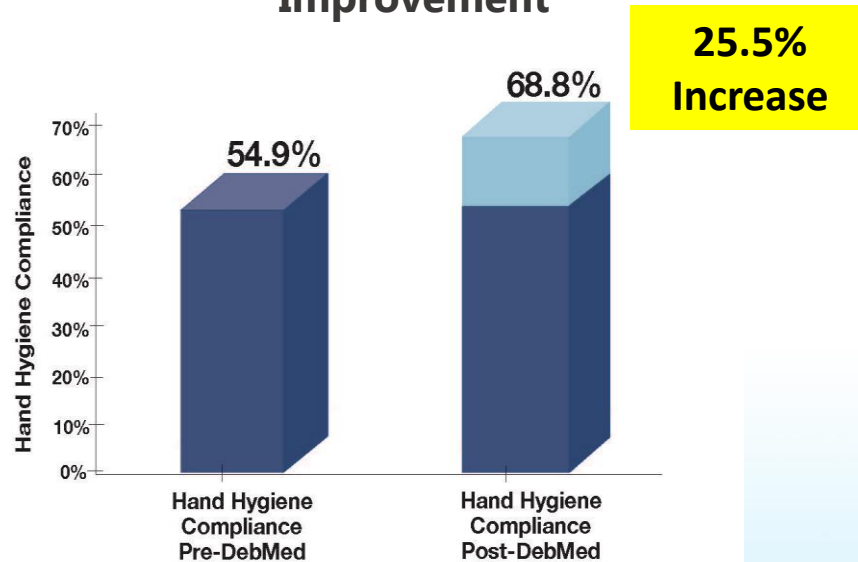
- **Unit specific barriers and obstacles were identified and plans designed to remove them**
- **Real time data from the electronic system used to provide 5 moment feedback**
- **CEO emphasized HHC at organization wide town hall meetings**

## **The results?**

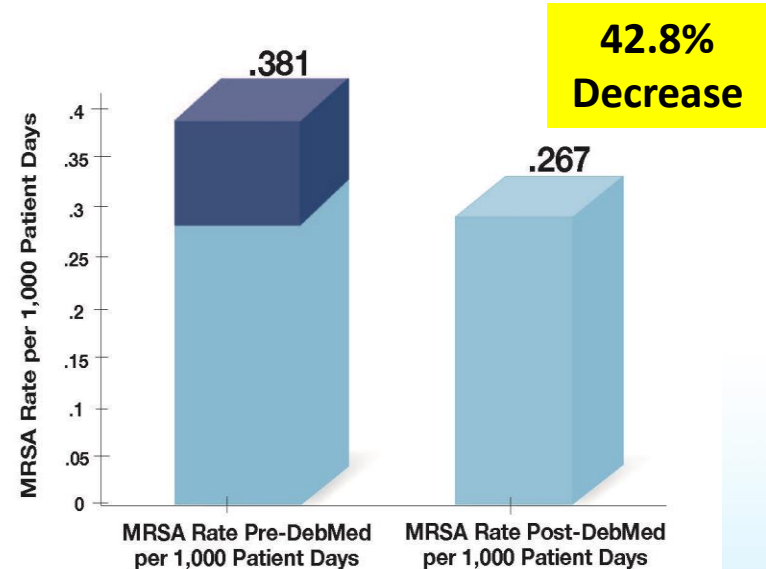
# Improved Five Moment Compliance Reduces Infections



## Five Moment Hand Hygiene Compliance Improvement



## MRSA Reduction



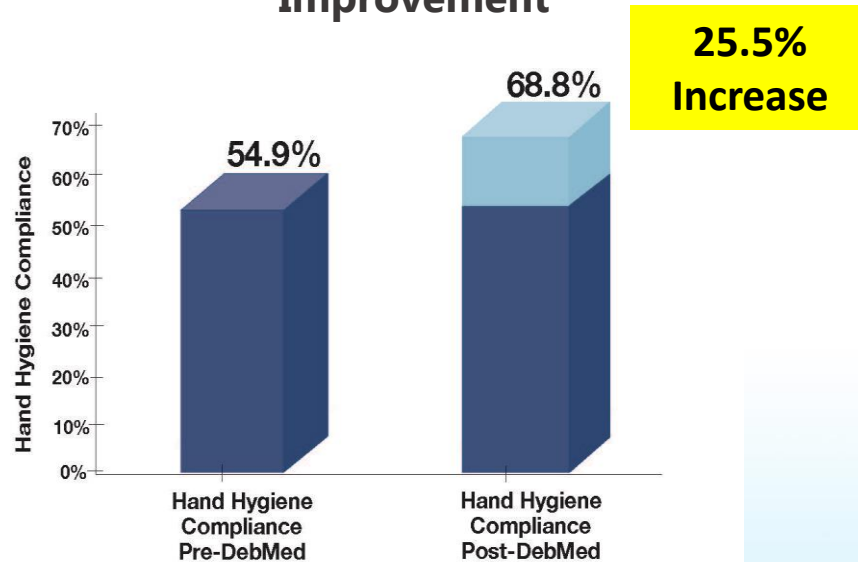
**Hand hygiene compliance improved due to feedback reports from the electronic hand hygiene compliance system calculated based on the WHO Five Moments standard.**



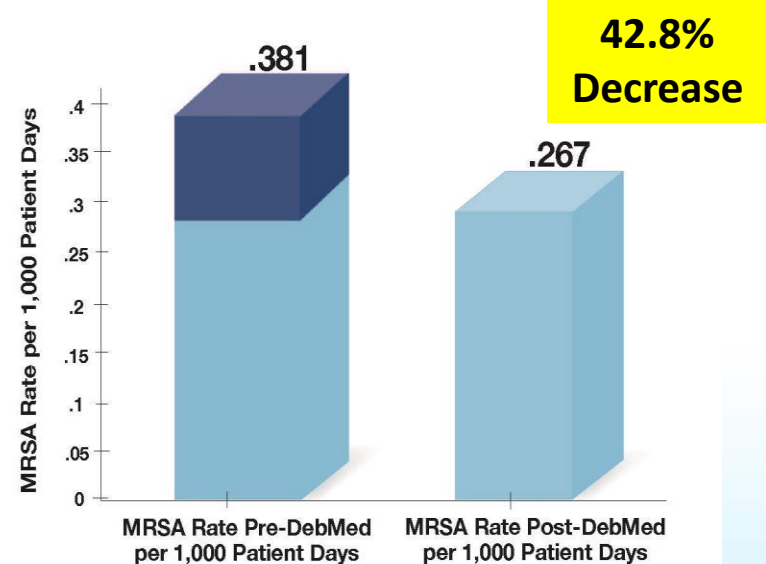
# Improved Five Moment Compliance Reduces Infections



## Five Moment Hand Hygiene Compliance Improvement



## MRSA Reduction



**Insight for further research – what is the optimal HHC Rate?**

# Cost Savings



- 24 MRSA Infections Prevented (81 predicted at pre implementation rate; 57 actual in the post period)
- The actual excess care costs avoided were \$8668 per patient or \$208,032 total
- The average excess LOS per MRSA HAI was 4.5 days making the total for the 108 excess LOS days. That would have cost GMH \$ 2089 per day or \$225,612 total
- Total Costs Avoided - \$ 433,644 or 670.23 per bed per year

Study published in AJIC (In Press) will appear in August Print Edition

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Contents lists available at ScienceDirect

## American Journal of Infection Control

journal homepage: [www.ajicjournal.org](http://www.ajicjournal.org)



## Brief Report

# Electronic hand hygiene monitoring as a tool for reducing health care-associated methicillin-resistant *Staphylococcus aureus* infection

J. William Kelly MD <sup>a,\*</sup>, Dawn Blackhurst DrPH <sup>b</sup>, Wendy McAtee BS <sup>c</sup>,  
Connie Steed MSN, RN, CIC <sup>c</sup>

<sup>a</sup> Department of Internal Medicine, Greenville Health System, Greenville, SC

<sup>b</sup> Department of Quality Management, Greenville Health System, Greenville, SC

<sup>c</sup> Department of Infection Prevention and Control, Greenville Health System, Greenville, SC

# Putting It All Together



What is emerging as a “best practice” evidence based model for sustained hand hygiene compliance improvement? Here is what the latest outcomes tell us



# Best Practice 10 Point Check List

- ✓ Measure HHC electronically based on the WHO 5 Moments (2 moments NOT a surrogate for 5 and moments 2/3/5 are high risk opportunities – Kelly et al AJIC August 2015)
- ✓ Foster psychological safety and promote a just culture
- ✓ Use DO for feedback and real time barrier identification
- ✓ Ensure leadership engagement is authentic and known by all – ensure leadership champions (role models/positive deviants) are established in all of the “tribes” MDs etc.
- ✓ Give frequent feedback on performance – share the data daily at first

# Best Practice 10 Point Check List

- ✓ Designate unit based hand hygiene champions (front line staff NOT unit leadership)
- ✓ Identify unit based and personal barriers and obstacles then develop and agree on an action plan to remove them
- ✓ Agree on unit specific improvement goals & celebrate small successes (progress vs. perfection)
- ✓ Adopt one minute huddle and hand off practice with hand hygiene champions
- ✓ Make HHC improvement part of performance evaluation

*"If you can't measure something, you  
can't understand it.*

*If you can't understand it, you can't  
control it.*

*If you can't control it, you can't improve  
it."*

- Dr. H. James Harrington



# To be posted on your web site



- Slide Deck
- GMH MRSA and Cost Reduction Study (AJIC August 2016)
- Riverside MRSA and Penalty Reduction Study (APIC 2016)
- CVPH HH Improvement Study (White Paper 2015, pre publication)
- GMH C Diff Reduction Study (APIC 2014)
- Use of the Targeted Solutions Tool + Electronic Measurement to Improve Compliance (SHEA 2016)
- Kelly et al 2 Moments vs 5 Moments AJIC Letter to the Editor of AJIC Aug 2015
- Alper Systematic Review of Automated Systems Letter to the Editor AJIC Feb 2015
- To Do No Harm, Rethink How to Measure Hand Hygiene – PSQH June 2016

# Questions?



## Thank you!

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**[www.debmed.com](http://www.debmed.com)**



# DebMed® Electronic Hand Hygiene Compliance System

## A Quick Look



## Who We Are

**DebMed** is a division of **Deb Stoko**, the leading non consumer hand hygiene and skin care company in the world

**DebMed is the healthcare division** of the **SC Johnson Company** – a global family owned company



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The world's leading away from home skin care company

# The DebMed® Wireless Infrastructure



Monitored  
Dispensers



Hub and  
Modem



DebMed®  
Server



DebMed®  
GMS™  
Reports

100% of Hand Hygiene Events Captured!  
*= The Numerator*

Works with Non DebMed® Dispensers  
The DebMed® Universal or uGMS™



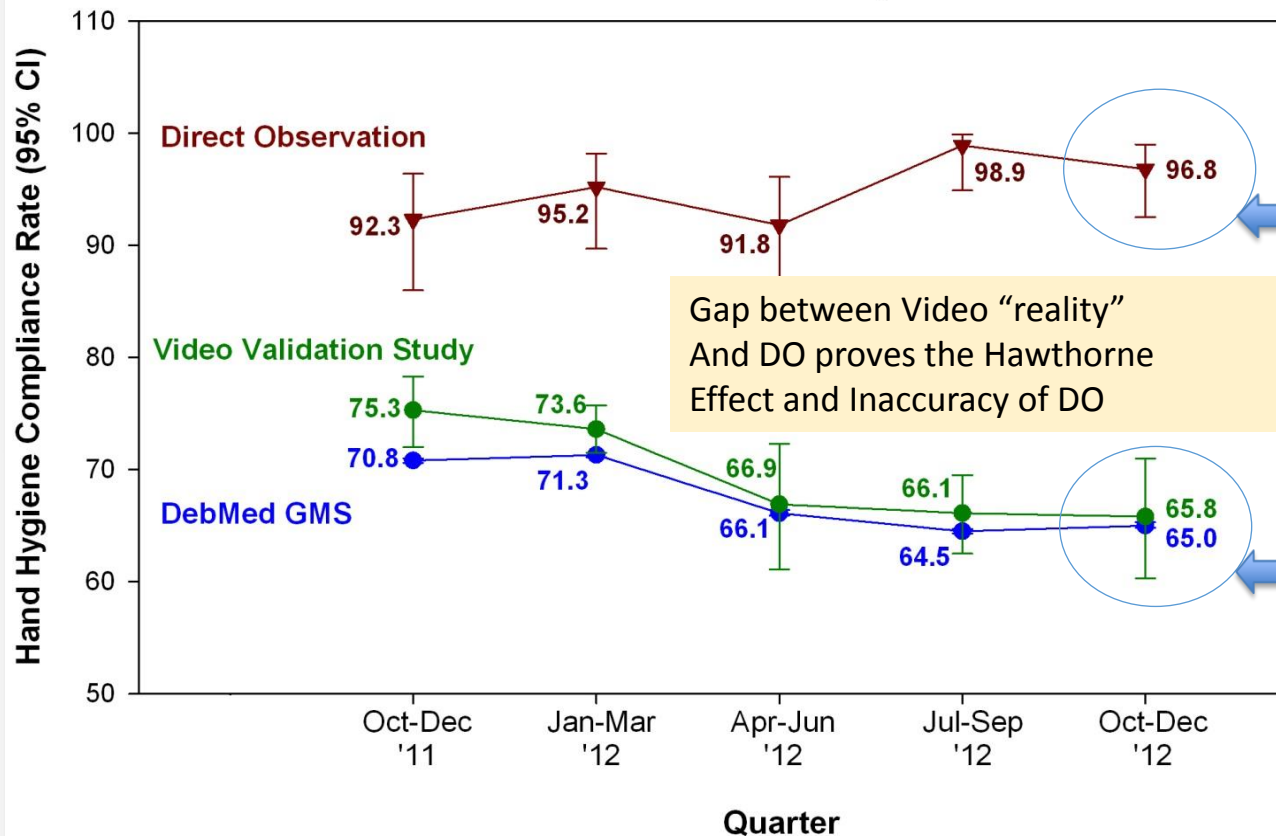
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Video taping and DebMed® GMS™ Rates are Equivalent for 12 straight months



# DebMed® - Summary of Benefits



- 100% HH Event Capture with zero impact on work flow and human factors
- Accurate, Reliable and Evidence Based 5 Moment Denominators (customized for your hospital) – two moment measurement and feedback is simply not enough
- Stand alone infrastructure works with DebMed® or Existing Dispensers
- Includes on site staff training; best practice advice for how to best implement the technology and an Improvement Tool Kit to support Safety Culture growth
- **Evidence based decision support tools available to help you make the case clinically and economically to leadership**



# World's first and only peer reviewed study linking electronic monitoring (based on the WHO 5 Moments for HH with infection and cost reduction – AJIC August, 2016

American Journal of Infection Control ■■ (2016) ■■-■■



ELSEVIER

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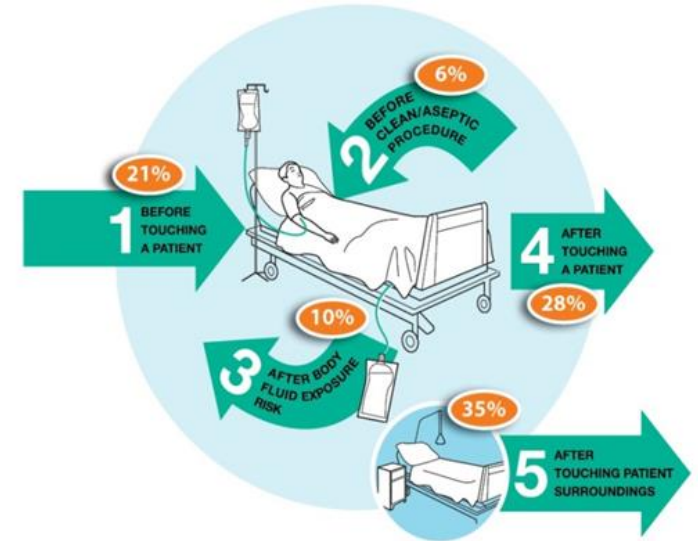
# Next Steps



**Typically – an informative stakeholder meeting on site with key decision makers in addition to yourself to fully explore the clinical and economic impact DebMed might have.**

**Typically in Attendance are Leaders from:**

- IP
- Finance
- Quality
- Patient Safety
- CMO/CNO/COO



**Thank you!**

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