Hand Hygiene Compliance Webinar

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Hand Hygiene Compliance: Why Healthcare Facilities Struggle to Improve and How Technology can Assist

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The Patient Care space
Why achieving hand hygiene (HH) compliance is so challenging?

- Hand hygiene **supplies** not available in space
- **Workflow issues:** Sinks or hand sanitizer dispensers not in convenient location
- **Empty** Soap, sanitizer and paper towel dispensers
- **Crowded space** (too many people, equipment) with no easy route to dispensers even when located close to care
Healthcare Environment Chaos
Why achieving HH compliance is so challenging continued

- Too much to do and too little time. Cutting corners.
- Emergency event where condition of patient is paramount (CPR). Hand hygiene is secondary.
- Tired healthcare providers
- Hand hygiene is performed, but short cuts taken.
Hand hygiene agents cause irritation and dryness.
Lack of belief that hand hygiene reduces infections.
Understaffing.
Lack of knowledge of guidelines, protocols, or disagreement procedure(s).
Low risk of acquiring infection from patients.
Forgetfulness
Inappropriate Glove Use

Why achieving HH compliance is so challenging continued

Providers replace hand hygiene with glove wearing.

UK Campaign
Gloves. Stop. Think. Make one Change
Do I really need to wear gloves?

Glove Awareness Week 2022 - Stop. Think. Make one change - YouTube
Organizational Culture

Why achieving HH compliance is so challenging continued

- Lack of accountability.
- Hand hygiene monitoring and feedback is not Consistent - Not reported to leadership & frontline.

- Hand hygiene is not a priority.
- Nursing unit culture- small-group dynamics “inertia of the ward routine”
Achieving Hand Hygiene Compliance is Challenging - Keys To Sustainable Compliance Improvement

Environment & Supplies
- Supplies must be available.
- Workflow matters
- Patient environment planning: include hand hygiene facilities locations for proper workflow.

Education & Competency
- Effective education, training and competency assessment for effective hand hygiene.
- Include frontline staff in evaluating hand hygiene products
- Process to address staff who have skin irritation with available product(s).

Organizational Culture
- Hand hygiene must be a priority:
  - Hold staff accountable.
  - Be aware of nursing unit culture and impact on compliance.
  - Change is hard. Address the people side of change.

Ongoing Monitor Compliance and Give Feedback
- Address identified opportunities to improve.
The Components of Hand Hygiene Compliance

Prof Gerry Lacey, Maynooth University
How safe is healthcare?

![Graph showing the safety comparison between healthcare and other activities](image)

Note: both dimensions are logarithmic scales.
Improvements in Patient Safety - Anesthesiology

• 1940s
  • mortality rate 1 : 450
  • Best practice guidelines improved rate to 1 : 5,500

• 1980’s
  • LAWSUITS
  • Guidelines become enforceable standards
  • Anesthesia Patient Safety Foundation

• Extensive training with objective assessment
• Mortality now less than 1 : 200,000

Swiss Cheese Model for Hand Hygiene

Guidelines become enforceable standards – e.g., Leapfrog, WHO, ISO
Objective evidence using technology – e.g., validated training and measurement
Compliance with all Hand Hygiene Guidelines

When?

1. Before touching a patient
2. After body fluid exposure risk
3. After patient contact
4. After touching patient's surroundings
5. After touching a patient

How?

WHO 6 step technique

Quantity

40% - 80%

Quality

15% - 18%

Compliance

6% - 14%
The Microbiology

Study 1:
A review\(^1\) of 57 studies conducted between 2014–2020

\[ \begin{array}{c}
41\% & 67\%
\end{array} \]

Mean baseline compliance with the 5 Moments  
Post Intervention mean compliance level

- Higher compliance with post patient contact
- Almost all had improved compliance after interventions
- Both individual and multimodal interventions improved compliance

- Contaminated hands
  - 5% of fingertips contaminated by MRSA\(^2\) after hand hygiene!
  - 93% of hands were not clinically clean\(^3\) on the wards
    - But 60% were confident that their hands were clean

- 2 key issues
  - Poor quality hand hygiene technique
  - “Unconscious Incompetence”

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2. When are the hands of healthcare workers positive for methicillin-resistant Staphylococcus aureus? Creamer E et. al. J Hosp Infect. 2010
3. Improvement of Hand Hygiene Quality and Compliance Using Bioburden Measurement and Online Feedback in Germany Frank Günther et.al. ICHE 2017
Burch’s Conscious Competence Framework

Ebbinghaus Forgetting Curve

Key Lessons

- Multiple Learning sessions
- Spaced in Time (sleeps)
- Self-Directed with objective measurement of progress
- Delayed recall test to measure competence
- 20-30 practice sessions with feedback to HH automate skill
The overall pass rates for each of the steps of the WHO protocol.

86%  74%  69%  68%  58%  46%
Training and Monitoring

Current Practice
- One off induction training
- PowerPoint, videos, posters

Problem with current practice
- Subjective assessment
- Rapid skill extinction post training

State of the art technology
- Objective measurement of hand movements
- Realtime feedback on errors drives learning
- Distributed training Vs Massed session
Hand Hygiene Quadrant

- **HOW (TECHNIQUE)**
- **WHEN (5 MOMENTS)**
- **WHAT WITH (SOAP & GEL MANUFACTURERS)**
- **HOW WELL (UV BOXES ETC)**
SureWash
Assessment-based
Available 24/7
Gamification
Objective, real-time feedback

HOW
(TECHNIQUE)

WHEN
(5 MOMENTS)

REPORTING

WHAT WITH
(SOAP & GEL MANUFACTURERS)

HOW WELL
(UV BOXES ETC)

Dispenser Technology
Gel & Soap Formulations
Location & Availability

Monitoring Systems
More affordable
Actionable Areas
Stand Alone Technology

UV Boxes
Reality check
A COMPLETE SOLUTION

Monitoring Company

Monitoring

Gel Company

Infrastructure

Training & Education

Feedback

Culture
Training to proficiency in the WHO hand hygiene technique

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Journal of Medical Education and Curricular Development, August 5, 2019

Objectives:
Hand hygiene is critical to patient safety, but low compliance is often reported. Although training-to-proficiency is common for surgical skills, no proficiency-based training program for hand hygiene has been reported in the literature. This study developed a proficiency-based training program for the WHO hand hygiene technique and assessed the amount of training required to reach proficiency. The training was delivered as part of a 5-day induction for Physician’s Assistants.

Methods:
42 Students used a hand hygiene training simulator to objectively assess hand hygiene technique over a 5-day period. Proficiency was determined when students demonstrated the WHO hand hygiene technique in under 42 seconds. The students also completed a post-intervention questionnaire.

Results:
The average training episode lasted 2.5 minutes and consisted of 4.5 hand hygiene exercises. The average student completed 5 training episodes (one per day) taking a total of 17 minutes. 40% (17) of the students achieved proficiency within the 5-days. Proficiency was strongly correlated with the number of training exercises completed (r=0.79, p < 0.001) and the total time spent training (r=0.75 p < 0.001). Linear regression analysis predicted that the 32 hand hygiene exercises or a total of 23 mins training were required to achieve proficiency.

The overall pass rates for each of the steps of the WHO protocol, showing that students took longer to learn the fingertip and thumb technique than the other steps

<table>
<thead>
<tr>
<th>Tutorial</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
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<tr>
<td>Number passed this level</td>
<td>42</td>
<td>35</td>
<td>30</td>
<td>28</td>
<td>23</td>
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<tr>
<td>% Achieving each proficiency level</td>
<td>100%</td>
<td>81%</td>
<td>70%</td>
<td>65%</td>
<td>53%</td>
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<td>Number with each proficiency level</td>
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<td>5</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>% with this proficiency level</td>
<td>19%</td>
<td>12%</td>
<td>5%</td>
<td>12%</td>
<td>14%</td>
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<tr>
<td>Avg. Minutes spent training</td>
<td>5.49</td>
<td>8.22</td>
<td>17.83</td>
<td>17.90</td>
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<tr>
<td>Avg. Number Training sessions</td>
<td>4</td>
<td>6</td>
<td>23</td>
<td>17</td>
<td>24</td>
</tr>
</tbody>
</table>

Conclusions:
This is the first study to develop a train-to-proficiency program for hand hygiene and estimate the amount of training required to achieve proficiency. Given its importance to preventing healthcare acquired infections (HAIs) medical education programs should consider making sufficient time and resources available to develop proficiency in hand hygiene technique.
Measure Background

Unclean hands are one of the primary ways pathogens are transmitted throughout the health care environment. Evidence shows that microorganisms can survive on hands for varying lengths of time, some surviving for multiple hours.1 If those caring for patients do not take the proper steps to clean their hands, these pathogens can easily be transmitted from one patient to another patient. In addition to patient-to-patient transfer of pathogens, contaminated hands can also transfer bacteria to clean surfaces. It is estimated that up to 13% of contact between contaminated hands and clean surfaces can result in cross-contamination.1 This risk of spreading bacteria in a health care environment makes hand hygiene a pivotal patient safety practice.2

Despite the clear evidence and guidelines for proper hand hygiene procedures, studies have shown that on average, health care providers clean their hands less than half of the times they should.3

Why is Hand Hygiene Important?

While it is difficult to definitively measure the impact of improved hand hygiene on rates of healthcare-associated infections (HAI), evidence does support the notion that improved hand hygiene practices drastically reduce HAI.4 Multiple studies have demonstrated a temporal relationship between improved hand hygiene practices and reduced HAI rates.4 For example, a study of hand hygiene compliance for hand washing and the use of alcohol-based hand sanitizer demonstrated that an increase from 48% to 66% compliance over a three-year period was correlated with a reduction in nosocomial infections from 16.9% to 9.9% and a reduction in methicillin-resistant Staphylococcus aureus (MRSA) transmission from 2.16 to 0.93 episodes per 10,000 patient-days.5 Some have even demonstrated the elimination of MRSA from various care settings solely due to improved hand hygiene practices.6

Hand Hygiene Standard

Leapfrog’s hand hygiene standard includes five domains: monitoring, feedback, training and education, infrastructure, and culture. The standard encourages facilities to adopt a multimodal approach to hand hygiene, emphasizing the importance of monitoring and feedback.

Hospitals achieving the Hand Hygiene standard...

- Adhere to the monitoring domain by:
  - Collecting hand hygiene compliance data on at least 200 hand hygiene opportunities (or a minimum threshold number of hand hygiene opportunities based on unit throughput), each month, in each patient care unit;
  - Providing individuals who touch patients or who touch items that will be used by patients with feedback on their hand hygiene compliance; and,
  - Using an electronic compliance monitoring system and/or direct observation methods that meet Leapfrog’s criteria for collecting hand hygiene compliance data

- Adhere to the feedback domain by:
  - Providing feedback on hand hygiene compliance data to individuals who touch patient or who touch items that will be used by patients for monthly improvement work;
  - Using hand hygiene compliance data for creating action plans; and,
  - Providing feedback on hand hygiene compliance data to hospital or ASC leadership and holding leadership accountable for hand hygiene performance through performance reviews or compensation

- Adhere to two of the other following domains:
  - Training and Education
  - Infrastructure
  - Culture

OR

- Adhere to the monitoring domain by:
  - Collecting hand hygiene compliance data on at least 100 hand hygiene opportunities (or a minimum threshold number of hand hygiene opportunities based on unit throughput), each month, in each patient care unit;
  - Providing individuals who touch patients or who touch items that will be used by patients

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with feedback on their hand hygiene compliance; and,
  o Using an electronic compliance monitoring system and/or direct observation methods that meet Leapfrog’s criteria for collecting hand hygiene compliance data

• Adhere to all the following domains:
  o Feedback
  o Training and Education
  o Infrastructure
  o Culture

Download the complete Leapfrog Hospital Survey scoring algorithms document at Hospital Scoring and Results webpage.

Why Purchasers Need to Get Involved

While compliance with proper hand hygiene appears to be an evidence-based method for preventing HAIs, facilities have demonstrated varying levels of adherence to adequate hand hygiene practices. The issue of hand hygiene offers purchasers an opportunity to reinforce to hospitals that patient safety is important. And that by demonstrating compliance with Leapfrog’s hand hygiene standard, it will send a clear signal that the facility prioritizes patient safety.

Given the importance of ensuring that those caring for patients are practicing hand hygiene and the limitations of human observers, it is critical that purchasers send the message that they expect hospitals to consider implementing electronic hand hygiene compliance monitoring systems. Facilities that have adopted electronic compliance monitoring systems are better able to determine their actual hand hygiene compliance rate, creating the opportunity for more robust quality improvement initiatives. The potential cost savings to an employer of reducing HAIs are tremendous, though pales in comparison to the potential for reduced harm to employees.

References


For a comprehensive list of references please review the Hand Hygiene Bibliography, available at: https://ratings.leapfroggroup.org/measure/hospital/handwashing
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Unclean hands are one of the primary ways pathogens are transmitted throughout the healthcare environment. Evidence shows that microorganisms can survive on hands for varying lengths of time, some surviving for multiple hours.\(^1\) If those caring for patients do not take the proper steps to clean their hands, these pathogens can easily be transmitted from one patient to another patient. In addition to patient-to-patient transfer of pathogens, contaminated hands can also transfer bacteria to clean surfaces. It is estimated that up to 13% of contact between contaminated hands and clean surfaces can result in cross-contamination.\(^1\) This risk of spreading bacteria in a healthcare environment makes hand hygiene a pivotal patient safety practice.\(^2\)

Despite the clear evidence and guidelines for proper hand hygiene procedures, studies have shown that on average, healthcare providers clean their hands less than half of the times they should.\(^3\)

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Hand Hygiene Standard
Since 2019, Leapfrog has included the hand hygiene standard on the Leapfrog Ambulatory Surgery Center (ASC) Survey. The standard focuses on adherence to “best practice” hand hygiene practices. These practices were identified by a national Hand Hygiene Expert Panel and adapted from the World Health Organization’s “Hand Hygiene Self-Assessment Framework.”\(^7\)

The standard includes five domains: monitoring, feedback, training and education, infrastructure, and culture. The standard encourages facilities to adopt a multimodal approach to hand hygiene, emphasizing the importance of monitoring and feedback.

ASCs can achieve the Hand Hygiene standard in two ways:

**Option 1**
- Adhere to the monitoring domain by:
  - Collecting hand hygiene compliance data on at least 200 hand hygiene opportunities (or a minimum procedure-adjusted number of hand hygiene opportunities), each month, in the facility;
  - Providing individuals who touch patients or who touch items that will be used by patients with feedback on their hand hygiene compliance; and,
  - Using an electronic compliance monitoring system and/or direct observation methods that meet Leapfrog’s criteria for collecting hand hygiene compliance data
- Adhere to the feedback domain by:
  - Providing feedback on hand hygiene compliance data to individuals who touch patients or who touch items that will be used by patients for monthly improvement work;
  - Using hand hygiene compliance data for creating action plans; and,
  - Providing feedback on hand hygiene compliance data to ASC leadership and holding leadership accountable for hand hygiene performance through performance reviews or compensation
- Adhere to two of the following other domains:
  - Training and Education
  - Infrastructure
  - Culture

**Option 2**
- Adhere to the monitoring domain by:
  - Collecting hand hygiene compliance data on at least 100 hand hygiene

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opportunities (or a minimum procedure-adjusted number of hand hygiene opportunities), each month, in the facility;
- Providing individuals who touch patients or who touch items that will be used by patients with feedback on their hand hygiene compliance; and,
- Using an electronic compliance monitoring system and/or direct observation methods that meet Leapfrog’s criteria for collecting hand hygiene compliance data

- Adhere to all other domains:
  - Feedback
  - Training and Education
  - Infrastructure
  - Culture

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THANK YOU!

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