# Hand Hygiene: Education, Monitoring and Feedback









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## Learning Objectives

- Calculate hand hygiene adherence rates based upon hand hygiene events and opportunities
- Compare and contrast different hand hygiene adherence monitoring methods
- List components of a hand hygiene data collection tool





Multi-Modal Approach to Improve Adherence

- Education
- Monitoring
- Feedback of data







## Education to Improve Adherence

- Educate personnel on the importance of improving hand hygiene adherence
- Train all healthcare personnel on hand hygiene at hire, when job functions change and at least annually
- Personnel should:
  - Display knowledge of the indications or "moments" to perform hand hygiene
  - Demonstrate appropriate hand hygiene technique



(Ellingson K, Infect Control Hosp Epidemiol, 2014)



## Hand Hygiene Adherence Monitoring

- Why is your healthcare facility measuring hand hygiene adherence?
- What is your hand hygiene adherence goal?
- What hand hygiene opportunities will you measure?
- How will measurements by performed? By whom?
- How will data be shared?
- Who is accountable for the data?





Reasons for measuring hand hygiene adherence

- Reduce healthcare-associated infection rates
- Regulatory requirements
- Determine if performance requires improvement
- Compare performance to other organizations
- Inform improvement efforts





# Hand Hygiene Adherence Monitoring

- Adherence = (Actions/Opportunities) x 100%
- Define opportunities you will audit
  - Before room entry or patient contact
  - Between clean and dirty tasks (difficult to audit)
  - After patient contact or upon room exit





(Image from WHO Guidelines on Hand Hygiene in Health Care, WHO, 2009)



# Hand Hygiene Adherence Monitoring

Method	Pros	Cons	
Direct observation of hand hygiene technique	Educational moment	<ul> <li>Does not measure adherence during patient care</li> </ul>	
Direct observation of hand hygiene adherence	<ul> <li>Captures information on product, technique</li> <li>Data summarized by personnel type, shift, unit</li> <li>Educational moment</li> </ul>	<ul><li>Time and resource intensive</li><li>Can influence performance</li></ul>	
Indirect measurement of volume of alcohol-based hand rub or soap used	Easy to track consistently	<ul> <li>Consumption may not correlate with appropriate use</li> <li>Biased by purchasing patterns</li> </ul>	
Self-report of hand hygiene adherence	Captures perceptions and barriers	<ul><li>Unreliable</li><li>Rates often inflated</li></ul>	
Patient satisfaction survey	<ul> <li>Option in areas where direct observation difficult (e.g., ambulatory setting)</li> </ul>	Unclear correlation	



# Direct Measurement Methods of Observation for Hand Hygiene

- Covert observation, "secret shoppers"
  - Training and standardized tools are necessary
  - Inter-relator reliability
  - Mobile handheld device for data collection
- Overt observation
  - Coaching component
  - Observation + intervention = measurevention
- Technology assisted
  - Video monitoring later reviewed by trained auditors
  - Automated systems with wearable devices
  - Eliminates selection and observer bias
  - Can provide just-in-time reminders





# **Specifics of Monitoring**

- No accepted standard for number of observations
- Many hospitals use 30 or more observations per month per unit
- Can include data separated by role type
- Can include data by shifts
- May include documentation of contributing factors for failure





### Hand Hygiene Data Collection Tools

Sector

World Health Organization

Patient Safety A World Alliance for Safer Health Care SAVE LIVES Clean Your Hands

Observation Form					
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V.a. Hand Hygiene							
	Elements to be assessed	Assessment	Notes/Areas for Improvement				
A. A	All HCP are educated regarding appropriate indications for hand nygiene: i. Upon hire, prior to provision of care	O Yes O No					
	ii. Annually	O Yes O No					
B. H	HCP are required to demonstrate competency with hand nygiene following each training	O Yes O No					
C. I	Facility routinely audits (monitors and documents) adherence to nand hygiene.	O Yes O No					
D. F	Facility provides feedback from audits to personnel regarding heir hand hygiene performance.	O Yes O No					
E.           	Hand hygiene policies promote preferential use of alcohol-based hand rub (ABHR) over soap and water in most clinical situations. Note: Soap and water should be used when hands are visibly soiled (e.g., blood, body fluids) and is also preferred after caring for a patient with known or suspected C. difficile or norovirus during an outbreak.	O Yes O No					



CDC. ICAR Tools.https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html



### Data Sharing

- Set targets for improvement
  - Be realistic. Will be influenced by baseline data
  - Align with rewards and recognition
- How often will hand hygiene adherence data be shared?
- How will it be displayed?
  - Website, quality boards, emails etc.
- Who needs to see the data?
  - Hospital leadership
  - Unit leadership
  - Individual healthcare personnel
  - Patients



#### **Report Overall Unit Specific Data**







#### **Report Before and After Adherence**

Hand Hygiene Compliance





#### **Report Role Specific Data**







Hand Hygiene Technique Using Hand Cultures









(Images from Mody L, JAMA Intern Med, 2015)





# Hand Hygiene Technique Using Pathogen Simulation



(Images courtesy of Lona Mody, MD at the University of Michigan)





# To Impact Change Everyone Needs to Know Their Role





(Image from the University of Michigan Health System Infection Prevention and Epidemiology)

#### Accountability

#### Vanderbilt Center for Patient and Professional Advocacy





(Image from Pyramid for Promoting Reliability and Professional Accountability, Vanderbilt Center for Patient and Professional Advocacy, 2016)





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# **THANK YOU!**





# **Speaker Notes**







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Welcome to part two of Hand Hygiene course titled "Hand Hygiene: Education, Monitoring and Feedback."





The content for this module was developed by Laraine Washer, an infectious diseases physician and hospital epidemiologist at the University of Michigan Health System, with support from a multidisciplinary team of physicians, nurses and infection preventionists devoted to improving patient safety and infection prevention efforts. In particular, we would like to thank and acknowledge Dr. Heather Gilmartin, Russ Olmstead and the STRIVE national project team for their contributions and review of this module.





This module will outline how to calculate hand hygiene adherence rates based upon hand hygiene events and opportunities, compare and contrast different hand hygiene adherence monitoring methods and list components to include on a hand hygiene data collection tool.





This webinar is focused on using several strategies as part of a multi-modal approach to improve hand hygiene adherence. These practices include education, monitoring and providing feedback on adherence to hand hygiene in the healthcare setting. Your facility is likely having ongoing discussions about hand hygiene. The word cloud on the right visually represents words and phrases collected from frontline healthcare personnel in conversations about improving hand hygiene with the most commonly heard words represented as the largest.



Let's first talk about training staff. Educating healthcare personnel is an important component of improving hand hygiene adherence. Organizations should provide hand hygiene training to all staff at hire, whenever their job functions change, and at least annually. As part of this training, healthcare personnel should be able to describe the indications or "moments" for hand hygiene and be able to demonstrate correct hand hygiene technique as described in Module 1 of this hand hygiene webinar series. For more information about competency-based training for hand hygiene and other infection prevention issues, please refer to the foundational module on "Competency-based training, Audit and Feedback."





Once expectations and vital behaviors of hand hygiene are clear to all personnel at your facility, then a monitoring program to assess adherence is recommended.

This webinar will address several questions that should be answered when developing or revamping a hand hygiene program.





# Speaker Notes: Slide 6 Continued

For example:

- Why is your healthcare facility measuring hand hygiene adherence?
- What is your adherence goal? This may require understanding your baseline in order to set a realistic goal.
- What hand hygiene opportunities will you measure?
- How will measurements be performed? And by whom?
- How will hand hygiene adherence data be shared?
- What is your accountability structure?





Facilities should clearly understand their specific reasons for measuring hand hygiene adherence. This may be different for individual facilities. Facilities may have more than one reason including regulatory requirements to determine baseline rates and whether hand hygiene should be a priority for improvement. Other facilities may wish to compare performance to other organizations or use data to inform improvement efforts. All facilities should be interested in achieving high hand hygiene adherence to reduce healthcare-associated infection rates.



To measure hand hygiene adherence, the opportunities for hand hygiene must be clearly defined in ways that are possible to measure.

You may recall that in the first module of this hand hygiene course, we discussed the World Health Organization's five moments of hand hygiene. Facilities should educate all healthcare personnel on all opportunities or moments for hand hygiene.





### Speaker Notes: Slide 8 Continued

As a reminder, these opportunities are:

- Before touching a patient
- Before performing a clean or aseptic procedure or manipulating an invasive device
- After touching body fluids
- After touching a patient
- After touching patients surroundings (contaminated items or surfaces) or removing gloves





#### Speaker Notes: Slide 8 Continued

While it is ideal to track and audit all hand hygiene opportunities, facilities may choose to audit only adherence to specific opportunities. Many facilities choose to audit before and after patient contact or room entry and exit because this is operationally the most simple method. Auditing opportunities before clean and after dirty tasks is operationally difficult. There is some evidence that measuring adherence on room entry and exit may be an acceptable stand-in for other opportunities within the patient encounter. If a facility chooses to primarily monitor "wash in" and "wash out", then they should include intermittent assessments of opportunities before clean procedures and after body fluid exposure to identify and correct gaps.





The difficulty in establishing an adherence monitoring program is that there are no national standards for measurement. Additionally, there are several potential methods that can be useful for monitoring, but each has its own pros and cons.

Direct observation of technique is a popular method for assessing competency and providing education about hand hygiene – the problem, though, is watching someone wash their hands or apply alcohol rub correctly does not guarantee that he or she will adhere to those best practices during a busy work day. Therefore, direct observation of technique by itself may not be adequate to really know that personnel are doing hand hygiene appropriately.





#### Speaker Notes: Slide 9 Continued

Direct observation of hand hygiene adherence on hospital units, either by a designated hand hygiene monitor or by using a secret shopper, is the best way to capture the most information. It tells you what products personnel are using and information about technique—for example, how well people coat their hands with hand rub or how long they stand at the sink. You can also see who is performing hand hygiene appropriately at the bedside and collect role specific data including nursing staff, physicians, physical therapists, social workers or dietary staff. The challenge with this methodology is it's very time and resource intensive and may be difficult to get data from all shifts.



#### Speaker Notes: Slide 9 Continued

Measuring the volume of hand hygiene product being used is one way to track trends in consumption of alcohol-based hand rub or hand soap in a consistent way with minimal effort and can be compared to other like units or industry averages. However, product volume measurement may be unreliable if products are bought in bulk and stored for later use.

You can also survey personnel to self-report hand hygiene adherence. This method has limited utility because we often self-report that we're doing a better job than we actually are. But what we can do with these surveys is understand personnel perceptions of barriers and challenges to doing hand hygiene.





#### Speaker Notes: Slide 9 continued

That can actually give you some insights into what your personnel might be finding as obstacles to performing hand hygiene.

Some facilities incorporate questions about healthcare personnel hand hygiene into patient satisfaction surveys. This approach may be a good option in areas where direct hand hygiene observation is difficult such as the ambulatory environment. However, there are no data on whether this methodology is correlated with overall adherence.





Now, let's focus on different types of direct hand hygiene observation – successful hand hygiene programs may have one or a combination of these approaches. One approach is to utilize covert observers-sometimes known as "secret shoppers." These individuals should undergo training and use a standard data collection tool. Covert observers should have their observations validated initially after training. Optimally programs should perform inter-relator reliability testing at intervals to assure accuracy.



#### Speaker Notes: Slide 10 continued

Another approach is to use overt observation, where the observer is known to be observing hand hygiene adherence. The observations may be biased by the Hawthorne effect, but the observer can act to provide "just-in-time coaching," making the observation part of the intervention (i.e. "measurevention"). There are also many methods of technology assisted direct observation. These include the use of in-person data collection programs using hand held devices with commercial or selfdeveloped data collection tools. Video monitoring aimed at sinks or alcohol-based hand rub dispensers record opportunities for hand hygiene that is later reviewed by trained auditors.





#### Speaker Notes: Slide 10 continued

There are also devices that can be worn by healthcare personnel and sense when they enter into a patient room, detect when hand hygiene is performed and if hand hygiene is not performed remind the healthcare personnel to do so. These devices have the potential to eliminate selection and observer bias and can provide just-in-time reminders. However, there are currently only a few studies that show successful widespread use of these systems in real-world settings.



There is no standard for the number and distribution of hand hygiene observations that should be performed. However, poor hand hygiene is likely to be observed with even a few observations. Many hospitals target 30 or more observations per month per unit. Depending upon the resources dedicated to hand hygiene data, the data can be collected to allow separation of performance by role type, which can include nurses, physicians, students, environmental services, food tray deliverers, volunteers and others. Data can also be divided by shifts.



### Speaker Notes: Slide 11 Continued

These specific measurements can help target training and interventions. When there is difficulty meeting performance targets, data may also include documentation of likely contributing factors for failure. Some examples could include not performing hand hygiene when part of a rounding group or when carrying supplies, or prior to putting on gloves. This information can be used to direct the next steps in improvement activities.





Regardless of what monitoring method you choose to use to monitor hand hygiene adherence, your hand hygiene program should use a standardized data collection tool.

The World Health Organization tool pictured here on the left is one example of such a tool. It is organized to collect data across all five moments of hand hygiene. Additionally, the Center for Disease Control and Prevention provides checklists for hand hygiene in the Infection Control Assessment Tools by setting located here: website

https://www.cdc.gov/hai/prevent/infection-control-assessmenttools.html.



### Speaker Notes: Slide 12 Continued

Many facilities choose to use a customized data collection form. Some facilities do collection on paper forms and others use handheld computer tablets or other electronic devices. Here, on the right, you can see a modified version of the WHO data collection form utilized by trained covert hand hygiene observers at an academic healthcare center. Key information collected includes the unit, month, time of day, observation type-before or after room entry, adherence and occupational role type.





Once you have collected your hand hygiene data, it should be shared and coupled with expectations. It is important that the health system or unit set defined targets for improvement. These targets should depend upon baseline performance and the frequency of measurement. The facility may set a goal of improvement for example; – 10 percent per month or quarter, or 90 percent in the next fiscal year. The hand hygiene program may choose to align release of data with rewards and recognition programs for staff.



### Speaker Notes: Slide 13 Continued

The program should decide how often data will be shared. This may vary based upon role. For example, monthly or quarterly data may be appropriate for hospital leadership, but more frequent data may be needed for unit-level leadership. The program should also determine the best way to communicate and display data-incorporating into other health system data sharing practices, but also consider highlighting data in a different way to make it stand out. The program should determine who needs to see the data and in what detail-and should include all levels of hospital leadership as well as frontline healthcare personnel. The program should decide if the data will be visible to patients and visitors.





Providing feedback on hand hygiene adherence to frontline personnel and leadership is key to raising awareness and maintaining high adherence rates.

Hand hygiene data can be displayed in a variety of ways. The graph on the left shows total facility hand hygiene rates with improvement over time. This particular graph represents at least 30 observations in each hospital unit per month. Some hospitals may choose to display the number of observations on the graph. The graph on the right shows a unit-specific performance graph and includes the unit goal of greater than 90 percent adherence by a specific date. Consider opportunities for "just-in-time" education when incorrect practices are observed.





Data can also be displayed with separation for different hand hygiene opportunities. This bar chart displays adherence with hand hygiene before room entry and after room exit. Adherence is routinely higher after room exit than before room entry. This trend can highlight opportunities for improvement in the hand hygiene program. Other contributing factors can be collected as well and can identify targeted areas for education or improvement efforts.





Data can also be separated by different role types. The graph on the left shows adherence for providers including physicians, nurse practitioners and physician assistants. This graph shows some improvement, but there is a recent leveling off in hand hygiene.. Role-specific data can be powerful motivation for professional groups. The graph on the right shows hand hygiene adherence for environmental service employees. This graph displays initial poor adherence with a remarkable improvement and continued increase towards the hospital's adherence goal. Displaying and recognizing improvement can support and promote continued adherence efforts.



#### Speaker Notes: Slide 16 Continued

And remember, that while the data are used to provide a quantitative measure for improvement, it is important to not just rely on the data -institutional leaders, unit managers, and infection preventionists should "go and see" the initiative in action. Go to the units and observe the practice. Does it seem to match up with the data? Use in-person assessments to provide coaching and feedback about barriers and achievements. This is particularly important if the hand hygiene observer is someone who is known to the unit. By periodically validating the data with your own eyes and encouraging staff to speak up when they see a missed hand hygiene opportunity, you will continue to build the foundations for a sustainable culture of safety.





Some programs may want to focus not just on "are you doing" it?" but "are you doing it well?" Interactive activities are always a great way to engage personnel and visual interactions can be exceptionally powerful. Researchers at the University of Michigan conducted hand hygiene culture demonstrations where they showed healthcare personnel what they carried on their hands before and after hand hygiene with alcohol-based hand rub. The photograph on the left shows that the healthcare personnel did a pretty good job with hand hygiene and cleared most of the organisms, where as the picture on the right shows no difference between the pre- and post-cultures, suggesting a need for this staff person to improve their technique.





Adequacy of hand hygiene technique can be demonstrated using a lotion product that simulates bacteria or virus contamination of the hands. The lotion can only be visualized under ultraviolet light. The product is rubbed on the hands, which are then washed with soap and water. The hands will appear clean under standard lighting, like the photo on the left. However, if the hands are placed under ultraviolet light, like the image on the right, lotion residue is still visible, demonstrating inadequate hand hygiene technique.





Data collection and sharing is most powerful when each healthcare personnel clearly understands expectations and owns their part in data collection and improvement efforts.

This picture demonstrates the hand hygiene responsibilities outlined for healthcare personnel at the University of Michigan Health System. The patient is at the pinnacle of the pyramid and has the least responsibility.





### Speaker Notes: Slide 19 Continued

Direct patient care providers, or frontline personnel, are expected to know and practice three University of Michigan Health System Vital Behaviors related to hand hygiene. They are Clean, Remind and Thank:

- Clean Hands: Before room entry and patient care, between dirty and clean tasks and after room exit or patient care;
- Remind others if they forgot to perform hand hygiene; and
- Thank others if they remind you when you forgot to perform hand hygiene.





### Speaker Notes: Slide 19 Continued

Supervisors, managers and directors have additional roles of modeling best behaviors, providing positive feedback and performing disciplinary action when needed. These roles need to also ensure adequate resources, develop appropriate safety culture and include hand hygiene in department goals and priorities.

System-level quality leadership has the added expectations of directing strategic goals related to hand hygiene and ensuring that hand hygiene is clearly voiced as an institutional imperative.





Lastly, when individuals clearly know expectations and roles and objective data on hand hygiene is provided, healthcare personnel should be accountable for appropriate hand hygiene behaviors. The Vanderbilt Center for Promoting Reliability and Professional Accountability outlines an accountability pyramid that can be applied to hand hygiene and other professional behaviors. This is part of a safety culture that promotes professionalism as the foundation of safe quality health care. This pyramid shows that most healthcare personnel are accountable to expectations around patient safety and professionalism.



No Notes.





#### No notes.



