

APIC Indiana Recommended Guidance for Hand Hygiene Measurement in Indiana

While this document focuses on the process of hand hygiene the ultimate aim is to reduce harm from preventable healthcare acquired infections.

These are recommended guidelines and resources to assist healthcare facilities in Indiana to adopt best practices with hand hygiene measurement. These guidelines should be tailored to your facility and can be used during annual planning of improvement activities that are driven by the risk assessment process. This is an evolving document that will be tested within the various regions within Indiana.

As we continue to gain additional knowledge and learn best practices this document may be revised to continue to improve the measurement of hand hygiene in Indiana.

Background

Hand hygiene has long been recognized as the most important method to reduce the transmissions of organisms within healthcare facilities. Measuring adherence to hand hygiene is fundamental to demonstrating improvements at an organizational level. However, measuring hand hygiene is a very complex issue and many key factors should be taken into account when developing a measurement system.

According to CMS conditions of participation, healthcare facilities must determine which best practices standard will be used to guide their hand hygiene program. Regardless if the HICPAC Guidelines for Hand Hygiene in Healthcare Facilities or the World Health Organization guidelines are chosen, the basics of measurement follows similar evidence based principles.

APIC Indiana has recommended the following strategies for addressing hand hygiene measurement:

1. Measurement

Determine what you will measure:

- Soap and water and/or alcohol based hand rub
- Report by discipline
- Report by weekday/weekend or shift

APIC Indiana recommends that measurement includes the 5 moments. It is documented in the research that it can be difficult to obtain opportunities beyond entry and exit; however including the moments beyond entry and exit when observed will provide critical information about hand hygiene performance. Accept that the majority of the observations will be on entry and exit. However, establishing a measurement system that captures the other moments/indications allows facilities to learn from those moments and understand hand hygiene at the most critical point in the process: prior to touching devices.

Measurement should reflect the hours of service. Therefore if you provide 24/7 service your observation data should be collected throughout those operational times. Below we have included the moments/indications from WHO and an attachment is included to see how you can use these to measure beyond entry and exit.

World Health Organization (WHO) 5 Moments for Hand Hygiene:

Measure the 5 moments of hand hygiene that occur within the “patient zone”. The 5 moments are:

- 1) Before patient contact
- 2) Before aseptic task
- 3) After body fluid exposure
- 4) After patient contact with patient when leaving the patient zone
- 5) After contact with patient surroundings when leaving the patient zone.

Patient Zone, Healthcare area and Critical Sites:

To apply the 5 moments, it is critical you understand these 3 terms. The 5 moments occur when you are moving between the patient zone and the healthcare zone (moments 1, 4, 5) or between critical sites within the patient zone (moments 2, 3).

Patient Zone: Consists of the patient and his/her immediate surroundings. This typically includes the intact skin of the patient and all inanimate surfaces that are touched by or in direct physician contact with the patients such as bed rails, bedside table, bed linen and other medical equipment frequently touched by healthcare workers hands during the process of care (monitors, knobs and buttons and other high touch surfaces). This model assumes these items are contaminated with the same organisms as the patient’s intact skin. This model assumes that all equipment is cleaned between patients.

Healthcare area: All surfaces outside of the patient zone.

Critical Sites: These sites are associated with infection risk. These sites can either correspond to a body site or medical devices that need to be protected against microorganisms that can lead to infection **or** body sites that can lead to an exposure to the healthcare worker. The critical sites are address in moments 2 and 3.

Reference: [WHO Guidelines on Hand Hygiene in Healthcare \(2009\)](#)

Attachment: WHO 5 Moments

2. Data Collectors

Everyone that participates in formal measurement system should be trained.

Training should include:

- All the moments/indications including with the measurement program
- Remaining anonymous during observations
- Methods for random sampling
- How to complete measurement form.

Assessment of knowledge following training is an important component of achieving reliable data.

Resources:

WHO and CDC data Collection Forms

iScrub lite application for iphone, ipad and droid

3. Sample Size

Estimated total opportunities: To calculate your sample size, you need to estimate your total hand hygiene opportunities. Calculating this data at least annually will help you interpret your data by understanding your sample size. This can also be used to engage your observers to increase their number of observations.

Attachment: Estimating Hand Hygiene Opportunities Worksheet

Minimum Sample: The larger the sample the more reliable the data. The number of observations should be based on bed size and the estimated number of hand hygiene opportunities. Each facility should evaluate their current practice, infection rates, and total opportunities.

While sample size is important and the greater the sample sizes the more reliable the data. The Joint Commission provides the following guidance on sample size:

Population size of < 30 = sample 100% of available cases

Population size of 30-100 = sample 30 cases

Population size of 101-500 = sample 50 cases

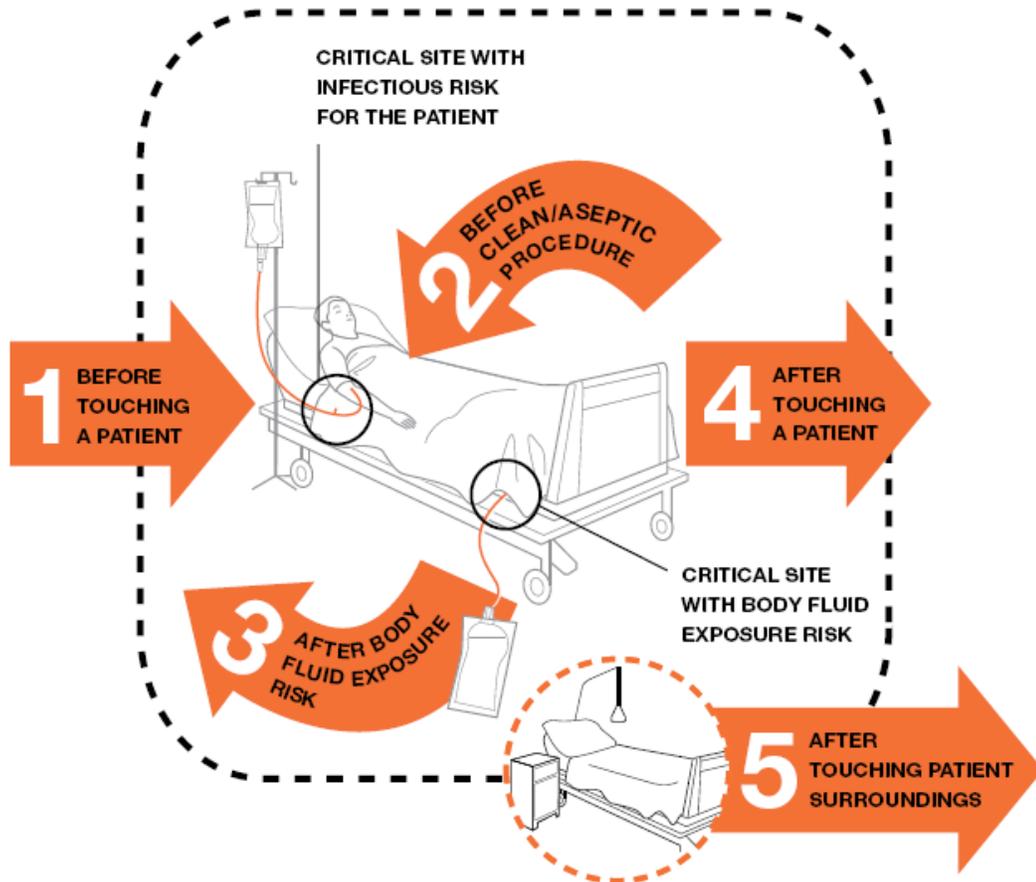
Population size of > 500 = sample 70 cases

Reference: Hospital Accreditation Standards 2012. Accreditation Process ACC-70.

4. Continuous Improvement of Measurement System

Performing an annual assessment of your measurement system and the reliability of data is essential. Set goals to incrementally increase your sample size annually. Consistent ongoing reporting of 100% compliance should be critically evaluated and process improvement with the measurement system should be considered. Since the ultimate aim is to minimize healthcare acquired infections comparing your hand hygiene performance to your trended data will be essential in this process.

5 Moments of Hand Hygiene



The dotted line above represents the **patient zone**. The patient zone includes the patient and the surfaces and equipment that is temporarily dedicated to that patient.

Examples of patient zones:

- Half of a semi private room that is dedicated to that patient
- All of a private room
- The immediate area surrounding a patient in an open unit (PACU or ED)
- The immediate area surrounding a patient in the operative suite (not entire suite)

CDC/WHO Hand Hygiene Guidelines Crosswalk

The Joint Commission's National Patient Safety Goal 7, Requirement 7A, which became effective **January 1, 2008**, gives organizations the option of complying with current World Health Organization (WHO) Hand Hygiene Guidelines or the Centers for Disease Control and Prevention (CDC) Hand Hygiene Guidelines. Before 2008, the requirement included only the CDC guidelines. To help organizations compare the two sets of guidelines, Joint Commission Resources has produced a crosswalk, presented here on pages 5–7.

Requirement 7A is applicable to the **ambulatory care, behavioral health care, critical access hospital, disease-specific care, home care, hospital, laboratory, long term care, and office-based surgery** programs. The text of Goal 7, Requirement 7A, is included at right for your reference. See the July 2007 issue of *The Joint Commission Perspectives*[®]

(pages 10–22) for the full text of the 2008 National Patient Safety Goals. This crosswalk can also be accessed on the Joint Commission Resources Web site at <http://www.jcrinc.com/26636>. 

Requirement 7A

Comply with current World Health Organization (WHO) Hand Hygiene Guidelines or Centers for Disease Control and Prevention (CDC) hand hygiene guidelines (**BHC**: when providing services to a high-risk population or administering physical care).

Continued on page 5

CDC/WHO Hand Hygiene Guidelines Crosswalk (continued from page 4)

**World Health Organization (WHO) Hand Hygiene Guideline Recommendations
Comparison with Centers for Disease Control and Prevention (CDC) Guidelines**

© 2007 Joint Commission Resources

I. Indications for handwashing and hand antisepsis			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
A. Visible dirt, blood, or body fluids on hands of health care worker (HCW)	A. (IA) Non-antimicrobial or antimicrobial soap and water	A. (IB) Soap and water	Simplifies terminology and does not differentiate between non-antimicrobial and antimicrobial soap, unless specified
B. No visible dirt, blood, or body fluids on hands of HCW in the following clinical situations:	B. (IA) Prefer alcohol hand rub or alternatively, (IB) antimicrobial soap and water	B. (IA) Prefer alcohol hand rub or alternatively, (IB) soap and water	
1. Before direct patient contact	1. (IB) Recommend	1. (IB) Recommend before <i>and after</i> contact	Clarifies expanded use of hand hygiene
2. After removing gloves	2. (IB) Recommend	2. (IB) Recommend	
3. Before handling invasive device for insertion	3. (IB) Before donning sterile gloves for central venous catheter insertion; also for insertion of other invasive devices that do not require a surgical procedure using sterile gloves	3. (IB) Before insertion of all invasive devices, regardless of glove use	Clarifies clinical situations and simplify terminology
4. After contact with blood, body fluids, mucous membranes, non-intact skin, and wound dressings	4. (IA) Recommend	4. (IA) Recommend	
5. Moving from contaminated patient body site to clean site during patient care	5. (II) Recommend	5. (IB) Recommend	
6. After contact with inanimate objects or medical equipment close to patient	6. (II) Recommend	6. (IB) Recommend	
C. Potential exposure to spore-forming organisms	C. (II) Non-antimicrobial or antimicrobial soap and water	C. (IB) Soap and water	Alcohol hand rub is ineffective against spore-forming organisms (for example, <i>Clostridium difficile</i> , <i>Bacillus anthracis</i>).
D. After using restroom	D. (IB) Non-antimicrobial or antimicrobial soap and water	D. (II) Soap and water	
E. Before handling medication or food	E. (IB) Non-antimicrobial or antimicrobial soap and water (before handling food)	E. (IB) Alcohol rub or soap and water (before handling both medication and food)	Recommends alcohol rub and expands recommendation to include medication
F. Concomitant or sequential use of alcohol rub with soap and water	F. No comment in non-surgical setting. In surgical (operating room) setting, recommend pre-washing hands with soap and water before alcohol rub (see III.G.2)	F. (II) Not recommended in either non-surgical or surgical setting	Pre-washing hands is not recommended.
II. Hand hygiene technique (non-surgical)			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
A. Alcohol hand hygiene rub	A. (IB) Apply palmful, rub thoroughly until dry. Follow manufacturer's recommendation regarding volume of product to use	A. (IB) Apply palmful, rub thoroughly until dry. See instructional diagram.	Emphasizes hand hygiene technique rather than product volume and refers to diagram
B. Handwashing with soap and water. Wet hands first, wash thoroughly, rinse, dry with disposable towel, and use towel to turn off faucet	B. (IB) Wash for 15 seconds	B. (IB) Wash using vigorous rotational handrubbing technique. No time requirement. See instructional diagram.	Emphasizes hand hygiene technique rather than time requirement and refers to diagram
C. Avoid use of very hot water to decrease risk of dermatitis	C. (IB) Recommend	C. (IB) Recommend	
D. Dry hands thoroughly after hand hygiene	D. Recommend (see II.A and II.B)	D. Recommend; separate emphasis	
E. Avoid using multi-use (cloth) hand towels	E. (II) Recommend	E. (IB) Recommend	Emphasizes CDC recommendation regarding non-reuse of cloth towels by individuals

Continued on page 6

CDC/WHO Hand Hygiene Guidelines Crosswalk (continued from page 5)

II. Hand hygiene technique (non-surgical) (continued)			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
F. Use of antimicrobial-impregnated wipes as hand hygiene alternative	F. (IB) May use as alternative to non-antimicrobial soap and water. Do not use as alternative to antimicrobial soap and water or to alcohol hand rub	F. No comment	
G. Use of bar, liquid, leaf or powder soaps. May use if using non-antimicrobial soap and water. Bar soap should be small size and sit on drainage rack.	G. (II) Recommend	G. (II) Recommend	
III. Surgical hand preparation			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
A. Remove of visible dirt before preparation	A. No comment	A. (II) Wash hands with soap and water	Emphasizes removal of visible dirt prior to surgical preparation
B. Clean fingernails using nail cleaner before preparation	B. (II) Recommend	B. (II) Recommend; clean under running water	
C. Design handwashing sink to minimize splashing	C. No comment	C. (II) Recommend	Recommends evaluating sink design; faulty faucet aerators have been associated with contamination of handwashing water
D. Remove rings, watches, and bracelets before preparation	D. (II) Recommend	D. (II) Recommend	
E. Artificial nails prohibited	E. Recommend; for high-risk patients (e.g., in intensive-care unit or operating room)	E. (IA) Recommend; for direct contact with all patients	Expands prohibition of artificial nails; associated with changes in normal flora and impede proper hand hygiene
F. Type of surgical hand preparation: either antimicrobial soap and water or sustained activity alcohol rub	F. (IB) Recommend	F. (IB) Recommend; if water quality is not assured, use alcohol rub	Some areas may have water quality problems.
G. Duration and technique of surgical hand preparation			
1. If using antimicrobial soap and water	1. Manufacturer's recommendation; usually 2 to 6 minutes	1. Manufacturer's recommendation; usually 2 to 5 minutes	
2. If using alcohol rub	2. (IB) No time requirement. Pre-wash hands with antimicrobial soap and water.	2. (IB) No time requirement. Apply to dry hands and keep hands and forearms wet during application. Do not pre-wash hands or use alcohol rub and soap and water concomitantly or sequentially.	Pre-washing hands not recommended (see I.F)
H. Allow hands to dry thoroughly before gloving.	I. (IB) Recommend	I. (IB) Recommend	
IV. Selection of hand hygiene agents			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
A. Administrative Actions			
1. Provide HCWs with efficacious (effective) product that is less likely irritate.	1. (IB) Recommend	1. (IB) Recommend	
2. Maximize acceptance and solicit input from HCWs, and include cost as factor in product selection.	2. (IB) Recommend	2. (IB) Recommend	
3. Consult manufacturer's recommendation regarding possible interaction between a) product and gloves, and b) product and creams or lotions.	3. a. (II) Recommend b. (IB) Recommend	3. a. (II) Recommend b. (IB) Recommend	
B. Dispensers			
1. Access by HCWs: location of dispensers. For alcohol rub: recommend individual pocket-sized containers for HCWs	1. Refers to alcohol rub dispensers only; accessible at entrance to patient's room, at bedside, or other convenient locations.	1. (IB) Refers to both soap and alcohol rub dispensers; accessible at point of care.	Clarifies terminology and encourage flexibility in location
2. Function and deliver specified product volume	2. (II) Recommend	2. (II) Recommend	

IV. Selection of hand hygiene agents (continued)			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
3. Alcohol rub product dispenser approved for flammable materials	3. (IC) Dispenser not specified but must store dispensers in cabinets approved for flammable materials.	3. (IC) Dispenser must be approved for flammable materials.	Clarifies flammability requirements for individual dispensers
4. Adding soap to partially filled dispensers for refill	4. (IA) Not recommended	4. (IA) Not recommended	Clean soap dispensers thoroughly before refilling to avoid bacterial contamination.
C. Skin Care			
1. Educate HCWs regarding hand hygiene practices that can reduce the risk of contact dermatitis, and provide creams and lotions	1. (IA) Recommend	(IA) Recommend	Provide alternatives for HCWs with allergic or adverse reactions to product
V. Use of gloves			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
A. Gloves are not a substitute for hand hygiene	A. No comment	A. (IB) Recommend	Emphasizes use of hand hygiene after gloves are removed
B. Use gloves before contact with blood and body fluids, mucous membranes and non-intact skin	B. (IC) Recommend	B. (IC) Recommend	
C. Remove gloves after contact with each patient and avoid re-use of gloves	C. (IB) Do not re-use the same gloves (or wash them between uses) with multiple patients.	C. (IB) If re-use is necessary, re-process gloves adequately between patients.	Glove reuse may be necessary in some areas. Recommends implementing a glove reprocessing method to maintain glove integrity while adequately cleaning gloves
D. Change or remove gloves if moving from contaminated to clean patient site or the environment	D. (II) Recommend	D. (II) Recommend	
VI. Other aspects of hand hygiene (non-surgical)			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
A. Use of artificial nails/extendors	A. (IA) Prohibited for high-risk patients, e.g., in intensive care unit or operating room	A. (IA) Prohibited for all direct patient contact in all settings	Prohibition of artificial nails expanded (see III.E)
B. Nail length (natural nails); tips must be less than ¼ inch or 0.5 cm in length	B. (II) Recommend	B. (II) Recommend	
C. Wearing of rings in non-surgical health care settings	C. Unresolved issue	C. No comment	
Outcome Measures and Performance Indicators			
Recommendation	CDC Guideline	WHO Guideline	Key Points of WHO Guideline
A. Monitoring of hand hygiene compliance			
1. Direct observation with HCW performance feedback; calculate number of hand hygiene episodes performed per number of opportunities.	1. Recommend	1. Recommend	
2. Indirect monitoring			
a. Monitor volume of product used for hand hygiene.	a. Calculate volume used per 1,000 patient days.	a. Estimate volume used based on nursing activities.	Estimate volume instead of calculating it.
b. Other monitoring	b. No comment	b. Count used paper towels.	Alternative monitoring
c. Electronic monitoring	c. No comment	c. Monitor use of sinks, hand hygiene product or paper towels electronically.	Alternative monitoring
d. Monitor compliance with facility policies regarding jewelry, nail polish, and artificial nails.	d. Recommend non-specific monitoring	d. Monitor compliance by direct and indirect observation, self-assessment and patient assessment	Specific measures to monitor compliance

Estimating Hand Hygiene Opportunities Worksheet

Formula for Calculating Estimated Total Number of Hand Hygiene Opportunities

Total number of ICU beds

Multiply by 12 (estimated number of opportunities)

Multiply by 24 (# of hours in the day)

Multiply by 30 (# of days in the month)

Equals estimated number of ICU opportunities: _____

Number of opportunities currently observed: _____

Total number of med/surg beds

Multiply by 6 (estimated number of opportunities)

Multiply by 24 (# of hours in the day)

Multiply by 30 (# of days in the month)

Equals the estimated number of Med/Surg opportunities: _____

Number of opportunities currently observed: _____

Future Goal: _____

Total number of Ancillary patients per hour

Multiply by 3 (estimated number of opportunities)

Multiply by # of hours open per day

Multiply by # of days open per month

Equals the estimated number of Ancillary opportunities: _____

Number of opportunities currently observed: _____

Add all 3 numbers together to get the total number of opportunities: _____

Number of opportunities currently observed: _____

Future Goal: _____

Reference: Measuring Hand Hygiene Adherence: Overcoming the Challenges, Joint Commission, 2009

This formula is designed to assist with determining your total estimated hand hygiene opportunities during a month. While there is no required sample size, the greater your sample size the more valid your data. Some hospitals have used this data to help explain why they need to increase the sample size and then annually they track their percentage.

Measurement Tools

<p style="text-align: center;">Sample Data Collection Forms</p> <p style="text-align: center;">Choose and then amend the form that meet your needs.</p>	<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p style="text-align: center;">FINAL Hand Hygiene Data Collection Form FINAL Hand Hygiene Data Collection Form HAND HYGIENE MONITORING TOOL 2</p> <p>Note there is a free app iScrub Lite that is a hand hygiene data collection tool that exports the data to excel once it is entered into the app.</p>
<p style="text-align: center;">Sample Educational Materials</p>	<div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p style="text-align: center;">Sample Hand Hygiene Observer Ed Sample 2 Observer Education.ppt Final Hand Hygiene Observation Test 5.2</p>
<p style="text-align: center;">Sample Handouts</p>	<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center;">Opportunities for Hand Hygiene Long V Opportunities for Hand Hygiene Short \</p>