

Introduction to Hand Hygiene & the HSELand e-learning Programme

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Content

- Does hand hygiene really reduce healthcare-associated infection?
- Why are healthcare workers (HCWs) confused about when to clean their hands?
- Lack of perceived need to perform hand hygiene
- Soap and water V alcohol hand rub (AHR)
- Gloves and hand hygiene
- HSELand e-learning programme

DOES HAND HYGIENE REALLY WORK?

Yes!



Evidence that increased compliance with hand hygiene reduces healthcare-associated infection (HCAI)

Table 3: Association between improved adherence with hand hygiene practice and reduction of HCAI (1975–June 2008) Source: WHO Guidelines on Hand Hygiene in Healthcare 2009.

Year	Authors	Location	Significant results	Duration
1977	Casewell & Phillips	Adult ICU	Significant reduction in the percentage of patients colonised or infected by <i>Klebsiella</i> spp	2 years
1989	Conry et al.	Adult ICU	Significant reduction in HCAI rates immediately after hand hygiene promotion (from 33% to 12% and from 33% to 10%, after two intervention periods 4 years apart, respectively)	6 years
1992	Doebebling et al.	Adult ICU	Significant difference between rates of HCAI using two different hand hygiene agents	8 months
1994	Webster et al.	NICU	Elimination of MRSA, when combined with multiple other infection control measures. Reduction of vancomycin use. Significant reduction of nosocomial bacteraemia (from 2.6% to 1.3%) using triclosan compared to chlorhexidine for handwashing	9 months
1995	Zafar et al.	Newborn nursery	Control of a MRSA outbreak using a triclosan preparation for handwashing, in addition to other infection control measures	3.5 years
2000	Larson et al.	MCU/NICU	Significant (80%) relative reduction of VRE rate in the intervention hospital; statistically insignificant (44%) relative reduction in control hospital; no significant change in MRSA	8 months

Year	Authors	Location	Significant results	Duration
2007	Carton et al.	Neonatal unit	Reduction of overall HCAI rates (from 11 to 8.2 infections per 1000 patient-days) and 60% decrease of risk of HCAI in very low birth weight neonates (from 15.5 to 8.8 episodes/1000 patient-days).	27 months
2008	Carton et al.	1) 6 pilot hospitals 2) all public hospitals in Victoria, Australia	1) Significant reduction of MRSA bacteraemia (from 0.05/100 patient discharges to 0.02/100 patient-discharges per month) and of clinical MRSA isolates. 2) Significant reduction of MRSA bacteraemia (from 0.03/100 patient-discharges to 0.01/100 patient-discharges per month) and of clinical MRSA isolates	1) 2 years 2) 1 year
2009	Zingg et al.	Adult ICUs	CRBSI decreased from 3.9 per 1000 catheter days in the pre-intervention phase to 1.0 per 1000 catheter days in the intervention phase ($p < 0.001$). Interventions in addition to hand hygiene education included catheter care and preparation of intravenous drugs.	5 months
2010	Heider et al.	NICU	The proportion of very low birth weight infants with one or more bloodstream infections and the infection rate per 1000 patient days decreased by 18.3% ($p = 0.03$) and 22% ($p = 0.03$) respectively.	4 years
2010	Gagne et al.	Community Hospital	The rate of MRSA nosocomial infections per 1000 admissions decreased by 51%.	1 year
2010	Carton et al.	Hospital wide	51% reduction in MRSA infections.	1 year
2011	Koff et al.	ICU	VAP per 1000 ventilator days were significantly reduced from 6.9 to 3.7 ($P < .01$). The reduction in CRBSI per 1000 line days from 2.6 to 1.5 was not significant ($P = .09$).	12 months
2012	Schweon et al.	Long term care facility	Infection rates for LRTIs were reduced from 0.97 to 0.53 infections per 1,000 resident-days ($P = .01$). Infection rates for SSTIs were reduced from 0.30 to 0.25 infections per 1,000 resident-days ($P = .05$).	11 months
2012	Ho et al.	9 long term care facilities	Respiratory outbreaks (IRR, 0.12; 95% CI, 0.01-0.93) and MRSA infections requiring hospital admission (IRR, 0.61; 95% CI, 0.38-0.97) were reduced after intervention.	3 years
2012	Kirkland et al.	Hospital wide	Rate of HCAIs significantly decreased from 4.8 to 3.3 ($p < 0.01$) per 1000 inpatient days.	3 years
2012	Ling & How	Hospital wide	Healthcare-associated MRSA infections were reduced from 0.6 (2007) to 0.3 (2010) per 1000 patient-days	3 years

Why don't we achieve 100% compliance?

To busy

Shortage of conveniently located sinks

Lack of awareness/confusion of **when** do hand hygiene

Lack of perceived need to perform hand hygiene

Skin irritation

Lack of role models

Lack of priority

WHY ARE HCW CONFUSED ABOUT WHEN TO CLEAN THEIR HANDS?

Guidelines advise HCW

SARI Hand Hygiene Guidelines 2005

- When hands are visibly contaminated with dirt, soil or organic material (i) (Always wash hands when visibly contaminated)
- At the beginning and end of the work shift (ii).
- Before and after each patient contact (ii).
- After moving from a contaminated to a clean area during care of an individual patient (ii).
- After removing gloves (i).
- After handling soiled equipment, materials or environment (ii).
- Before preparing or handling food (j).
- After personal bodily functions such as blowing nose or using the lavatory (i).




10 indications for hand hygiene recommended

CDC (American) Hand Hygiene Guidelines 2002




11 indications for hand hygiene recommended

- When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with either a non-antimicrobial soap and water or an antimicrobial soap and water (IA) (66).
- If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in all other clinical situations described in items IC-J (IA) (74,93,166,169,283,294,312,398). Alternatively, wash hands with an antimicrobial soap and water in all clinical situations described in items IC-J (IB) (69,71,76).
- Decontaminate hands before having direct contact with patients (IB) (68,400).
- Decontaminate hands before donning sterile gloves when inserting a central intravascular catheter (IB) (401,402).
- Decontaminate hands before inserting indwelling urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure (IB) (25,403).
- Decontaminate hands after contact with a patient's intact skin (e.g., when taking a pulse or blood pressure, and lifting a patient) (IB) (25,45,48,68).
- Decontaminate hands after contact with body fluids or excretions, mucous membranes, nonintact skin, and wound dressings if hands are not visibly soiled (IA) (400).
- Decontaminate hands if moving from a contaminated body site to a clean-body site during patient care (II) (25,53).
- Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient (II) (46,53,54).
- Decontaminate hands after removing gloves (IB) (50,58,327).
- Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water (IB) (404-405).



WHO Hand Hygiene
Guidelines 2009 &
Irish Guidelines 2015



Before and after touching the patient

Before handling an invasive device for patient care, regardless of whether or not gloves are used

If moving from a contaminated body site to another body site during care of the same patient (

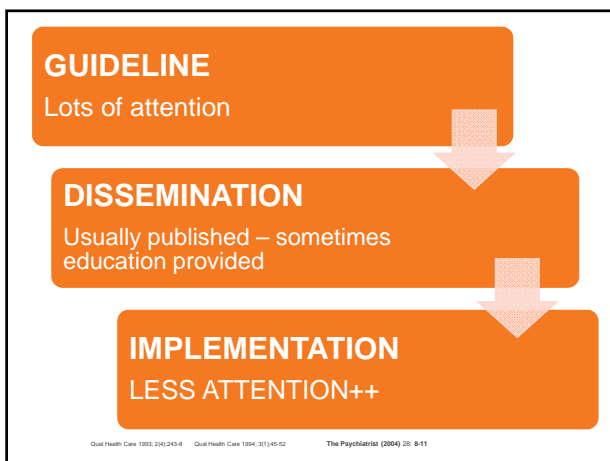
After contact with body fluids or excretions, mucous membrane, non-intact skin or wound dressing

If moving from a contaminated body site to another body site during care of the same patient (

After removing sterile or non-sterile gloves

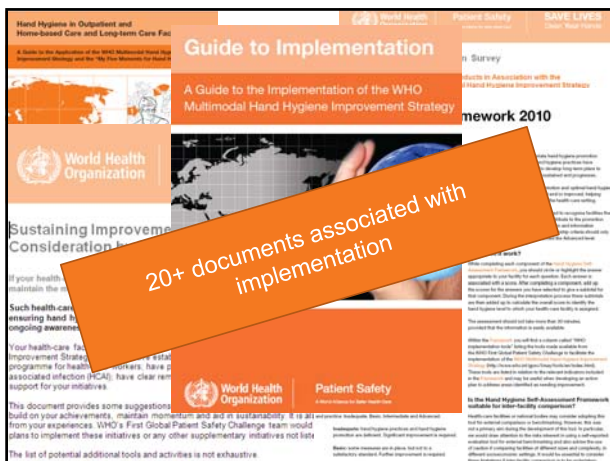
After contact with inanimate surfaces and objects (including medical equipment) in the immediate vicinity of the patient

8 indications for hand hygiene recommended



Implementing evidenced-based practice at the bedside

- Guidelines
 - Lots of attention during the development phase*
- Dissemination of the guideline
 - Usually published and some education provided*
- Implementation
 - Generally receives much less attention*



Focus on Implementation

- Utilised social marketing techniques, implementation and communication science to develop a strategy to improve compliance
- A framework for HCW to recognise when hand hygiene should be done

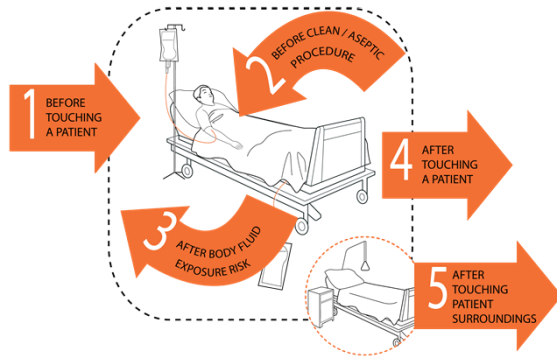
Sax *et al*, Journal of Hosp Infect 2007

WHO recommendations concentrated into 5 moments

The 5 Moments	Consensus recommendations <i>WHO Guidelines on Hand Hygiene in Health Care 2009</i>
1. Before touching a patient	D.a) before and after touching the patient (IB)
2. Before clean / aseptic procedure	D.b) before handling an invasive device for patient care, regardless of whether or not gloves are used (IB) D.d) if moving from a contaminated body site to another body site during care of the same patient (IB)
3. After body fluid exposure risk	D.c) after contact with body fluids or excretions, mucous membrane, non-intact skin or wound dressing (IA) D.d) if moving from a contaminated body site to another body site during care of the same patient (IB) D.f) after removing sterile (II) or non-sterile gloves (IB)
4. After touching a patient	D.a) before and after touching the patient (IB) D.f) after removing sterile (II) or non-sterile gloves (IB)
5. After touching patient surroundings	D.e) after contact with inanimate surfaces and objects (including medical equipment) in the immediate vicinity of the patient (IB) D.f) after removing sterile gloves (II) or non-sterile gloves (IB)

Table of correspondence between the indications and the WHO recommendations

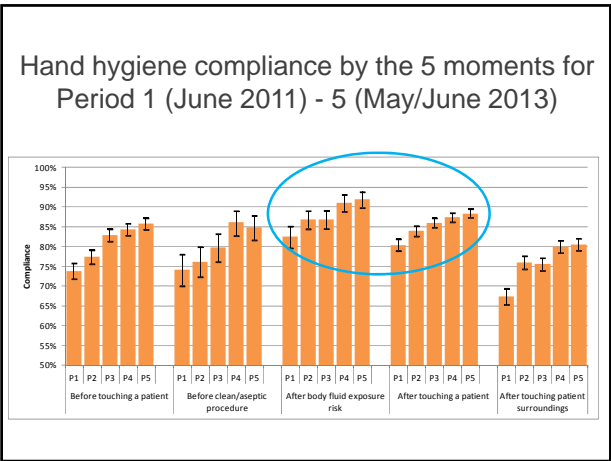
5 Moments for Hand Hygiene



LACK OF PERCEIVED NEED TO PERFORM HAND HYGIENE

- HCW generally clean their hands when their hands are sticky/dirty or after using the bathroom
 - *Usually opt for hand washing and is a habit taught at home*
 - *Self protection is the primary motivating factor for deciding to clean hands*
- Hand hygiene indications (e.g., before a clean or aseptic procedure) unique to healthcare are not triggered by habit so HCWs need to be educated to improve compliance

Hand hygiene compliance by the 5 moments for Period 1 (June 2011) - 5 (May/June 2013)



**SOAP & WATER OR ALCOHOL
HAND RUB (AHR)?**

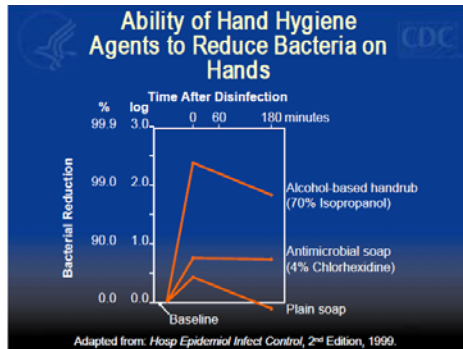
The diagram illustrates the efficacy of different hand hygiene preparations in killing bacteria, presented on a blue background with a CDC logo in the top right corner. A large, light blue double-headed arrow spans the width of the diagram, with three labels positioned above it: "Good" on the left, "Better" in the center, and "Best" on the right. Below the arrow, three categories of hand hygiene preparations are listed, corresponding to the levels of efficacy:

- Good:** Plain Soap
- Better:** Antimicrobial soap
- Best:** Alcohol-based handrub

Source: CDC: Hand Hygiene

Source: CDC: Hand Hygiene

Use of alcohol hand rub



Source: CDC: Hand Hygiene

- AHR should always be selected for cleaning hands except when:
 - Hands are visibly dirty
 - After caring for a patient with *Clostridium difficile* (or diarrhoea)

GLOVES AND HAND HYGIENE

- Gloves provide staff with protection therefore removing the main motivating factor for hand hygiene
- Gloves have been described as the enemy of hand hygiene
- Multiple studies have found that wearing gloves reduces compliance with hand hygiene

Gloves do not replace hand hygiene

**HSELAND E-LEARNING
PROGRAMME**

- Developed by the Dublin North East HCAI/AMR Committee in 2013
- A subcommittee was established which included IPCNs, practice development staff and trainers
- Piloted in a range of facilities and changes made
- 2 programmes
 - *Clinical and non-clinical*
 - *Both contain the same information but non-clinical contains plain English rather than medical terms*
- Currently a group is updating the programme



- E-learning has advantages/disadvantages but should not be used as the only method to educate staff
 - *Unable to answer queries*
 - *Does not provide an opportunity to review technique*
 - *Staff need access to the internet and be computer literate*
 - *However it provides an option for education when staff cannot attend workshops/lectures*

Key take home messages

- Hand hygiene reduces healthcare-associated infection
- AHR is better than soap and water with two exceptions
- Gloves do not replace hand hygiene
- Despite alot of education HCWs are confused about when to undertake hand hygiene
 - *Be a hand hygiene champion on your return!*
