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

The golden rules for hand hygiene best practices

Benedetta Allegranzi
Internal Lead
Clean Care is Safer Care
WHO Patient Safety

ESCMID/WHO WCC/GINERB-SIMIT Workshop
Rome, 30 November-2 December 2011

The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission

Hand transmission

- Hands are the most common vehicle

- Skin microbial flora
  - Resident flora – long term, *S epidermidis and others*
  - Transient flora

    Short term – minutes-hrs-days-wks

    Bacteria - S aureus (10-78%), VRE, GNB, C difficile

    Fungi- yeasts

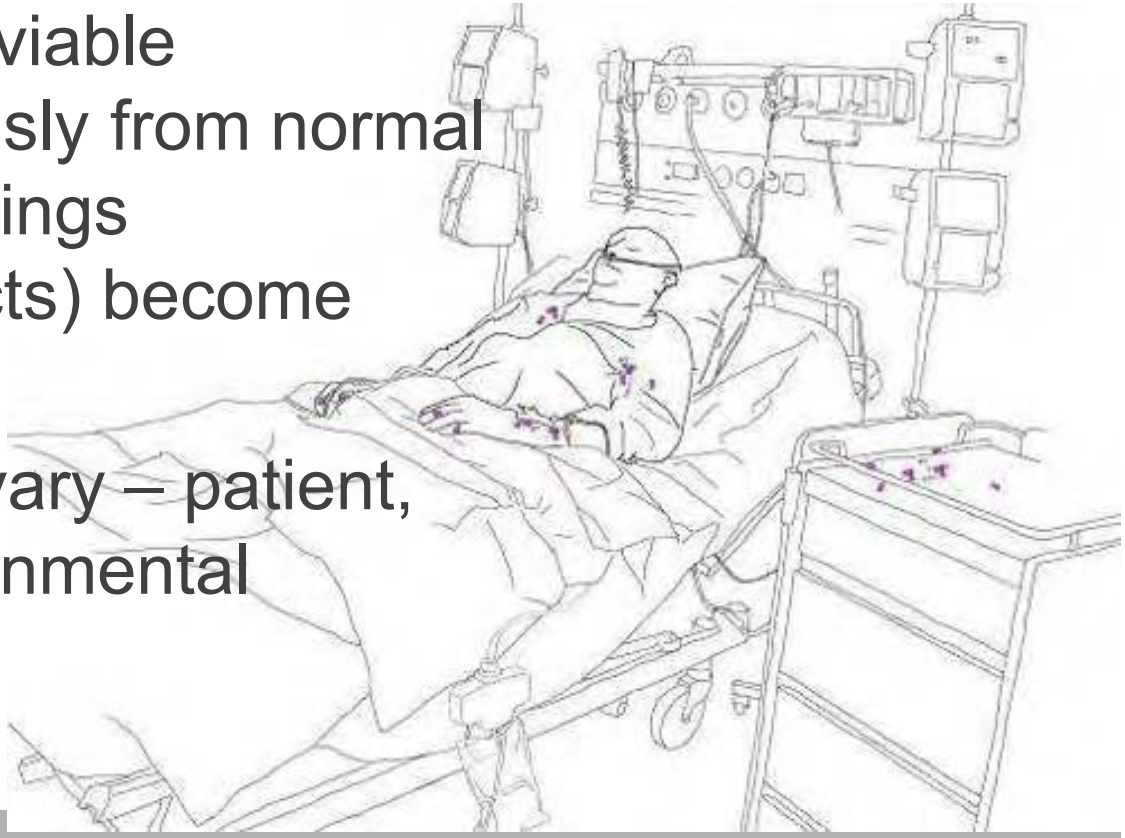
    Viruses,-rotavirus, rhinovirus, HCV

- Transmission requires **5 sequential steps**

Step 1:
Germs are present on patient skin and surfaces surrounding the patient

- Germs present on intact skin

- Skin squames containing viable germs are shed continuously from normal skin - immediate surroundings (bed linen, furniture, objects) become contaminated
- Pathogen and count can vary – patient, microorganism and environmental characteristics



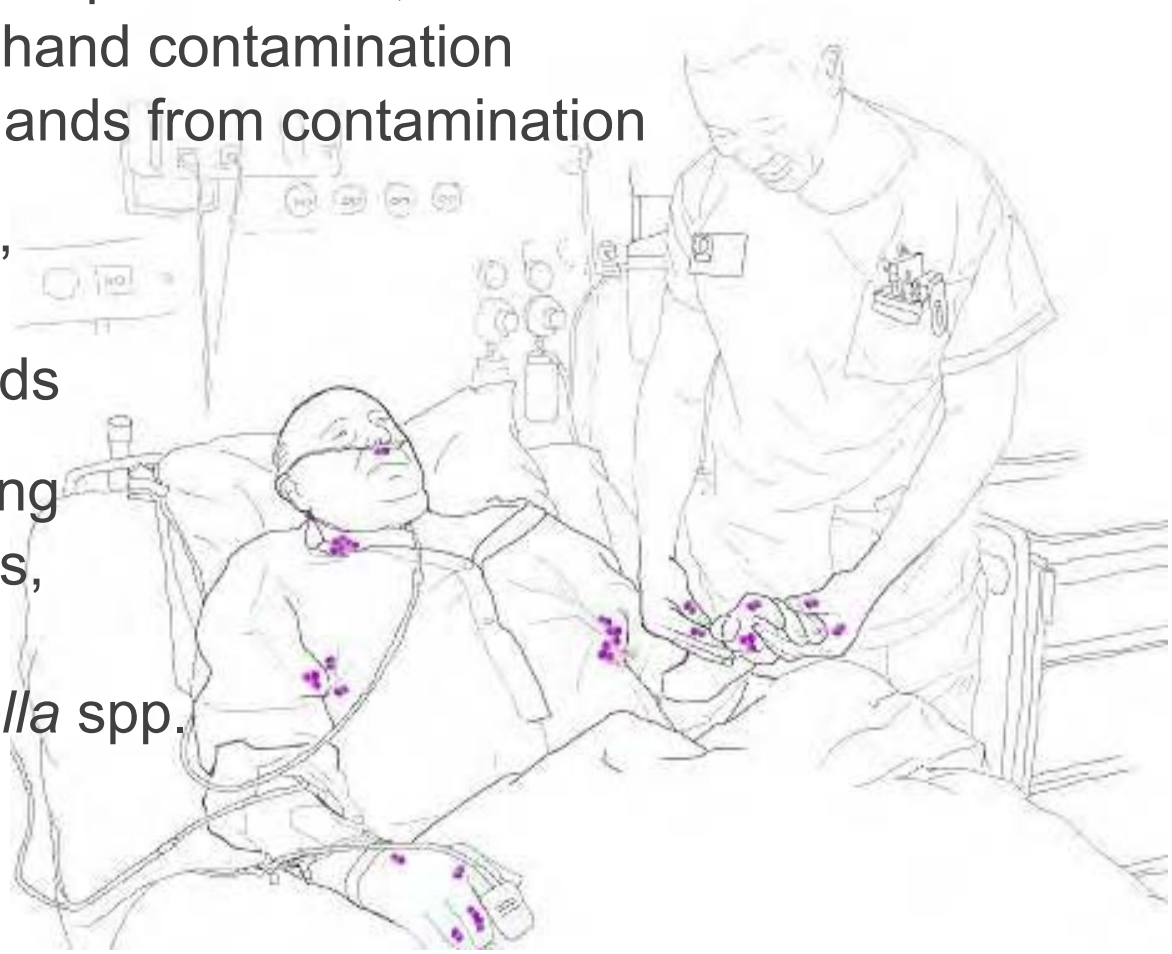
Pittet D et al. *The Lancet Infect Dis* 2006

Step 2:
Patient germs contaminate HCW hands by direct and indirect contact

- Risk varies – type and duration of patient care, location etc
- Glove contamination similar to hand contamination
- Gloving does not fully protect hands from contamination

- In a general health-care facility, 29% nurses carried *S. aureus* and 17–30% GNB on their hands

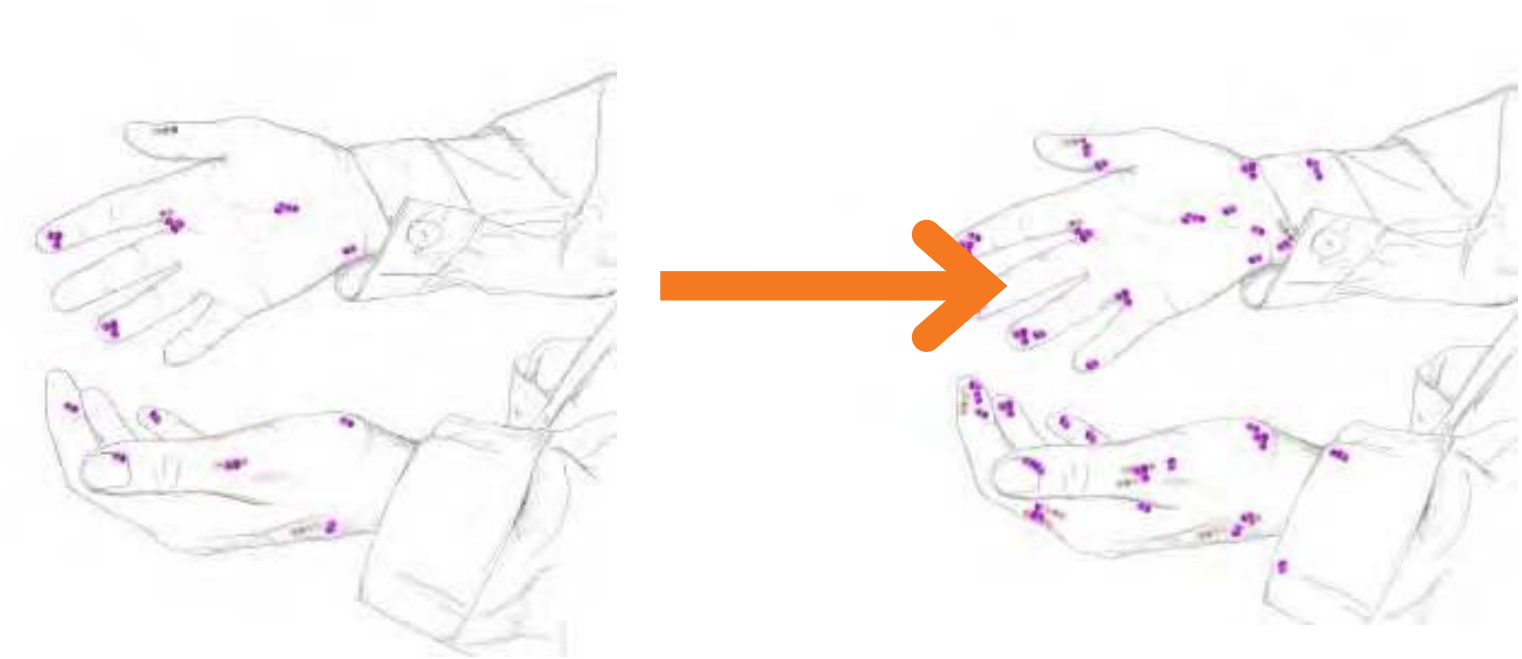
- Hands contaminated even during "Clean" activities (lifting patients, taking the patient's pulse etc), e.g. 100–1,000 CFU of *Klebsiella* spp.



Pittet D et al. *The Lancet Infect Dis* 2006

Step 3:
Germs survive and multiply on health-care workers' hands

- Germs can survive on hands for differing lengths of time
- The duration depends on several factors including the pathogen, humidity, skin area etc



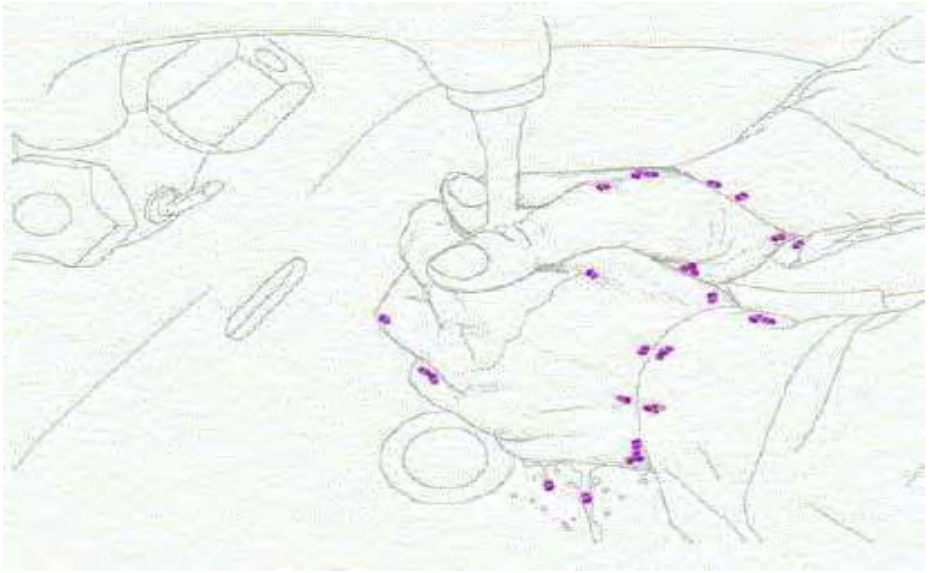
Pittet D et al. *The Lancet Infect Dis* 2006

Length of survival of organism

Pathogen	Length of survival of organism
Influenza virus	24-48 hours on nonporous surfaces
Parainfluenza virus	10 hours on nonporous surfaces; 6 h on clothing
SARS-associated coronavirus	24-72 hours on fomites and in stool samples
Noroviruses	≤14 days in stool samples; ≤12 days on carpets
Hepatitis B virus	7 days
Clostridium difficile	5 months on hospital floors
Pseudomonas aeruginosa	7 hours on glass slide
Acinetobacter baumannii	33 days on plastic laminate surfaces
MRSA	≤ 9 weeks after drying; 2 days on plastic laminate surfaces
VRE	≤58 days on countertops

Step 4:
Defective hand cleansing results in hands remaining contaminated

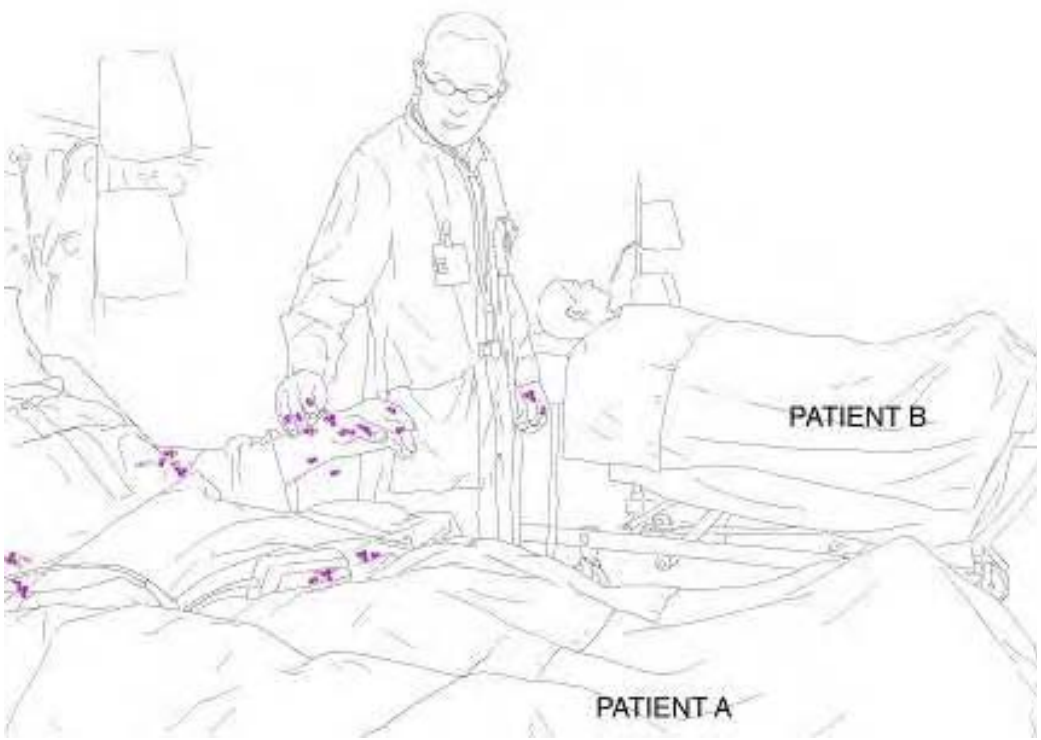
- Insufficient amount of product and/or insufficient duration of hand hygiene action lead to poor hand decontamination
- Transient flora are still recovered on hands following handwashing with soap and water, whereas handrubbing with an alcohol-based solution has been proven significantly more effective

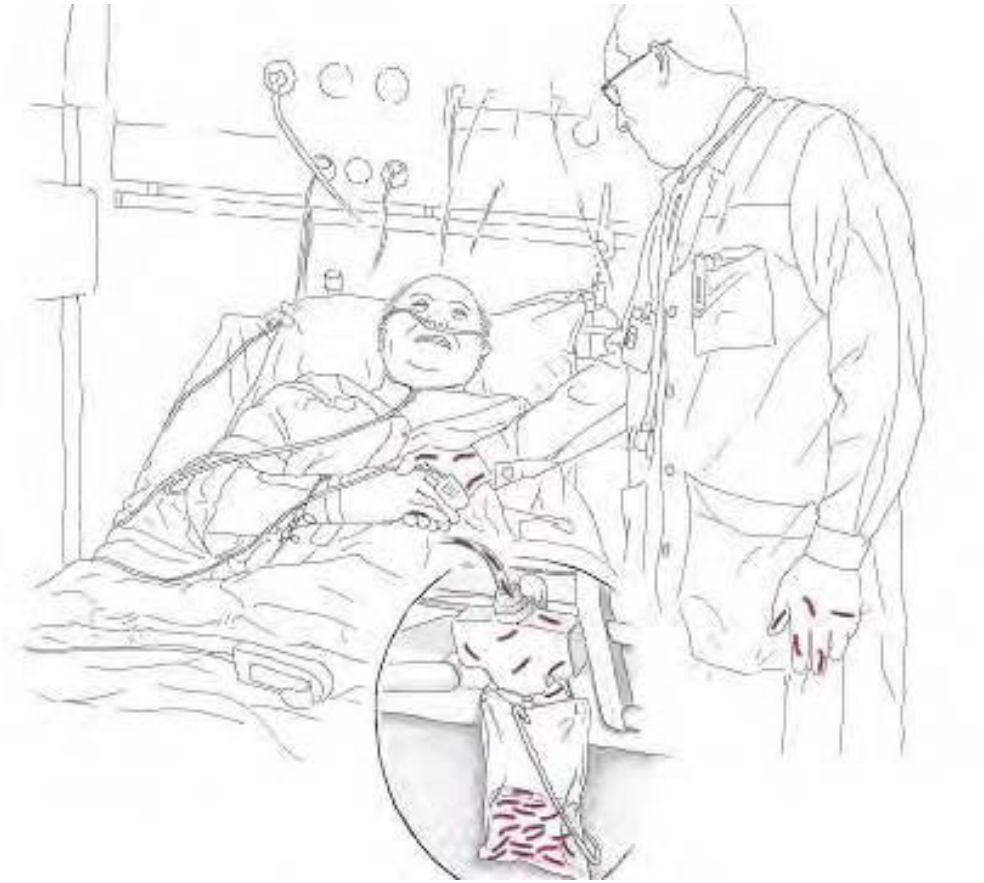


Pittet D et al. *The Lancet Infect Dis* 2006

Step 5:
Germ cross-transmission between patient A and patient B, devices and environment via hands

Transmissibility depends on type of surface, inoculum load, moisture level of surface, microorganism etc





Pittet D et al. *The Lancet Infect Dis* 2006


If health care associated bugs looked like this - compliance with hand hygiene would be 100%!!!

The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!

Hand hygiene compliance is a problem !

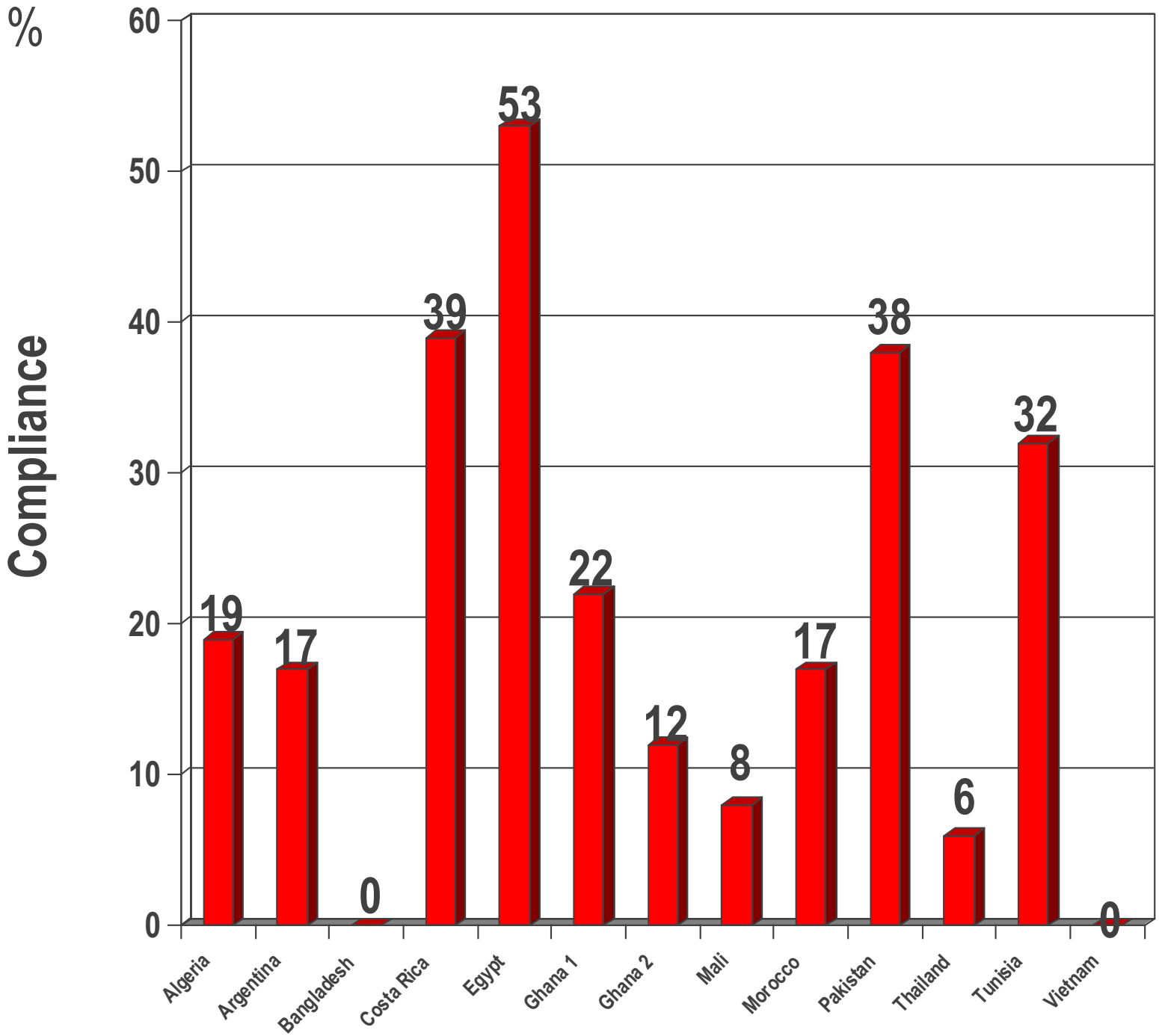
Compliance with hand hygiene in different health-care facilities - Worldwide

Author	Year	Sector	Compliance (%)
Preston	1981	General Wards	16
		ICU	30
Albert	1981	ICU	41
		ICU	28
Larson	1983	Hospital-wide	45
Donowitz	1987	Neonatal ICU	3[illegible]
Graham	1990	ICU	32
Dubbert	1990	ICU	81
Pettinger	1991	Surgical ICU	51
Larson	1992	Neonatal Unit	29
Doebbeling	1992	ICU	40
Zimakoff	1993	ICU	40
Meengs	1994	Emergency Room	32
Pittet	1999	Hospital-wide	48

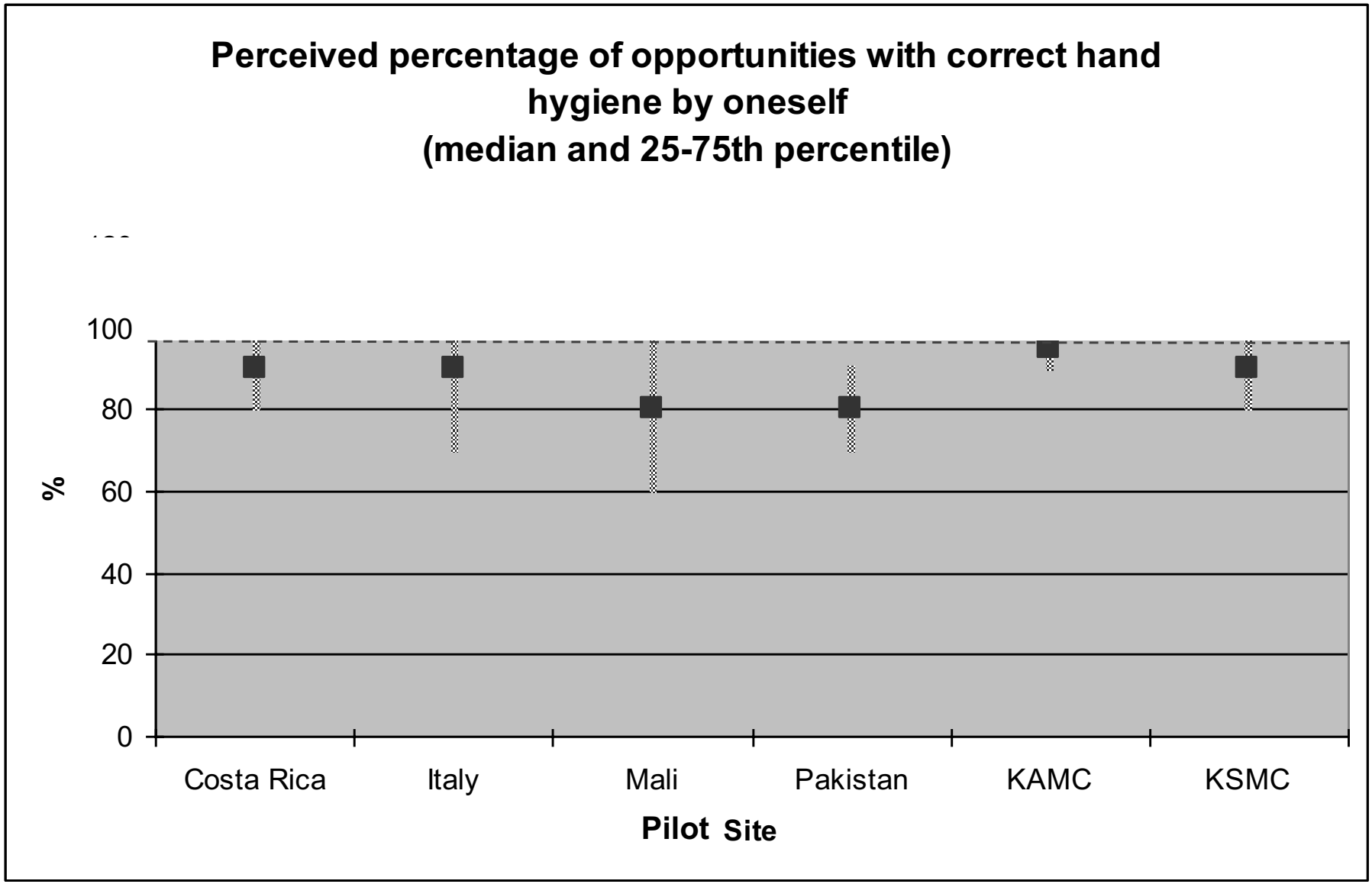
Average: 38.7%

WHO Guidelines on Hand Hygiene in Health Care 2009, Chapter 16

Hand hygiene compliance in low income countries

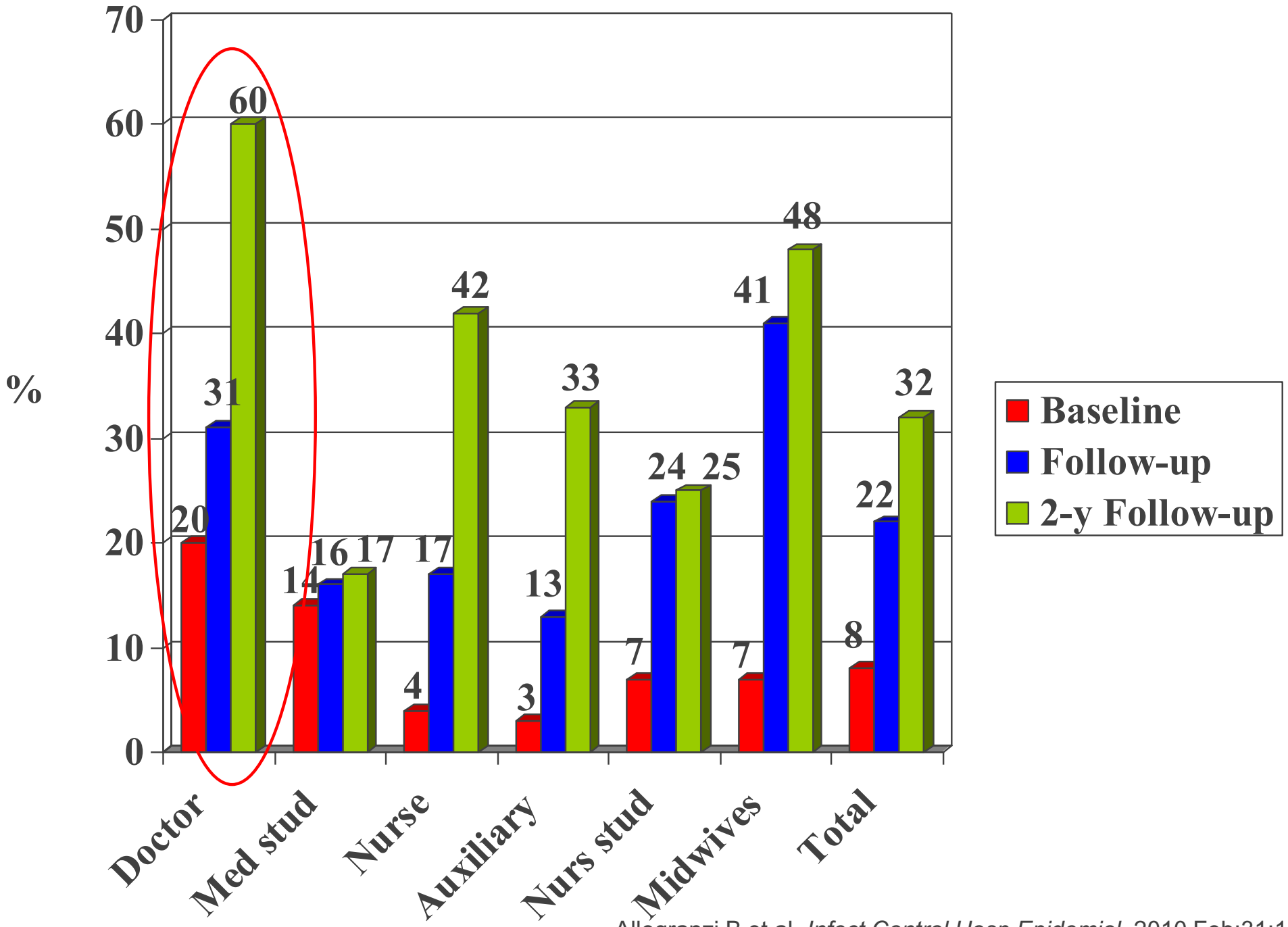


Perceived hand hygiene compliance among health-care workers (2137 respondents)



Allegranzi B et al. ECCMID 2010

Impact on hand hygiene practices in Mali



Allegranzi B et al. *Infect Control Hosp Epidemiol*. 2010 Feb;31:133-41

Self-reported factors for poor adherence with hand hygiene

- Often too busy/insufficient time
- Hand hygiene interferes with HCW-patient relation
- Low risk of acquiring infection from patients
- Lack of role model from colleagues or superiors
- Not thinking about it/forgetfulness
- Scepticism about the value of hand hygiene
- Disagreement with the recommendations
- Lack of scientific information of definitive impact of improved hand hygiene on HAI
- Skin irritation, glove use

WHO Guidelines on Hand Hygiene in Health Care 2009

The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!
  - because it's your duty!

Balancing “No Blame” with Accountability in Patient Safety

"Many health care organizations have recognized that a uni-dimensional focus on creating a blame-free culture carries its own safety risks… Therefore the **need to create accountability for failure to follow gold-standard practices** has been identified…

Robert M. Wachter and Peter J. Pronovost. NEJM 2009

2006 Annual Report of The Chief Medical Officer

On the State of Public Health

Department of Health

Dirty hands... the human cost

MAIN FEATURES

Healthcare-Associated Infection
Organ Transplants
Radiotherapy
Intrapartum-Related Deaths
Women in Medicine

Addressing some of the "barriers.."

The Joint Commission Journal on Quality and Patient Safety

Infection Prevention and Control

How Active Resisters and Organizational Constipators Affect Health Care–Acquired Infection Prevention Efforts

Sanjay Saint, M.D., M.P.H.; Christine P. Kowalski, M.P.H.; Jane Banaszak-Holl, Ph.D.; Jane Forman, Sc.D., M.H.S.; Laura Damschroder, M.S., M.P.H.; Sarah L. Krein, Ph.D., R.N.

Health care–associated infection (HAI) is a common and costly patient safety problem.[1–4] The Centers for Disease Control and Prevention (CDC) estimates that HAI leads to approximately 99,000 deaths per year in hospitals in the United States and an annual attributable cost of $6.7 billion.[5] Given the potential for prevention, the Centers for Medicare & Medicaid Services (CMS) will no longer reimburse hospitals for the extra cost of caring for patients who develop certain infections during hospitalization, such as infection due to either urinary or vascular catheter use.[6]

Catheter-associated urinary tract infection (CAUTI), central venous catheter–related bloodstream infection (CRBSI), and ventilator-associated pneumonia (VAP) are the most common device-associated infections. Given the clinical and economic consequences of HAI, various evidence-based guidelines and recommendations are available to hospitals and clinicians.[7–10] Yet, the existence and subsequent dissemination of evidence-based recommendations are insufficient to ensure that current hospital practice reflect scientific evidence.[11–20]

The study reported in this article was part of a national, multicenter, sequential study,[21] in which the first phase was a quantitative survey to identify what hospitals are doing to prevent device-related infections in hospitalized patients.[22–25] In May 2005 we sent a survey to the lead infection control professional (ICP) at more than 700 hospitals across the United States, including all Veterans Affairs (VA) medical centers and

Article-at-a-Glance

Background: As of October 2008, hospitals in the United States no longer receive Medicare reimbursement for certain types of health care–associated infection (HAI), thereby heightening the need for effective prevention efforts. The mere existence of evidence-based practices, however, does not always result in the use of such practices because of the complexities inherent in translating evidence into practice. A qualitative study was conducted to determine the barriers to implementing evidence-based practices to prevent HAI, with a specific focus on the role played by hospital personnel.

Methods: In-depth phone and in-person interviews were conducted between October 2006 and September 2007 with 86 participants (31 physicians) including chief executive officers, chiefs of staff, hospital epidemiologists, infection control professionals, intensive care unit directors, nurse managers, and frontline physicians and nurses, in 14 hospitals.

Findings: Active resistance to evidence-based practice change was pervasive. Successful efforts to overcome active resisters included benchmarking infection rates, identifying effective champions, and participating in collaborative efforts. Organizational constipators—mid- to high-level executives who act as insidious barriers to change—also increased the difficulty in implementing change. Recognizing the presence of constipators is often the first step in addressing the problem but

Saint S et al. Jt Comm J Qual Patient Saf. 2009;35:239-46

The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!
  - because it's your duty!
- Promote it through a multimodal strategy!

Impact of hand hygiene promotion on HAI

- 1977- Feb 2011, 30 studies investigated the impact of hand hygiene (as a single intervention) to reduce HAI
- 27 showed that behavioural change, illustrated by improved hand hygiene compliance, leads to the reduction of HAI, particularly BSI and SSI
- Only 3/30 studies showed no significant impact on HAI but in 2 hand hygiene compliance did not increase significantly
- An increasing number of studies have investigated the correlation between alcohol-based handrub consumption and HCAI rates

- B. Allegranzi & D. Pittet. JHI 2009;73:305-15
- B. Allegranzi & D. Pittet. Hand hygiene. In: Principles and Practice of Disinfection, Preservation and Sterilization. Wiley-Blackwell
- B. Allegranzi & D. Pittet. Hand hygiene improvement. In: Hospital Infection Control. Decision Support in Medicine, LLC

Impact of hand hygiene (HH) promotion on MRSA infections

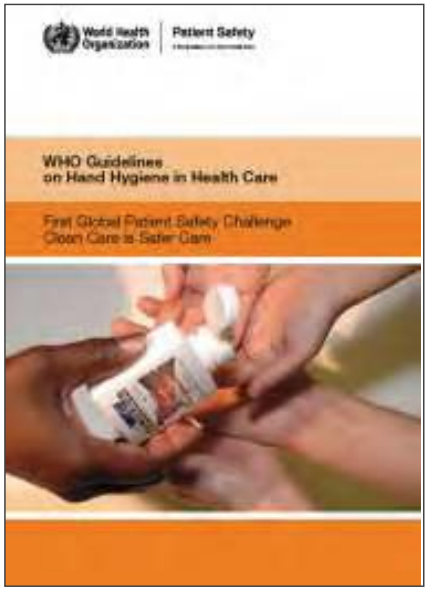
Year	Authors	Setting	Intervention	HH compliance	Impact on MRSA infection
2000	Larson E et al	MICU/NICU	Multiple components intervention - organizational culture change	NA	No significant change in MRSA
2000	Pittet D et al	Hospital-wide	Alcohol-based HR, HH obs ation, training, performance feedback, pe	From 48% to 66%	Significant reduction annual prevalence of HAI (42%) and MRSA cross-transmission rates (87%).
2004	MacDonald A et al	Hospital-wide	Alcohol-based HR, HH bser posters, performance feedb nal discussions	NS increase of HH compliance	Significant reduction in MRSA cases (from 1.9% to 0.9%)
2005	Johnson et al	Hospital-wide	Alcohol-based HR, H ation, training, posters, promo dgets	From 21% to 42%	Significant reduction (57%) in MRSA bacteremia
2008	Grayson ML et al	1) 6 pilot hospitals 2) all public hospitals in Victoria (Australia)	Alcohol-based HR on, HH observation, sters, pr ets	1) From 21% to 48% 2) From 20% to 53%	Significant reduction of MRSA bacteraemia and of clinical MRSA isolates
2008	Cromer AL et al	Hospital-wide	Direct HR n, feedback	From 72.5% to 90.3%*	Significant reduction in MRSA from 0.85 to 0.52 per 1000 patient-days
2009	Lederer JW et al	Hospital-wide, seven acute care facilities	Educati observation and perform ack, posters, memos and communications, visitor al marketing campaign	From 49% to 98% with sustained rates >90%	Significant reduction of MRSA rates from 0.52 episodes per 1000 pt-days to 0.24 per 1000 pt-days
2009	McLaws et al	Hospital-wide in 208 public hospitals (statewide)	Alc ased HR introduction, HH obser ion, training, performance feedback, posters	From 47% to 61%	Significant reduction of 6% of overall MRSA infections/10,000 patient-days. 16% reductions in MRSA infection in non-sterile sites in ICU and 25% in sterile sites in non-ICU wards
2010	Cheng VCC et al	Adult ICU	Alcohol-based HR introduction, briefing and discussion sessions, posters, HH observation	From 29% to 64%	Significant reduction of incidence density of ICU onset bacteraemic and non bacteraemic MRSA infection

Multimodal

Implementation strategy and toolkit for the WHO Guidelines on Hand Hygiene in Health Care

Knowledge & evidence

Action



What is the WHO Multimodal Hand Hygiene Improvement Strategy?

Based on the evidence and recommendations from the WHO Guidelines on Hand Hygiene in Health Care (2009), made up of **5 core components,** to improve hand hygiene in health-care settings

ONE System change
Alcohol-based handrubs at point of care and access to safe continuous water supply, soap and towels

+

TWO Training and education
Providing regular training to all health-care workers

+

THREE Evaluation and feedback
Monitoring hand hygiene practices, infrastructure, perceptions, & knowledge, while providing results feedback to health-care workers

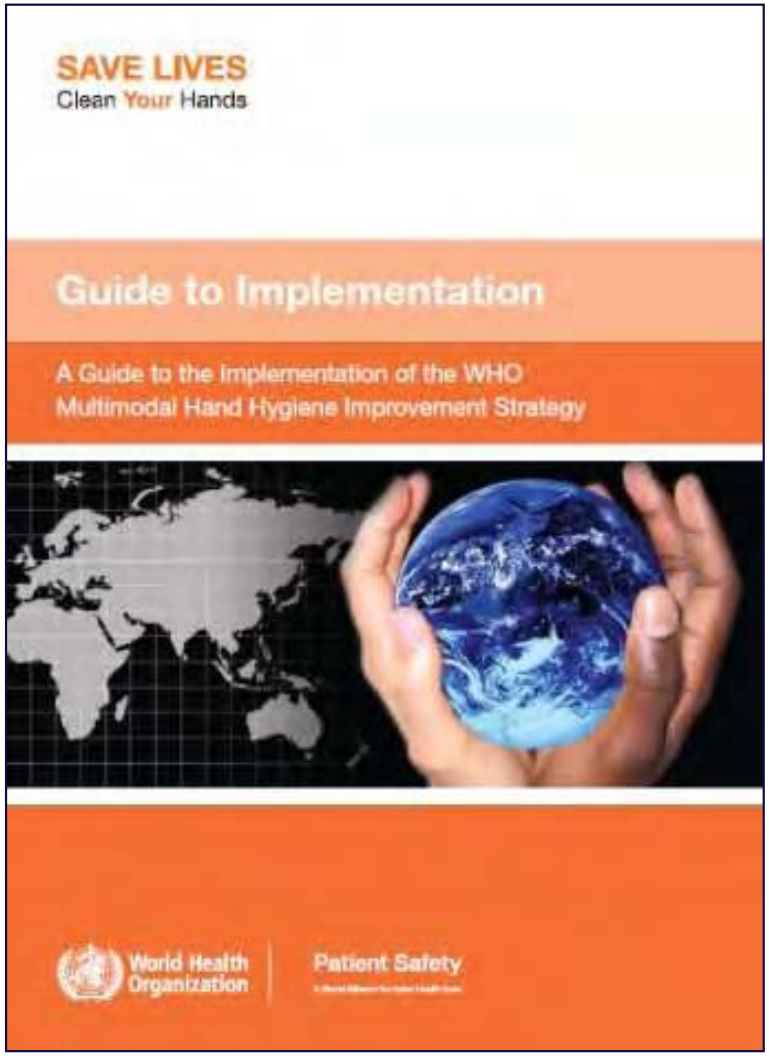
+

FOUR Reminders in the workplace
Prompting and reminding health-care workers

+

FIVE Institutional safety climate
Individual active participation, institutional support, patient participation

Guide to Implementation & tools to translate Guidelines into practice….



Available at http://www.who.int/gpsc/5may/tools/en/index.html

Implementation tools: For System change

- Ward Infrastructure Survey
- Alcohol-based Handrub Planning and Costing Tool

1 System change:
actions aimed at ensuring that the necessary equipment and facilities for hand hygiene are in place.

Alcohol-based handrubs at point of care and access to safe continuous water supply, soap and towels

- Protocol for Evaluation and Comparison of Tolerability and Acceptability of Different Alcohol-based Handrubs: Method 2

Examples of hand hygiene products easily accessible at the point-of-care

Implementation tools for Training / Education

- Slides for the Hand Hygiene Co-ordinator
- Slides for Education Sessions for Trainers, Observers and
- Sustaining Improvement – Additional Activities for Consideration by Health-Care Facilities

2

Training and education

Providing regular training to all health-care workers

The importance of education within hand hygiene promotion strategies (1975- June 2008)

- Staff education represents one of the cornerstones for improvement of hand hygiene practices
- 21/39 identified risk factors for poor hand hygiene or perceived obstacles could be addressed through better education
- 29/51 major studies to assess the effect of hand hygiene promotion included an education component
- Education was a core component of hand hygiene promotion in 17/18 national/sub-national campaigns in 2007
- However, educational programmes alone are inadequate for long-lasting improvement and they must be sustained (continuous training)

WHO Guidelines on Hand Hygiene in Health Care 2009

Suggested methods to achieve education goals *(WHO Guide to Implementation)*

- Regular presentations, including induction of new staff
- e-learning/self-learning modules
- Posters
- Focus groups
- Reflective discussion
- Videos/practical demonstrations
- Feedback from assessment
- Buddy systems

The NEW ENGLAND JOURNAL of MEDICINE

VIDEOS IN CLINICAL MEDICINE

Hand Hygiene

Yves Longtin, M.D., Hugo Sax, M.D., Benedetta Allegranzi, M.D.,
Franck Schneider, and Didier Pittet, M.D.

N Engl J Med 2011;364:e24.

Implementation tools for Evaluation and feedback

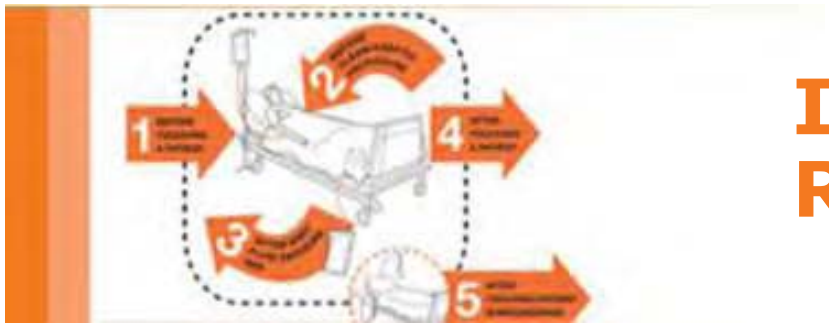
- Hand Hygiene Technical Reference Manual
- Observation Form and Compliance Calculation

3 Evaluation and feedback

Monitoring hand hygiene practices, infrastructure, perceptions & knowledge

Providing results feedback to health-care workers

- Hand Hygiene Knowledge Questionnaire for Health-Care Workers



Implementation tools for Reminders in the workplace

- Your 5 Moments for Hand Hygiene Poster
- H
- H
- H
- S

4

Reminders in the workplace

Prompting and reminding health-care workers

SAVE LIVES
Clean Your Hands

Adoption and adaptation of Clean Care is Safer Care worldwide

American Journal of Infection Control xxx (2011) 1-4

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major article

Effectiveness of an audible reminder on hand hygiene adherence

Morkos Fakhry MBBS, PhD [a], George B. Hanna PhD, FRCS [a,*], Oliver Anderson BSc, MRCS [a], Alison Holmes MD, MPH, FRCP [b], Dinesh Nathwani FRCS [a]

Implementation tools for Institutional safety climate

- Template Letter to Advocate Hand Hygiene to Managers
- Tem… …ne Initi…
- Gui… Org…
- Sustaining Improvement – Additional Activities for Consideration by Health-Care Facilities
- **SAVE LIVES: Clean Your Hands** Promotional DVD

5 **Institutional safety climate**
Individual active participation,
institutional support,
patient participation

Commitment of ministerial and hospital authorities (Mali)

World Organi

Sustaining Improvement – Additional Activities for Consideration by Health-Care Facilities

- E-learning tools
- Symposia, lectures, debates
- Presentation / publication of your facility's data on documented improvements in HCAI
- Discussion papers on hand hygiene
- Patient involvement and empowerment
- Sharing experience: internal/external
- Personal accountability for health-care workers
- Rewards for compliance

Patient involvement and empowerment

Patient Participation: Current Knowledge and Applicability to Patient Safety

YVES LONGTIN, MD; HUGO SAX, MD; LUCIAN L. LEAPE, MD; SUSAN E. SHERIDAN, MBA; LIAM DONALDSON, MD; AND DIDIER PITTET, MD, MS

Mayo Clin Proc. • *January 2010;85(1):53-62*

Patient Empowerment and Multimodal Hand Hygiene Promotion: A Win-Win Strategy

Maryanne McGuckin, Dr ScED,[1,2] Julie Storr, BN, MBA,[3,4] Yves Longtin, MD,[5] Benedetta Allegranzi, MD,[4] and Didier Pittet, MD, MS[4,5]

American Journal of Medical Quality
XX(X) 1-8

DOI: 10.1177/1062860610373138
http://ajmq.sagepub.com
SAGE

Patients' Beliefs and Perceptions of Their Participation to Increase Healthcare Worker Compliance With Hand Hygiene

Yves Longtin, MD; Hugo Sax, MD; Benedetta Allegranzi, MD; Stéphane Hugonnet, MD; Didier Pittet, MD, MS

BACKGROUND. Research suggests that patients could improve healthcare workers' compliance with hand hygiene recommendations by reminding them to cleanse their hands.

OBJECTIVE. To assess patients' perceptions of a patient-participation program to improve healthcare workers' compliance with hand hygiene.

DESIGN. Cross-sectional survey of patient knowledge and perceptions of healthcare-associated infections, hand hygiene, and patient participation, defined as the active involvement of patients in various aspects of their health care.

SETTING. Large Swiss teaching hospital.

RESULTS. Of 194 patients who participated, most responded that they would not feel comfortable asking a nurse (148 respondents [76%]) or a physician (150 [77%]) to perform hand hygiene, and 57 (29%) believed that this would help prevent healthcare-associated infections. In contrast, an explicit invitation from a healthcare worker to ask about hand hygiene doubled the intention to ask a nurse (from 34% to 83% of respondents; $P < .001$) and to ask a physician (from 30% to 78%; $P < .001$). In multivariate analysis, being nonreligious, having an expansive personality, being concerned about healthcare-associated infections, and believing that patient participation would prevent healthcare-associated infections were associated with the intention to ask a nurse or a physician to perform hand hygiene ($P < .05$). Being of Jewish, Eastern Orthodox, or Buddhist faith was associated also with increased intention to ask a nurse ($P < .05$), compared with being of Christian faith.

CONCLUSIONS. This study identifies several sociodemographic characteristics associated with the intention to ask nurses and physicians about hand hygiene and underscores the importance of a direct invitation from healthcare workers to increase patient participation and foster patient empowerment. These findings could guide the development of future hand hygiene–promotion strategies.

Infect Control Hosp Epidemiol 2009; 30:000-000

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

Guidance on Engaging Patients and Patient Organizations in Hand Hygiene Initiatives

The WHO Guidelines on Hand Hygiene in Health Care (2009) encourage partnerships between patients, their families, and health-care workers to promote hand hygiene in health-care settings. Positive engagement with patients and patient organizations in the pursuit of improving hand hygiene compliance by health-care workers has the potential to strengthen infection prevention and control globally and reduce the harm to patients caused by health care-associated infection. Performing correct hand hygiene in view of the patient can promote patient confidence.

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

The golden rules for hand hygiene best practices

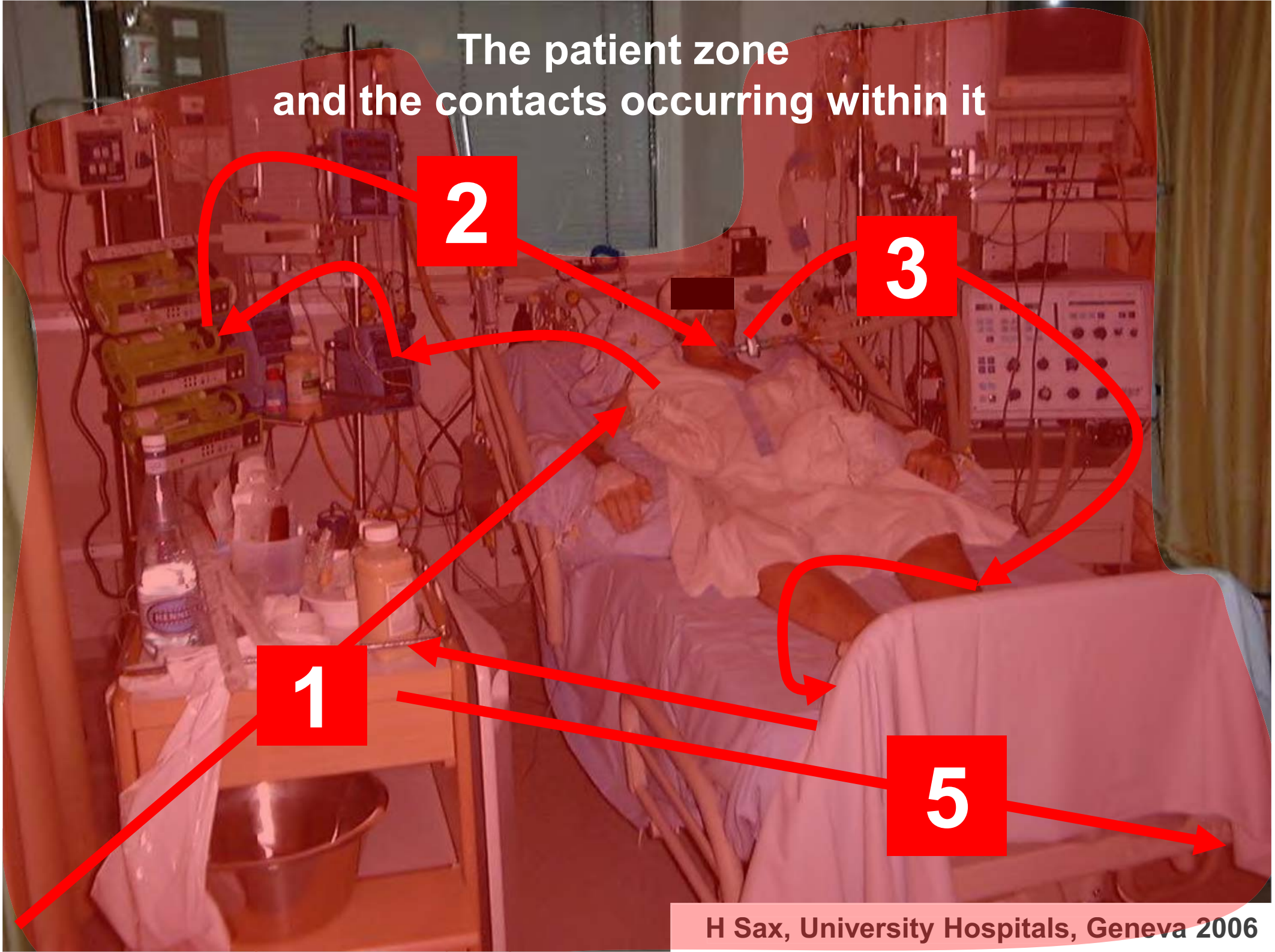
- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!
  - because it's your duty!
- Promote it through a multimodal strategy!
- Do it at the right time!

The “My 5 Moments for Hand Hygiene” approach

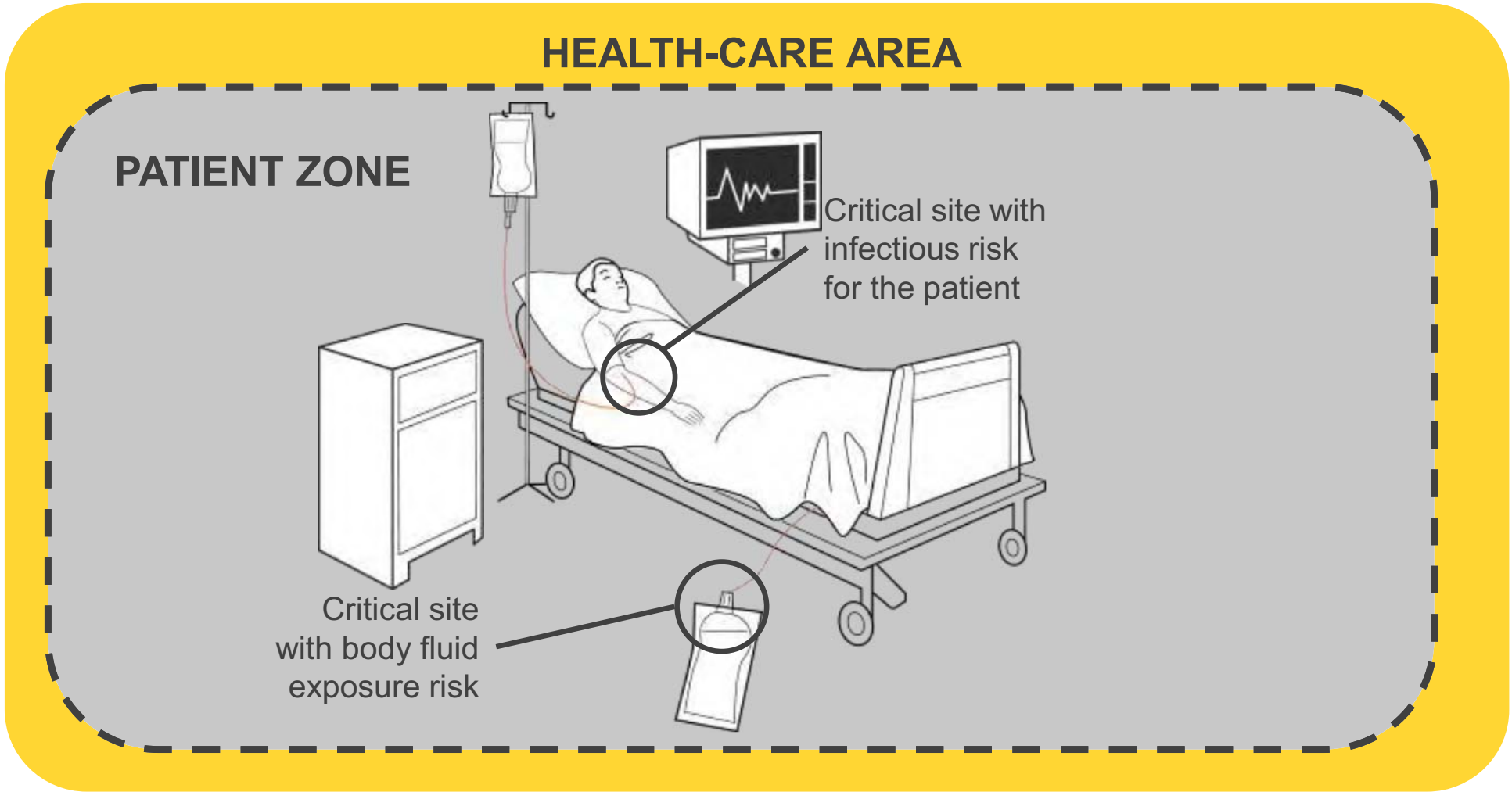
Proposes a unified vision:

- for trainers, observers and health-care workers
- to facilitate education
- to minimize inter-individual variation
- to increase adherence

Sax H et al. *Journal Hospital Infection* 2007


The patient zone
and the contacts occurring within it
2
3
1
5
H Sax, University Hospitals, Geneva 2006

The geographical conceptualization of the transmission risk



Patient zone and health-care area

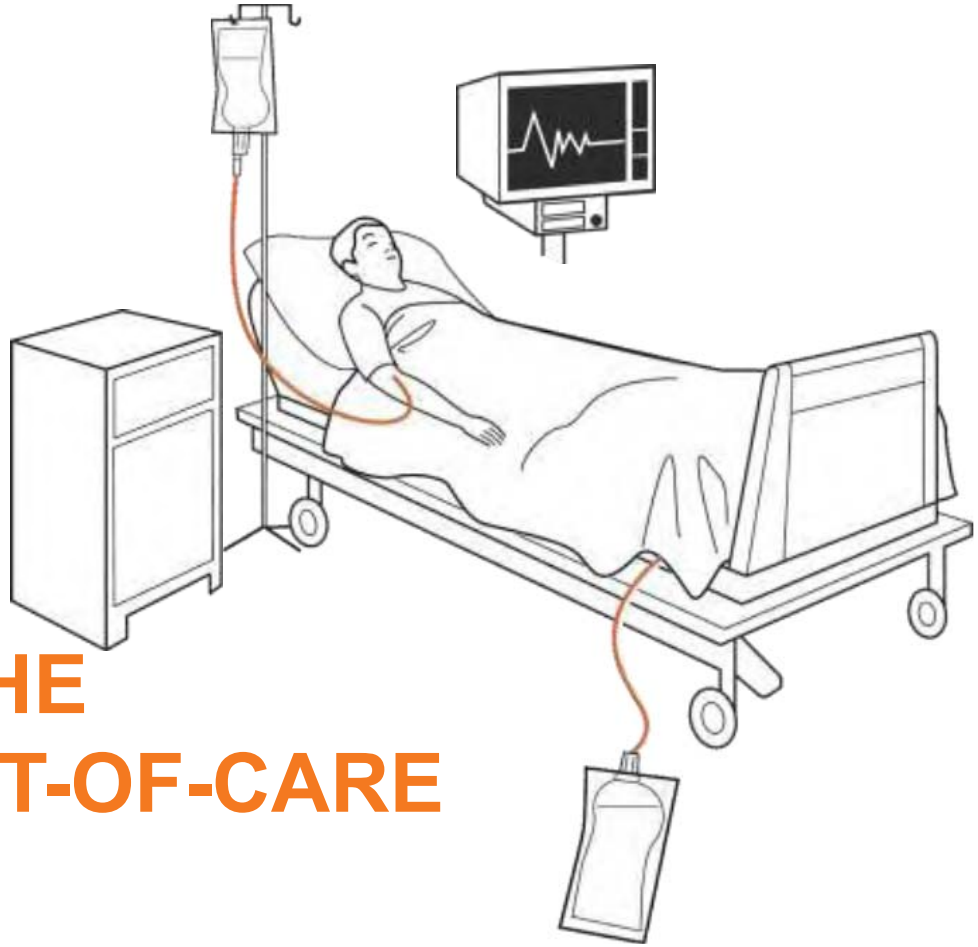
- Focusing on a single patient, the health-care setting is divided into two virtual geographical areas, the **patient zone** and the **health-care area.**

- **Patient zone**: it includes the patient and some surfaces and items that are temporarily and exclusively dedicated to him or her such as all inanimate surfaces that are touched by or in direct physical contact with the patient (e.g. bed rails, bedside table, bed linen, chairs, infusion tubing, monitors, knobs and buttons, and other medical equipment).

Health-care area

- **Health-care area**: it contains all surfaces in the health-care setting outside the patient zone of patient X. It includes: other patients and their patient zones and the wider health-care facility environment. The health-care area is characterized by the presence of various and numerous microbial species, including multi-resistant germs.

OPTIMAL HAND HYGIENE SHOULD BE PERFORMED



AT THE POINT-OF-CARE

Point-of-care

- Point-of-care – place where **three elements** occur together: the patient, the health-care worker, and care or treatment involving patient contact (within patient zone)

  Perform hand hygiene at recommended moments exactly where care delivery takes place
- A **hand hygiene product** (e.g. alcohol-based handrub) **must be easily accessible** and as close as possible (e.g. within arm's reach) to point of care. Point-of-care products should be accessible without leaving patient zone

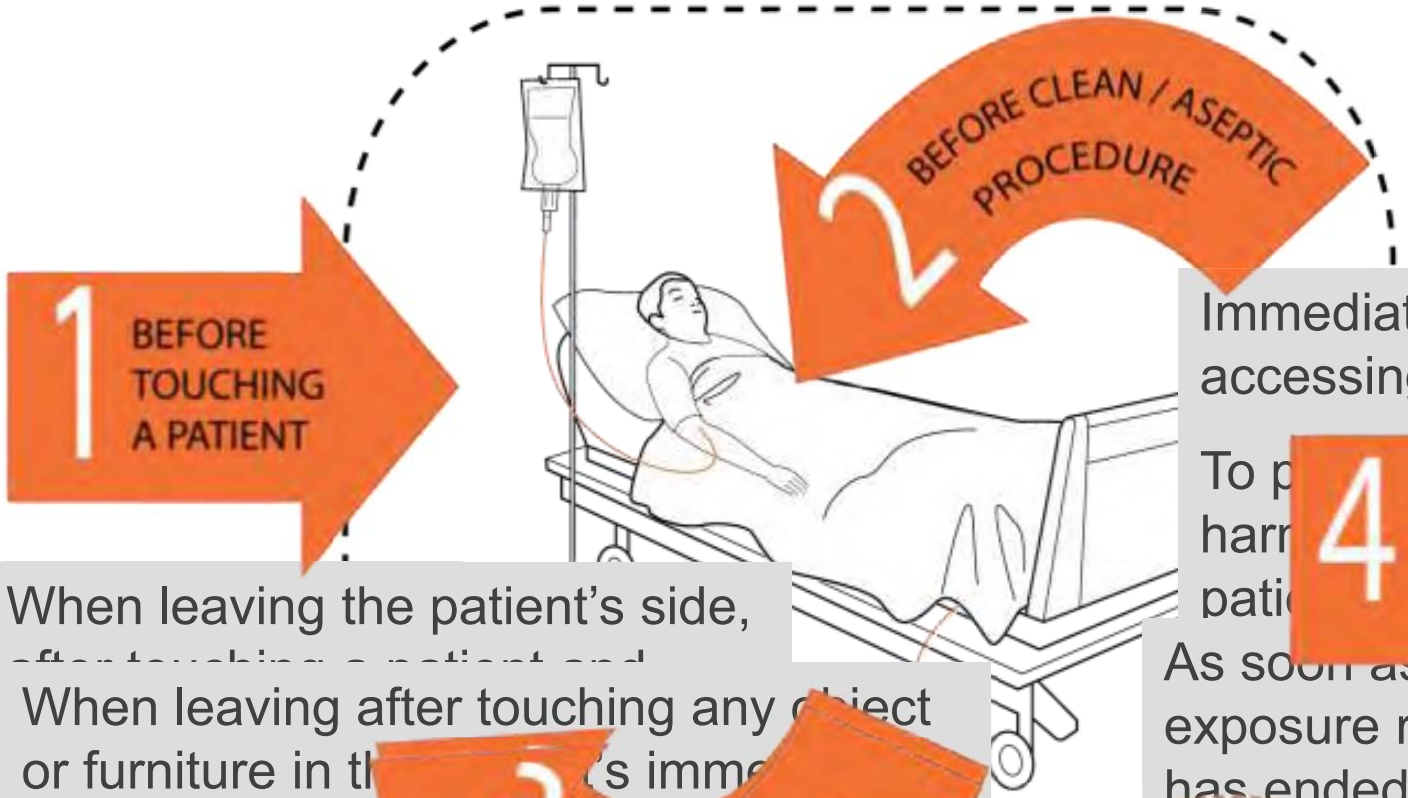
  This enables HCW to easily fulfil the 5 indications (moments) for hand hygiene

WHO recommendations are concentrated on 5 moments (indications)

The 5 Moments	Consensus recommendations *WHO Guidelines on Hand Hygiene in Health Care 2009*
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

My 5 Moments for Hand Hygiene



1 BEFORE TOUCHING A PATIENT

When leaving the patient's side,

2 BEFORE CLEAN / ASEPTIC PROCEDURE

Immediately before accessing a critical site

To p t against harm g the pati d

3 AFTER BODY FLUID EXPOSURE RISK

When leaving after touching any object or furniture in th 's imme surroundings, w the patient!

To protect yourself and th -care environment against germ spread

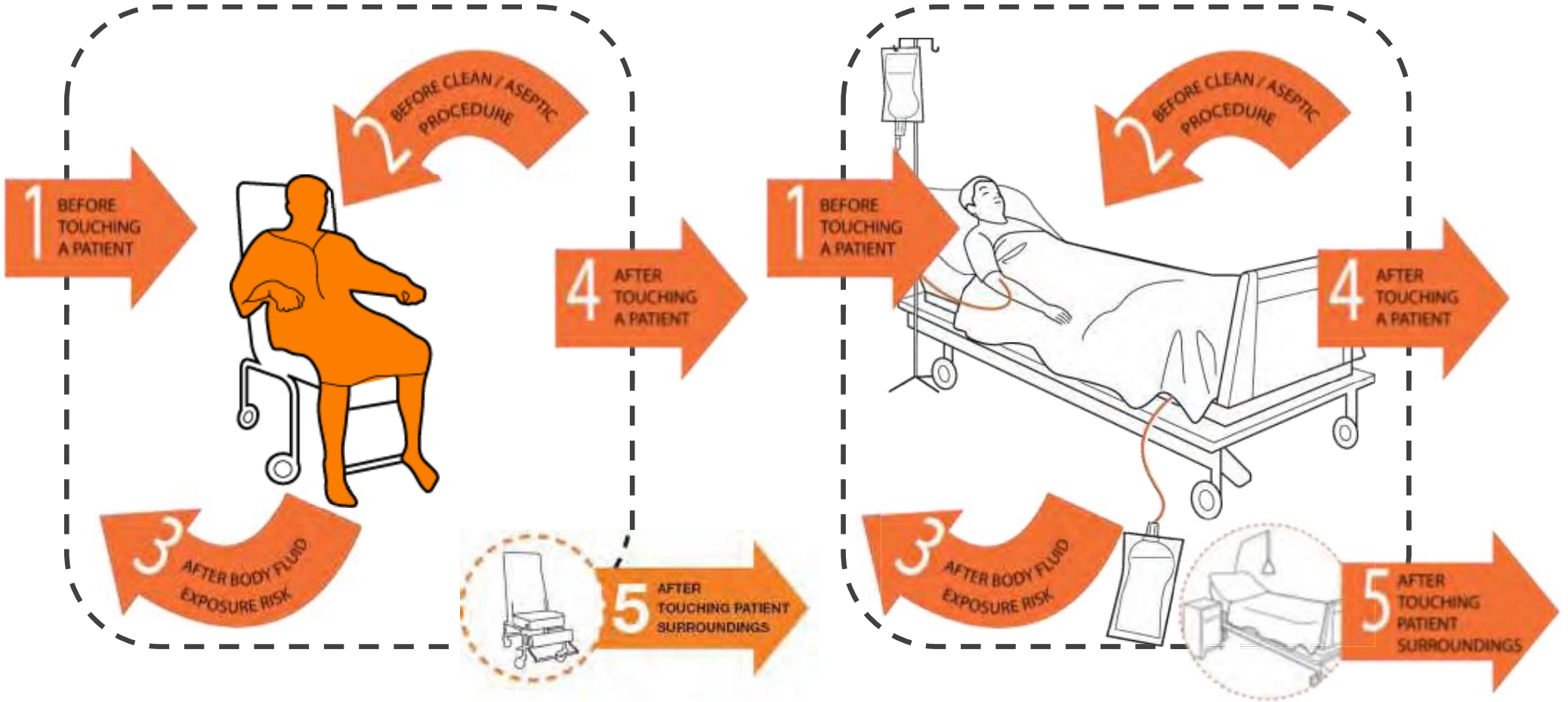
4 AFTER TOUCHING A PATIENT

As soon as a task volving exposure risk to body fluids has ended (and after glove

5 AFTER TOUCHING PATIENT SURROUNDINGS

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

The 5 Moments apply to any setting where health care involving direct contact with patients takes place



World Health Organization | Patient Safety
A World Alliance for Safer Health Care

SAVE LIVES
Clean **Your** Hands

Practically speaking: Rethinking hand hygiene improvement programs in health care settings

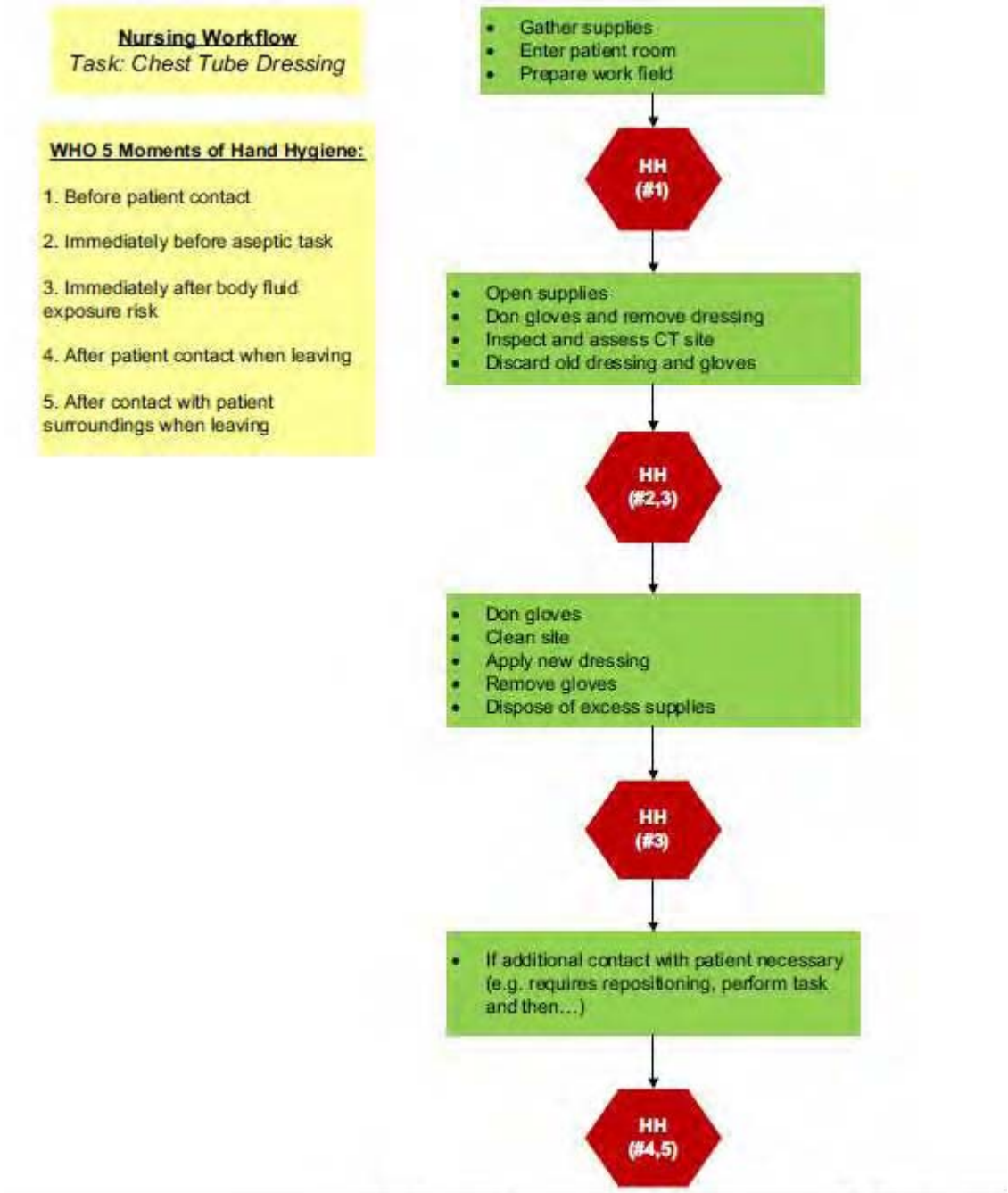


Fig 2. Sample nursing workflow with indications for hand hygiene.

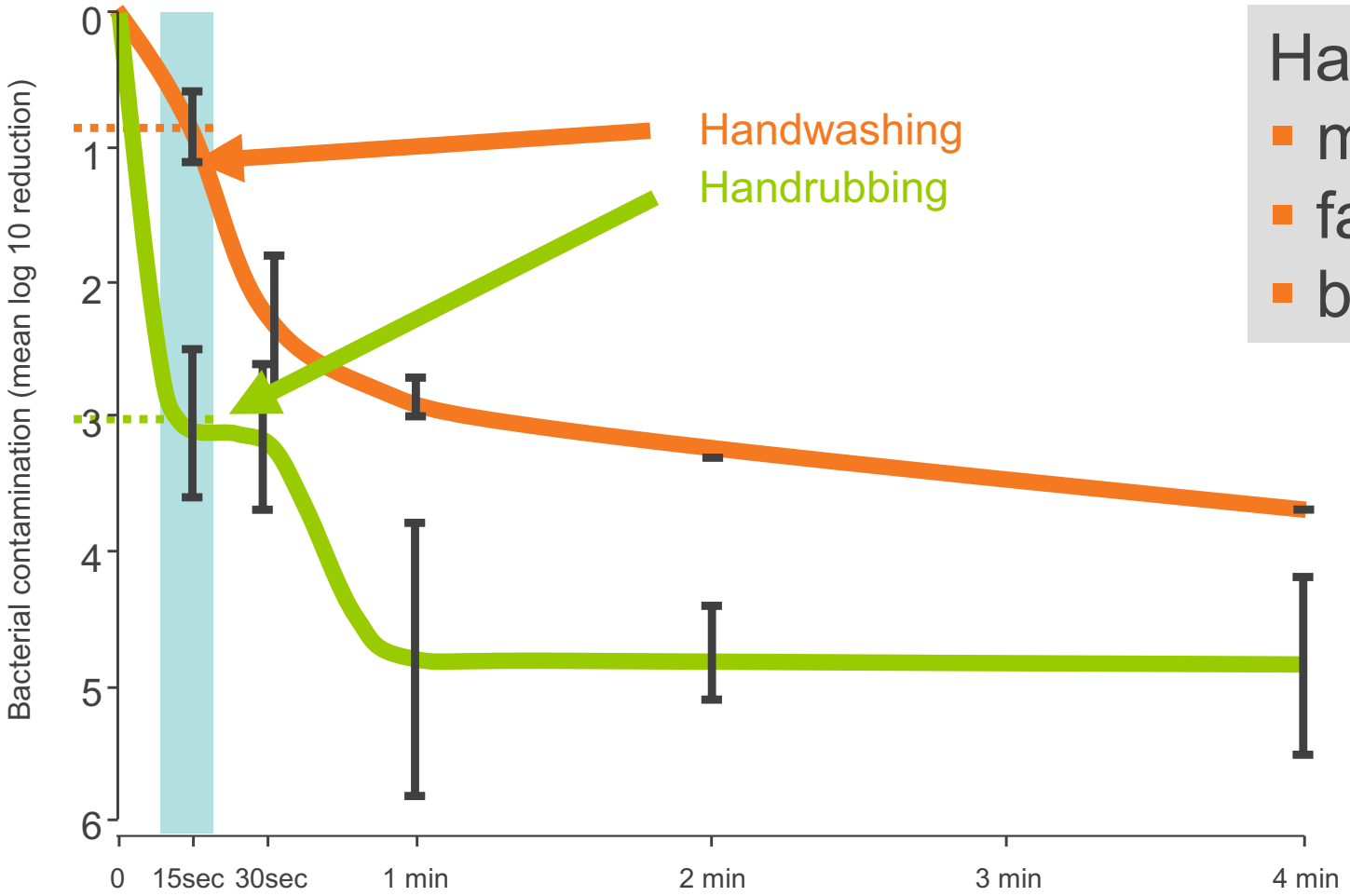
A procedure-focused approach and the importance of understanding hand hygiene within the workflow

Son et al.
Am J Infect Control 2011;39:716-24

The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!
  - because it's your duty!
- Promote it through a multimodal strategy!
- Do it at the right time!
- Do it with the right technique!

Application time of hand hygiene and reduction of bacterial contamination



Handrubbing is:

- more effective
- faster
- better tolerated

Pittet and Boyce. *Lancet Infectious Diseases* 2001

How to handrub

To effectively reduce the growth of germs on hands, **handrubbing** must be performed by following all of the illustrated steps.

This takes only 20–30 seconds!

How to handwash

To effectively reduce the growth of germs on hands, **handwashing must last 40–60 secs** and should be performed by following all of the illustrated steps.

CONTACT DERMATITIS AND ALLERGY

BJD British Journal of Dermatology

Nurses' perceptions of the benefits and adverse effects of hand disinfection: alcohol-based hand rubs vs. hygienic handwashing: a multicentre questionnaire study with additional patch testing by the German Contact Dermatitis Research Group

British Journal of Dermatology 2009 **160,** pp565–572

N. Stutz,* D. Becker,† U. Jappe,‡ S.M. John,§ A. Ladwig,¶ P. Spornraft-Ragaller,** W. Uter†† and H. Löffler*‡‡

Protocol for Evaluation of Tolerability and Acceptability of Alcohol-based Handrub in Use or Planned to be Introduced: Method 1

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

The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!
  - because it's your duty!
- Promote it through a multimodal strategy!
- Do it at the right time!
- Do it with the right technique!
- Use gloves appropriately!

Hand hygiene and glove use

GLOVES PLUS
HAND HYGIENE
= CLEAN HANDS

GLOVES WITHOUT
HAND HYGIENE
= GERM
TRANSMISSION

Wearing gloves: the worst enemy of hand hygiene?

Matthieu Eveillard

"While numerous studies have been undertaken to improve our understanding of the determinants of hand hygiene behavior, it seems urgent to improve our understanding of the determinants of glove usage behavior as well."

Future Microbiology 2011; **6**(8), 835-837

American Journal of Infection Control xxx (2011) 1-2

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Brief report

Correlation between glove use practices and compliance with hand hygiene in a multicenter study with elderly patients

Matthieu Eveillard PharmD, PhD [a,b,*], Marie-Laure Joly-Guillou MD, PhD [a,b], P. Brunel MD [c]

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY DECEMBER 2011, VOL. 32, NO. 12

ORIGINAL ARTICLE

"The Dirty Hand in the Latex Glove": A Study of Hand Hygiene Compliance When Gloves Are Worn

Christopher Fuller, MSc;[1] Joanne Savage, MSc;[1] Sarah Besser, MSc;[2] Andrew Hayward, MD;[1] Barry Cookson, FRCPath;[3] Ben Cooper, PhD;[4] Sheldon Stone, MD[5]

TABLE 3. Adjusted Odds Ratios (ORs) for Factors Associated with Hand Hygiene Compliance Estimated from the Generalized Linear Mixed Model

Factor	Adjusted OR (95% CI)	*P*
Gloves worn	0.65 (0.54–0.79)	<.0001
Intensive therapy unit location	1.25 (0.96–1.63)	.10
High-risk contact	1.34 (1.07–1.68)	.01
After contact	2.02 (1.69–2.41)	<.0001
Nurse[a]	2.21 (1.66–2.94)	<.0001
Other HCW[b]	1.05 (0.76–1.44)	.78

NOTE. CI, confidence interval; HCW, healthcare worker.

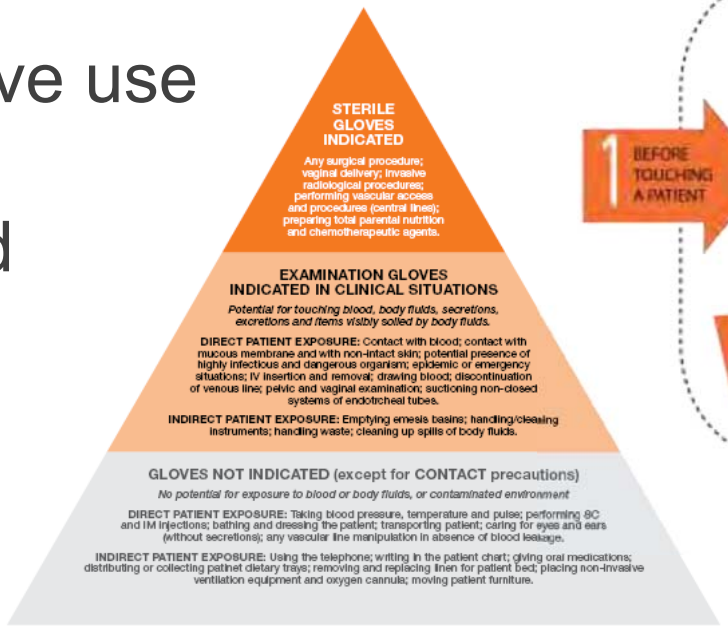
[a] Compared with doctors and other HCWs.

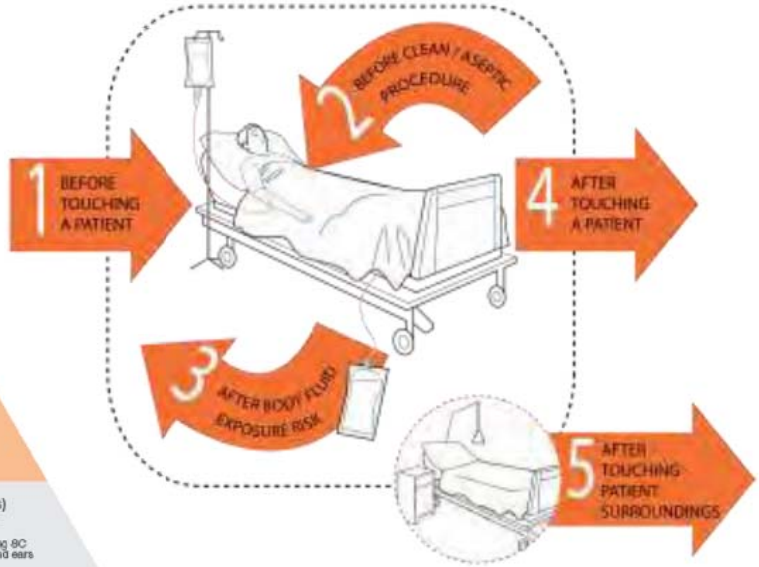
[b] Compared with nurses and doctors.


STERILE GLOVES INDICATED
Any surgical procedure; vaginal delivery; invasive radiological procedures; performing vascular access and procedures (central lines); preparing total parental nutrition and chemotherapeutic agents.
EXAMINATION GLOVES INDICATED IN CLINICAL SITUATIONS
Potential for touching blood, body fluids, secretions, excretions and items visibly soiled by body fluids.
DIRECT PATIENT EXPOSURE: Contact with blood; contact with mucous membrane and with non-intact skin; potential presence of highly infectious and dangerous organism; epidemic or emergency situations; IV insertion and removal; drawing blood; discontinuation of venous line; pelvic and vaginal examination; suctioning non-closed systems of endotracheal tubes.
INDIRECT PATIENT EXPOSURE: Emptying emesis basins; handling/cleaning instruments; handling waste; cleaning up spills of body fluids.
GLOVES NOT INDICATED (except for CONTACT precautions)
No potential for exposure to blood or body fluids, or contaminated environment
DIRECT PATIENT EXPOSURE: Taking blood pressure, temperature and pulse; performing SC and IM injections; bathing and dressing the patient; transporting patient; caring for eyes and ears (without secretions); any vascular line manipulation in absence of blood leakage.
INDIRECT PATIENT EXPOSURE: Using the telephone; writing in the patient chart; giving oral medications; distributing or collecting patinet dietary trays; removing and replacing linen for patient bed; placing non-invasive ventilation equipment and oxygen cannula; moving patient furniture.

Key points on hand hygiene and glove use (1)

- Indications for glove use do not modify any indication for hand hygiene





- Glove use does not replace any hand hygiene action

Key points on hand hygiene and glove use (2)

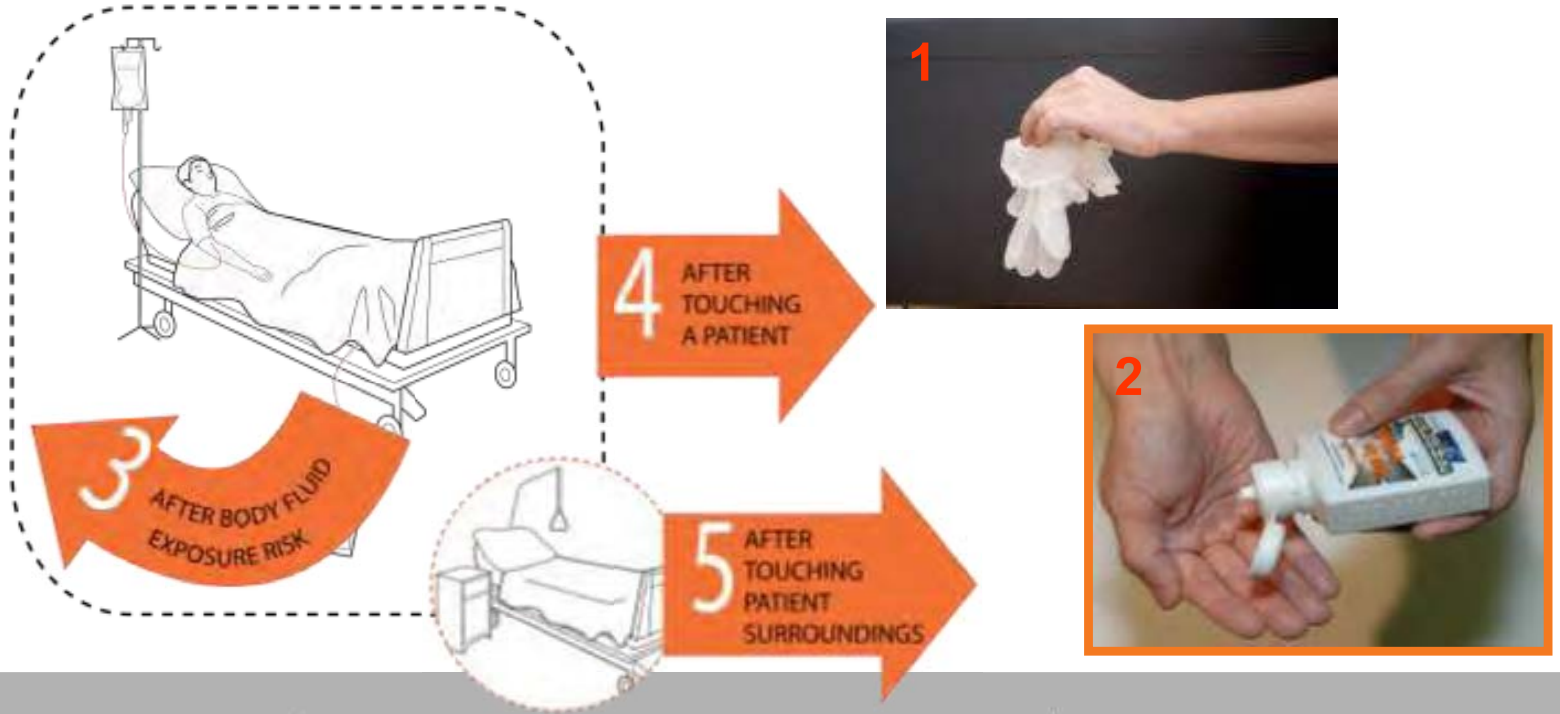
When indications for gloves use and hand hygiene apply concomitantly

- The "Before" Indications - hand hygiene should immediately precede glove donning

Key points on hand hygiene and glove use (3)

When indications for gloves use and hand hygiene apply concomitantly

- The "After" Indications - hand hygiene should immediately follow glove removal



Key points on hand hygiene and glove use (4)

When an indication for hand hygiene applies while gloves are on, then gloves must be removed to perform hand hygiene as required, and changed if needed.

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

Hand Hygiene: Why, How & When?

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

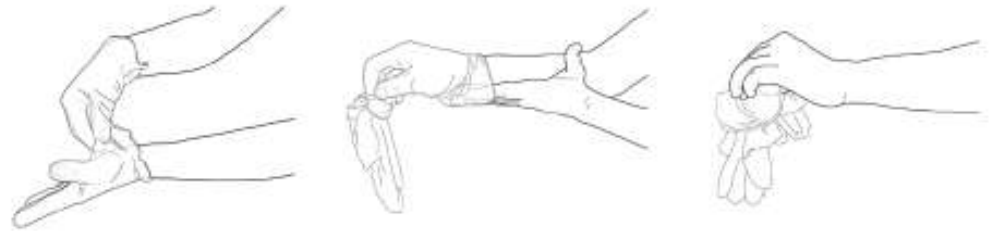
Glove Use Information Leaflet

When the hand hygiene indication occurs before a contact requiring glove use, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water.

I. HOW TO DON GLOVES:

1. Take out a glove from its original box
2. Touch only a restricted surface of the glove corresponding to the wrist (at the top edge of the cuff)
3. Don the first glove

II. HOW TO REMOVE GLOVES:



The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!
  - because it's your duty!
- Promote it through a multimodal strategy!
- Do it at the right time!
- Do it with the right technique!
- Use gloves appropriately!
- Monitor and feedback!

Hand hygiene monitoring

- Monitoring hand hygiene compliance
  - Direct observation (gold standard)
  - Self reporting

- Indirect measurement through product usage – manual or automated

Significant reduction of Methicillin-resistant *S. aureus* burden in 38 French hospitals (1993-2007)

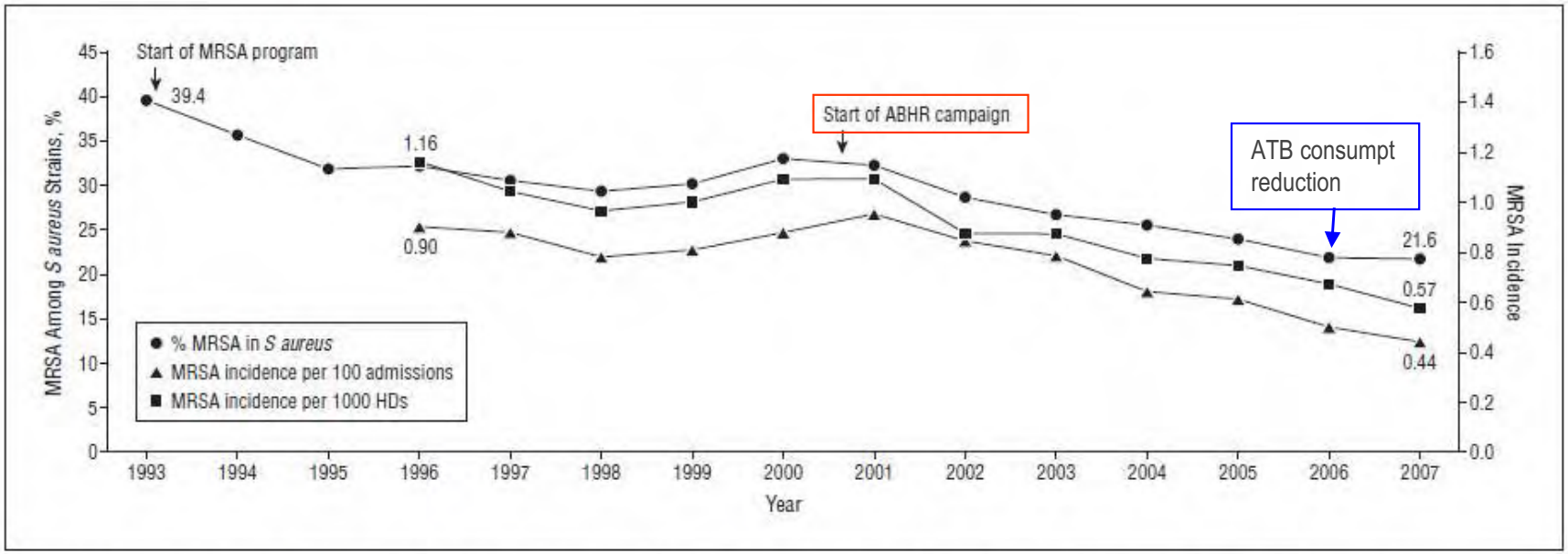


Figure 2. Change in methicillin-resistant *Staphylococcus aureus* (MRSA) rates from 1993 to 2007. Data are given as proportion (percentage) of MRSA in *S aureus*, MRSA incidence per 1000 hospital days, and MRSA rate per 100 admissions.

- Following the launch of the ABHR campaign the consumption of ABHR increased regularly from 2000 to 2007 (2 to 21 L per 1000 HD)
- In acute care hospitals, MRSA rate decrease was sharper after the launch of the ABHR campaign (-2% vs -4.7% per year)

Jarlier V et al. Arch Intern Med. 2010;170:552-559

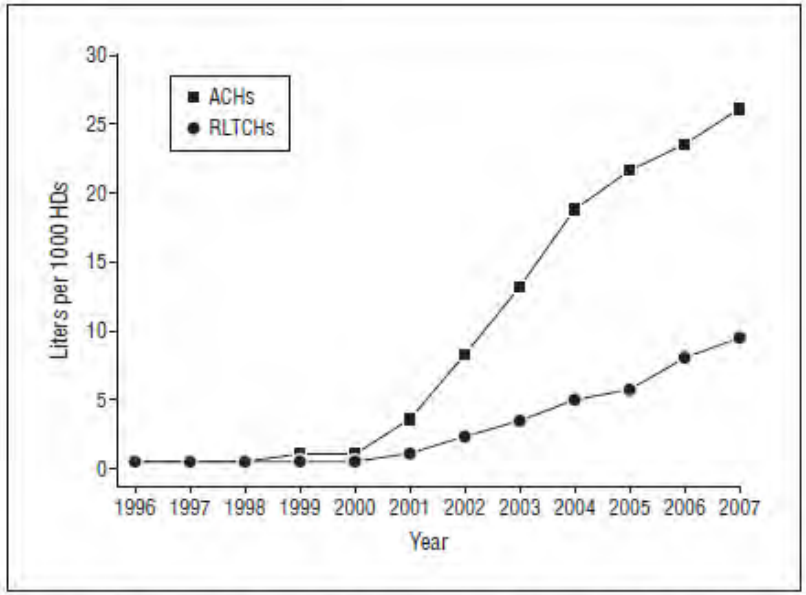


Figure 1. Changes in the use of alcohol-based hand-rub solutions (in liters per 1000 HDs) from 1993 to 2007. ACHs indicates acute care hospitals; RLTCHs, rehabilitation and long-term care hospitals; and HDs, hospital days.

Increased use of ABHR and successful eradication of MRSA from a NICU

ABHR at the bed-side + education

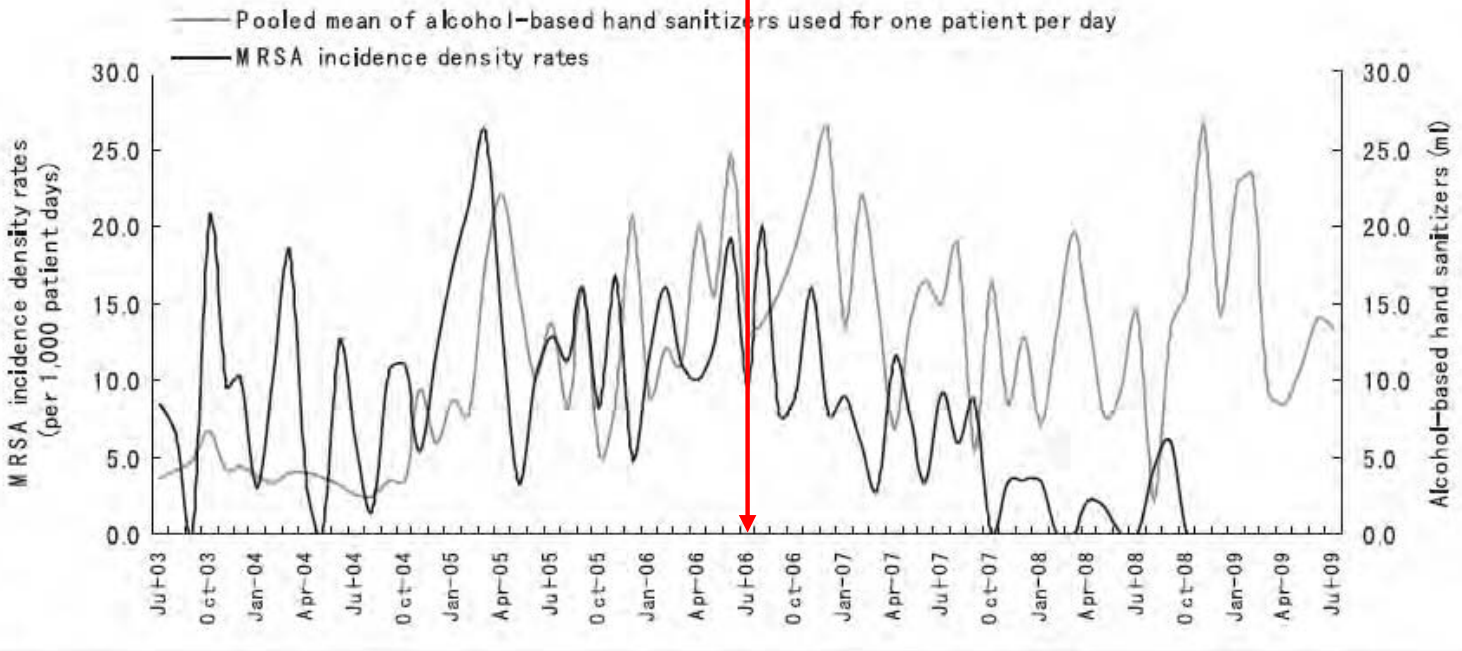
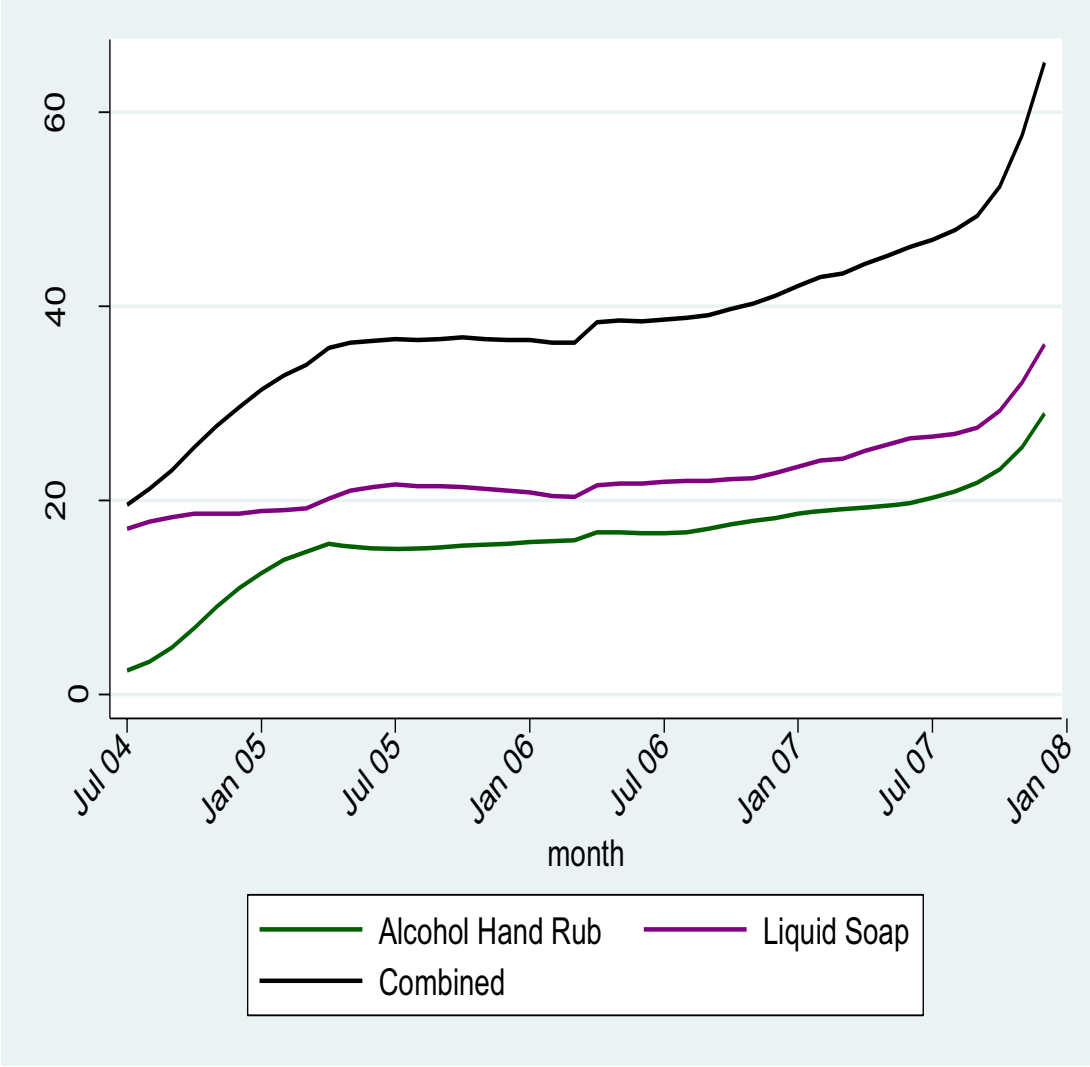


Fig 2. Monthly MRSA incidence density rates (black line) and corresponding pooled mean amount of alcohol-based hand sanitizers used for 1 patient per day in the NICU, July 2003-July 2009.

The intervention in this study was ABHR location at the bed-side (previously available in the room corners) and education, but isolation and even cohorting impossible because of nurse shortage.

Sakamoto et al. Am J Infect Control 2010

Decrease in MRSA BSI and procurement of ABHRs in 148 acute NHS Trusts (July 2004-December 2007)



3-fold increase in combined use to 60 mls per pt-day

Analysis shows highly significant association between each ml of AHR used and 1% drop fall in MRSA BSI

Stone S et al. ECCMID 2009 (abstract O140)

Journal of Hospital Infection (2010) 74, 204–211

Available online at www.sciencedirect.com

ScienceDirect

www.elsevierhealth.com/journals/jhin

REVIEW

Impact of alcohol hand-rub use on meticillin-resistant *Staphylococcus aureus*: an analysis of the literature

S. Sroka [a,b,*], P. Gastmeier [a,b], E. Meyer [a,b]

[a] *Institute of Hygiene and Environmental Medicine, Charité University Medicine Berlin, Germany*
[b] *National Reference Centre for Surveillance of Nosocomial Infections, Berlin, Germany*

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

Soap/Handrub Consumption Survey

Measuring the Consumption of Products in Association with the Implementation of WHO Multimodal Hand Hygiene Improvement Strategy

Alcohol-based Handrub Formulation

(measured in litres)

Product: ☐ Gel ☐ Liquid ☐ Other (please specify)

Information recorded is related to ☐ purchased/distributed product ☐ used product

Name/composition of product/s:

	Amount purchased/used		Number of patients admitted to the facility or department or ward	Number of patient-days related to the facility or department or ward
	Units used (bottles)	Units expressed as litres (l)		
Month 1 Date (month):				
Total facility or selected wards / areas (delete as applicable)				
Month 2 Date (month):				
Total facility or selected wards / areas (delete as applicable)				
Month 3 Date (month):				

Automated Monitoring Systems

- Electronic monitoring of product usage
- Motion sensing systems to detect room entry/exit and use of hand hygiene dispensers, +/- reminders
  - Without identifying persons entering/exiting room
- Real-time Locating Systems (RTLS) to track HCW movements and use of hand hygiene products
- Video monitoring of HCW hand hygiene activity

Hospital of Saint Raphael

Electronic Monitoring of Product Usage

- Electronic counting devices can be placed inside dispensers for alcohol handrub or soap
- Record each time the dispenser is accessed 24 hrs per day/7days per week
- Measure hand hygiene frequency, not compliance rates

Larson EL et al. Am J Crit Care 2005;14:304
Kinsella G et al. J Hosp Infect 2007;66:34
Boyce JM et al. ICHE 2009;30:1090
Marra AR et al. ICHE 2010;31:796

Hospital of Saint Raphael

Courtesy of Dr John Boyce

Compliance with hand hygiene

COMPLIANCE

$$\frac{\text{performed}\ \text{hand hygiene actions (x 100)}}{\text{required hand hygiene actions (opportunities)}}$$

SAVE LIVES
Clean Your Hands

Hand Hygiene Technical Reference Manual

To be used by health-care workers,
trainers and observers of hand hygiene practices

World Health Organization

World Health Organization | Patient Safety

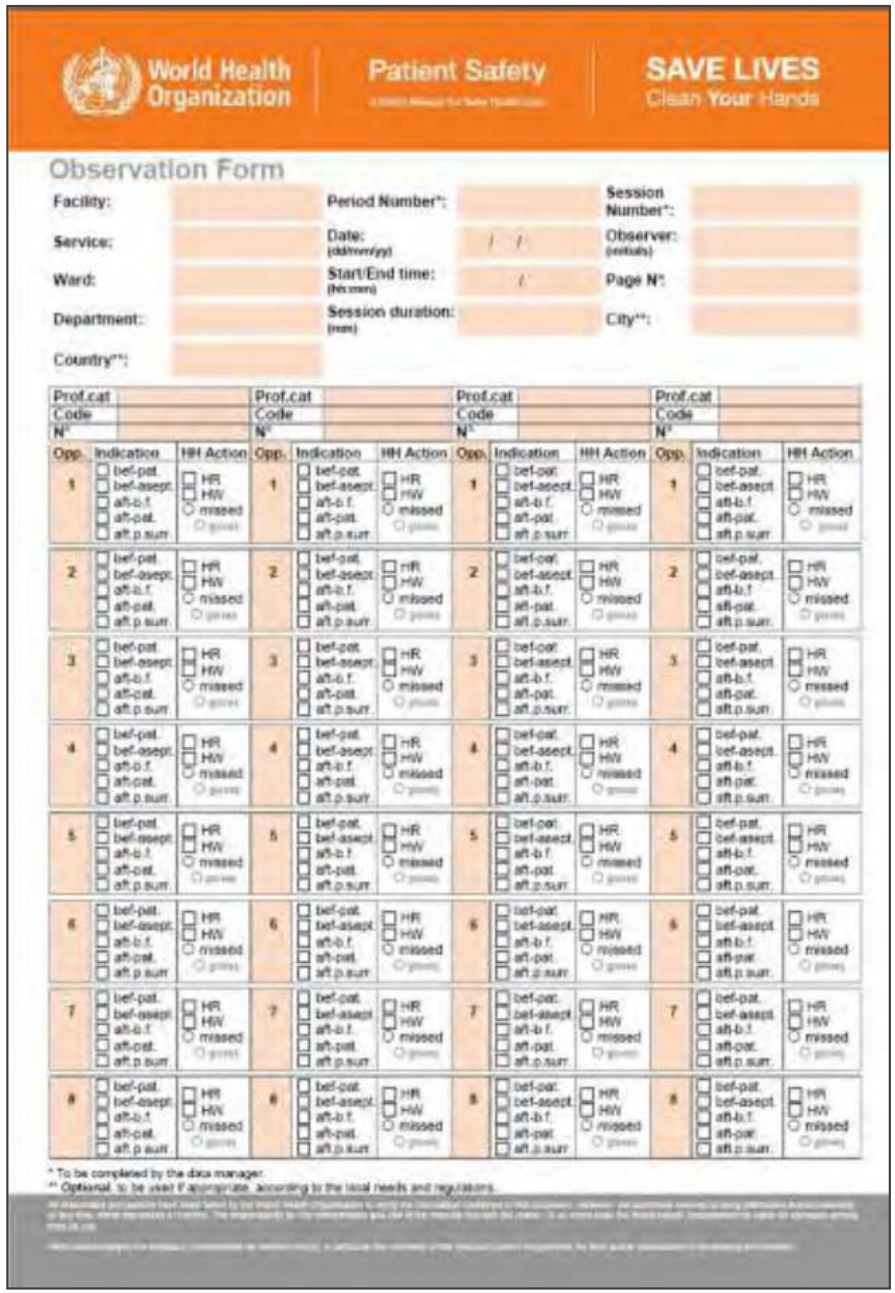
A World Alliance for Safer Health Care

SAVE LIVES
Clean Your Hands

Observation Form

- Detailed instructions are available on the back of the form, to be consulted during observation

***Sax H**, et al.*
Am J Infect Control. 2009;37:827-34.


World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

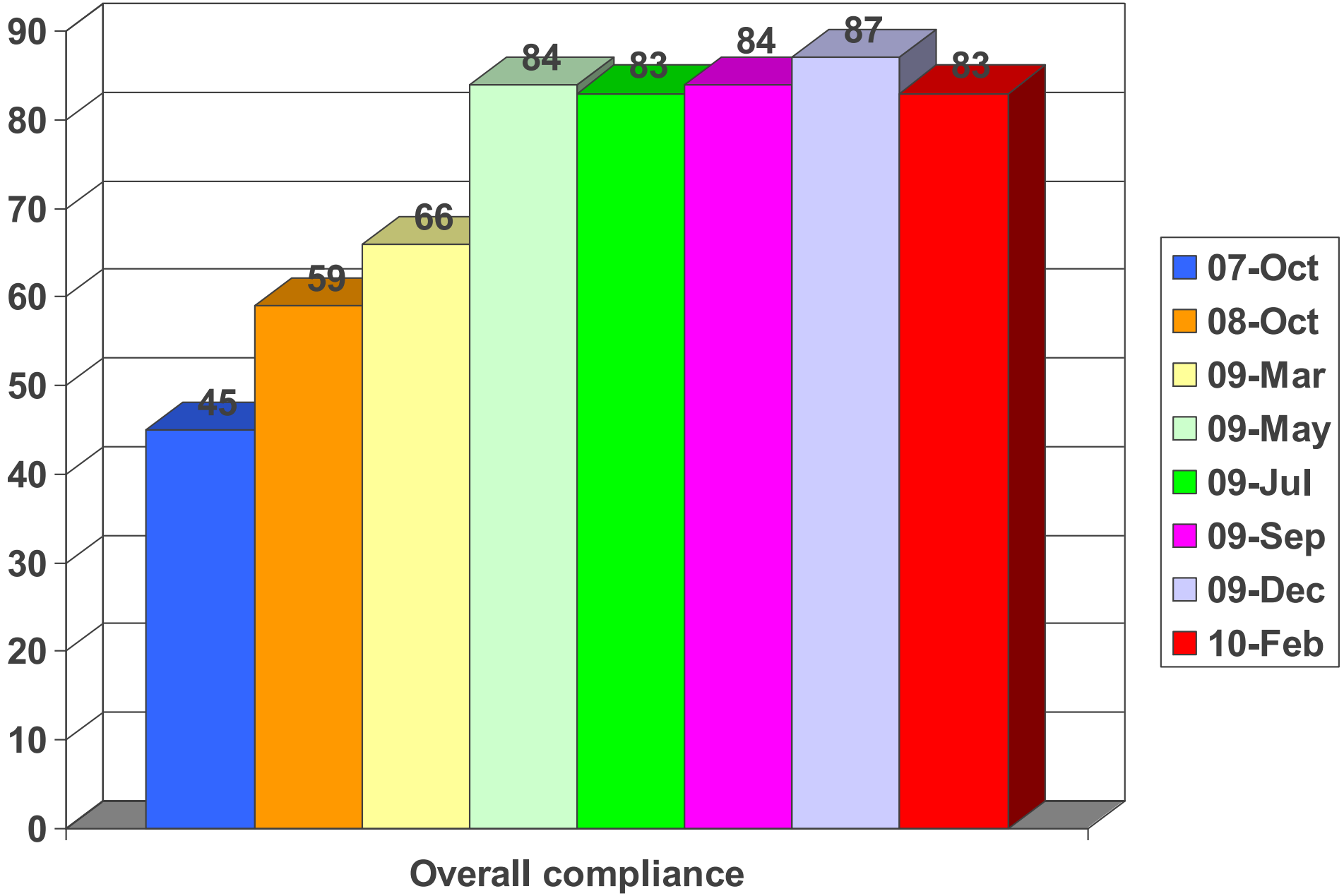
Observation Form

Facility: | Period Number*: | Session Number*:
Service: | Date: (dd/mm/yy) | Observer: (initials)
Ward: | Start/End time: (hh:mm) | Page N°:
Department: | Session duration: (min) | City**:
Country**:

Prof.cat / Code / N°	Opp.	Indication	HH Action
	1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
	2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
	3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
	4	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
	5	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
	6	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
	7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
	8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves

* To be completed by the data manager.
** Optional, to be used if appropriate, according to the local needs and regulations.

King Abdulaziz Medical City, Saudi Arabia – Hand hygiene compliance monitoring



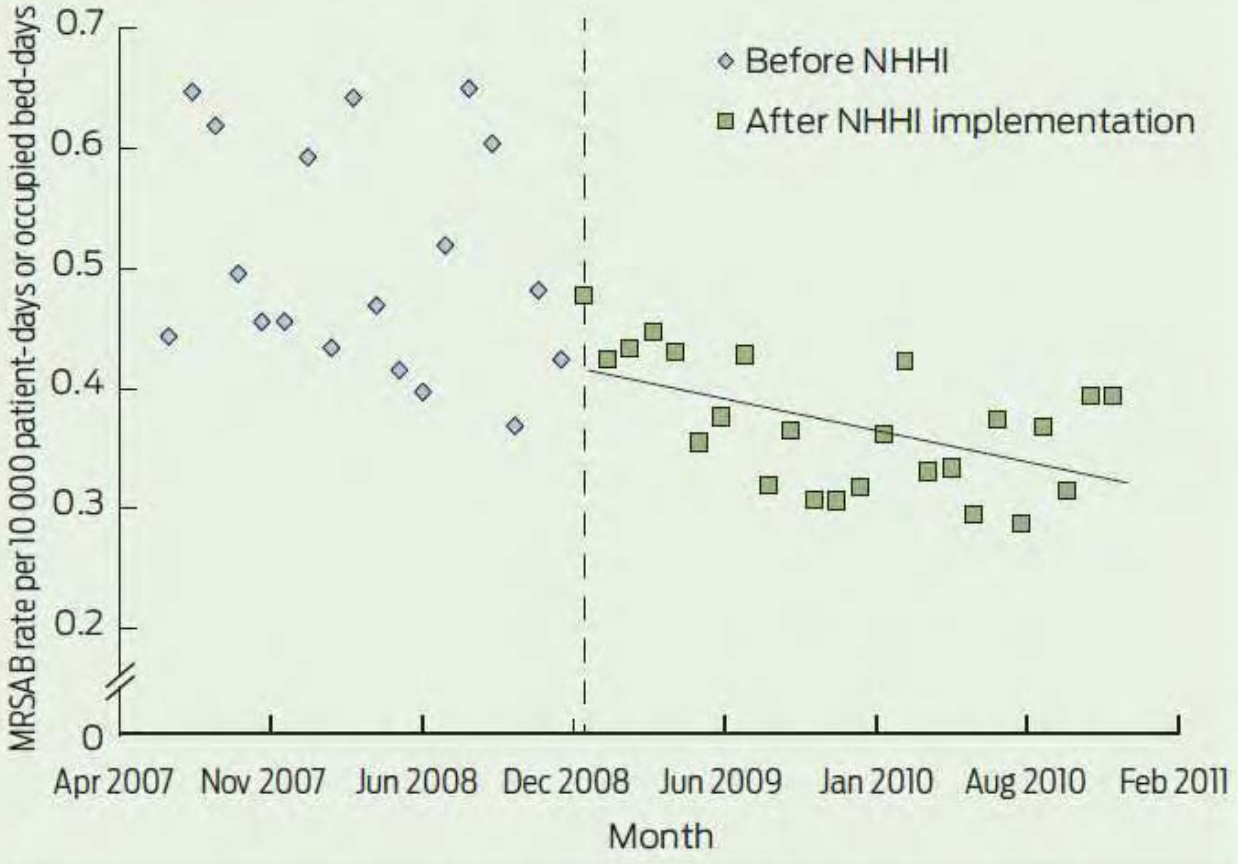
Courtesy: Dr Ziad Memish/Dr H Balkhy


QUALITY IMPROVEMENT
ISPG # 1
PATIENT ID BAND
DOCTORS LSD
Ask Me If I've Washed My Hands
COMPLIANCE RATE MARCH 2009
75%
Stopping infection is in our hands
NURSES COMPLIANCE RATE
MARCH 2009
93.9%

Outcomes from the first 2 years of the Australian National Hand Hygiene Initiative

Grayson L et al. Med J Austr; 195; 5 Dec 2011

4 National monthly incidence rates of methicillin-resistant *Staphylococcus aureus* bacteraemia (MRSAB), July 2007 – December 2010*



* Dashed line indicates National Hand Hygiene Initiative (NHHI) implementation. MRSAB rates were statistically stable before implementation ($P = 0.366$) but significantly declined after ($P = 0.008$). ◆

Hand Hygiene Self-Assessment Framework

Aims of the Framework

1. Provide systematic **situation analysis** of hand hygiene structures, resources, promotion and practices within a health-care facility

2. Facilitate development of an **action plan** for strengthening the facility's hand hygiene improvement programme

3. Document **progress** over time through the repeated use

http://www.who.int/gpsc/5may/en/

WHO Hand Hygiene Self-Assessment Framework Global Survey

Use the WHO Framework to identify your facility's progress in hand hygiene

AND

Submit your results online to WHO

to help obtain a global picture of hand hygiene progress and identify areas for improvement!

To participate in the global survey go to
http://www.who.int/gpsc/5may/hhsaf_submissions/en/index.html

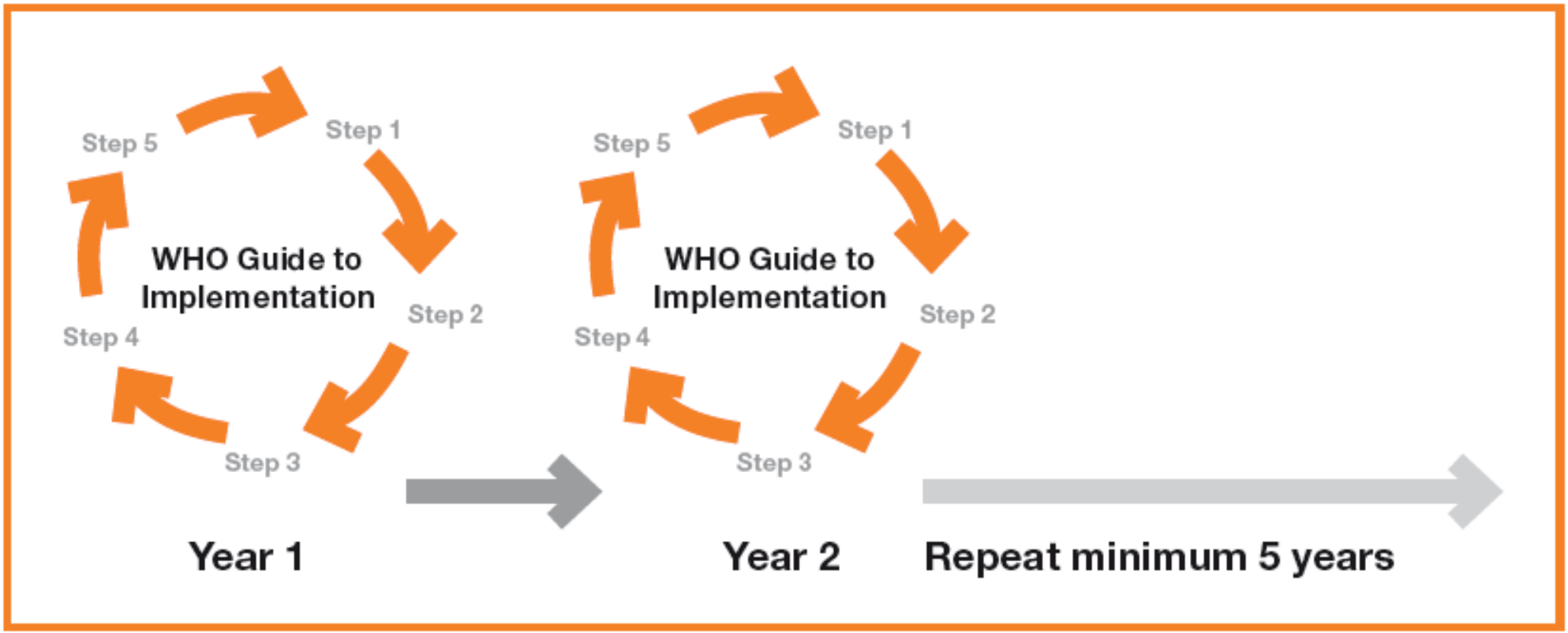
or send an email to WHOframework.survey@who.int

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

The golden rules for hand hygiene best practices

- Please do it!
  - because of hand transmission
  - because you think you do it but you don't!
  - because it's your duty!
- Promote it through a multimodal strategy!
- Do it at the right time!
- Do it with the right technique!
- Use gloves appropriately!
- Monitor and feedback!
- Don't think that you're done!

Sustaining hand hygiene promotion




We have a very long way to go yet…but the demand is high and our commitment and motivation too!
World Health Organization
Patient Safety
A World Alliance for Safer Health Care
SAVE LIVES
Clean Your Hands

Thank you

WHO Clean Care is Safer Care

Find all information at www.who.int/gpsc/5may

Send enquiries to savelives@who.int