Hand Hygiene

(Yes, we are still talking about this in 2024!)

Presented by:

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VCU

VDH VIRGINIA DEPARTMENT OF HEALTH

I have no disclosures.

giphy

Learning Objectives

At the end of the presentation, one should be able to:

- Discuss importance of hand hygiene
- Identify barriers to hand hygiene adherence and strategies to address these
- Identify updates in the 2022 SHEA/IDSA/APIC hand hygiene guidelines
- Recall recent studies in hand hygiene

Outline

- Benefits, Barriers, Strategies: Hand Hygiene
  - Historical context
  - Importance of hand hygiene
  - Barriers to adherence and strategies
- Updates and Recent Studies
  - SHEA/IDSA/APIC 2022 Updates
  - Recent studies
    - Efficacy of hand hygiene method
    - Impact of gloving practices on infection rates
    - Monitoring hand hygiene behavior

Hand Hygiene:

Benefits, Barriers, Strategies

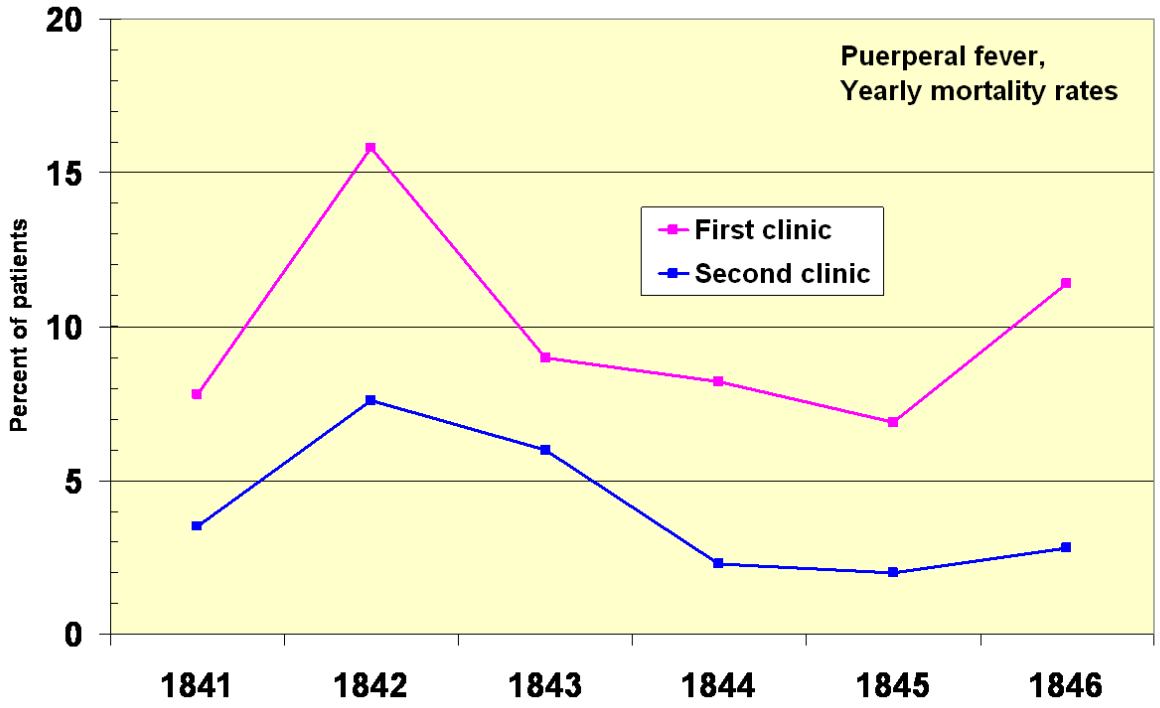
GLOBAL HANDWASHING DAY

15TH OCTOBER

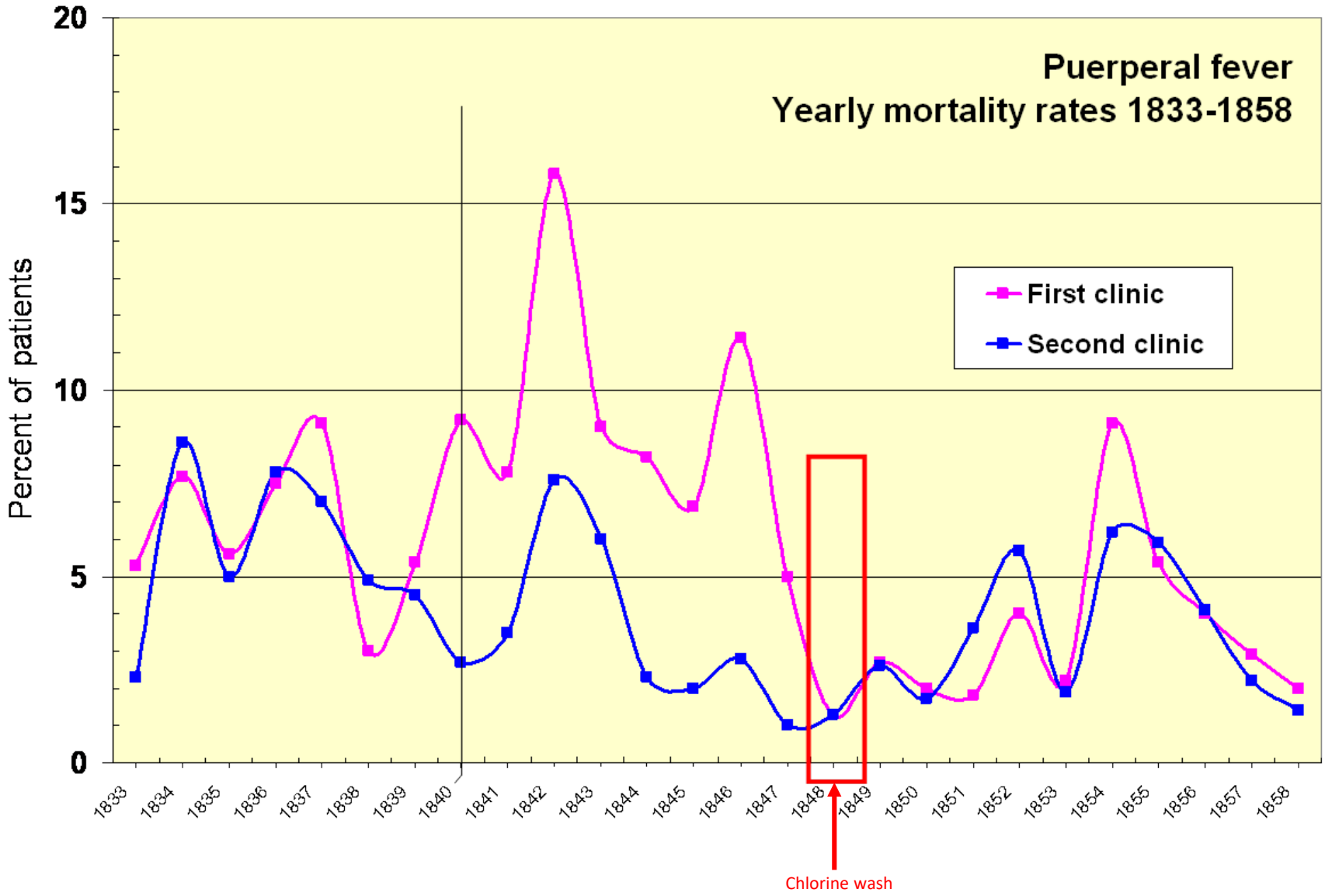
https://www.onlymyhealth.com/global-handwashing-day-date-theme-significance-and-importance-1697190975

Ignaz Semmelweis

Puerperal fever mortality rates



Semmelweis—Defender of Motherhood, from "The History of Medicine." University of Michigan Collection


Puerperal fever
Yearly mortality rates 1833-1858
Percent of patients
20
15
10
5
0
First clinic
Second clinic
1833
1834
1835
1836
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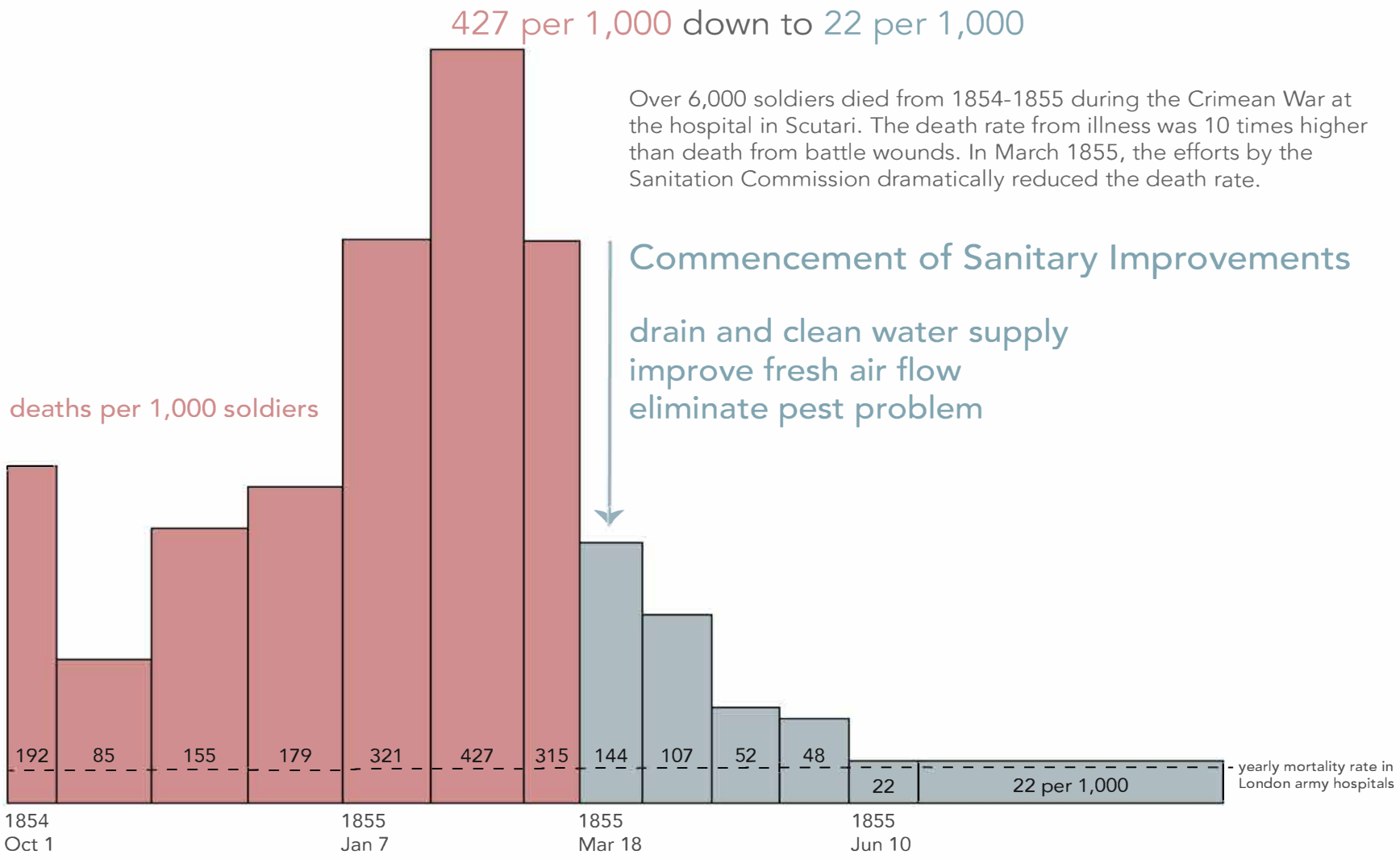
1858
Chlorine wash

Florence Nightingale

Brittanica
Library of Congress

The Scutari Death Camp

simple sanitation improvements can save lives



A redesign of Florence Nightingale's Rose Chart created by Jeffrey A. Shaffer | DataPlusScience.com

Hand hygiene reduces diarrheal illness

Cochrane Library
Trusted evidence.
Informed decisions.
Better health.

Cochrane Database of Systematic Reviews

[Intervention Review]

Hand-washing promotion for preventing diarrhoea

Regina I Ejemot-Nwadiaro[1], John E Ehiri[2], Dachi Arikpo[3], Martin M Meremikwu[4], Julia A Critchley[5]

[1]Department of Public Health, College of Medical Sciences, University of Calabar, Calabar, Nigeria. [2]Division of Health Promotion Sciences, University of Arizona, Mel & Enid Zuckerman College of Public Health, Tucson, Arizona, USA. [3]Cochrane Nigeria, Institute of Tropical Diseases Research and Prevention, University of Calabar Teaching Hospital, Calabar, Nigeria. [4]Department of Paediatrics, University of Calabar Teaching Hospital, Calabar, Nigeria. [5]Population Health Sciences Institute, St George's, University of London, London, UK

- ↓ ~30% of diarrhea episodes in high-income countries (IRR 0.70)
- ↓ ~25% of diarrhea episodes in low-middle-income countries (IRR 0.71)
- ↓ mean diarrhea episodes by 1.68 in hospitalized patients with advanced HIV

References:

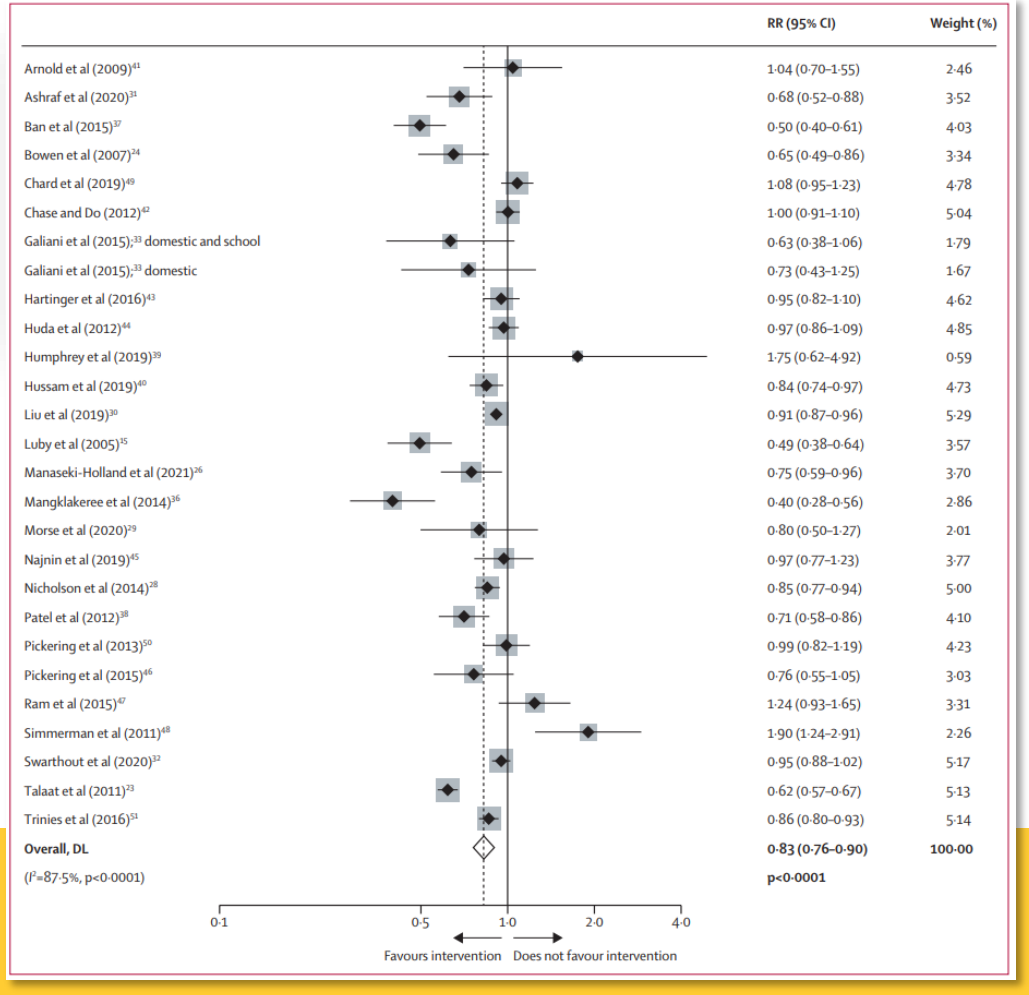
Ejemot-Nwadiaro RI, et al. Cochrane Database Syst Rev 2021:(1):CD004265.

Hand hygiene reduces respiratory infections

Effectiveness of handwashing with soap for preventing acute respiratory infections in low-income and middle-income countries: a systematic review and meta-analysis

Ian Ross, Sarah Bick, Philip Ayieko, Robert Dreibelbis, Jennyfer Wolf, Matthew C Freeman, Elizabeth Allen, Michael Brauer, Oliver Cumming

- ↓ 17% any acute respiratory infection (RR 0.83)
  - ↓ 26% upper respiratory infection (RR 0.74)
  - ↓ 22% lower respiratory infection (RR 0.78)



References:

Ross I, et al. Lancet 2023

Hand hygiene reduces respiratory infections

Cochrane Library

Trusted evidence.
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Cochrane Database of Systematic Reviews

[Intervention Review]

Physical interventions to interrupt or reduce the spread of respiratory viruses

Tom Jefferson[1], Liz Dooley[2], Eliana Ferroni[3], Lubna A Al-Ansary[4], Mieke L van Driel[5,6], Ghada A Bawazeer[7], Mark A Jones[2], Tammy C Hoffmann[2], Justin Clark[2], Elaine M Beller[2], Paul P Glasziou[2], John M Conly[8,9,10]

[1]Department for Continuing Education, University of Oxford, Oxford OX1 2JA, UK. [2]Institute for Evidence-Based Healthcare, Bond University, Gold Coast, Australia. [3]Epidemiological System of the Veneto Region, Regional Center for Epidemiology, Veneto Region, Padova, Italy. [4]Department of Family and Community Medicine, King Saud University, Riyadh, Saudi Arabia. [5]General Practice Clinical Unit, Faculty of Medicine, The University of Queensland, Brisbane, Australia. [6]Department of Public Health and Primary Care, Ghent University, Ghent, Belgium. [7]Department of Clinical Pharmacy, College of Pharmacy, King Saud University, Riyadh, Saudi Arabia. [8]Cumming School of Medicine, University of Calgary, Room AGW5, SSB, Foothills Medical Centre, Calgary, Canada. [9]O'Brien Institute for Public Health and Synder Institute for Chronic Diseases, Cumming School of Medicine, University of Calgary, Calgary, Canada. [10]Calgary Zone, Alberta Health Services, Calgary, Canada

- ↓ 14% any acute respiratory infection (RR 0.86)
  - ~327-380 events per 1000 people

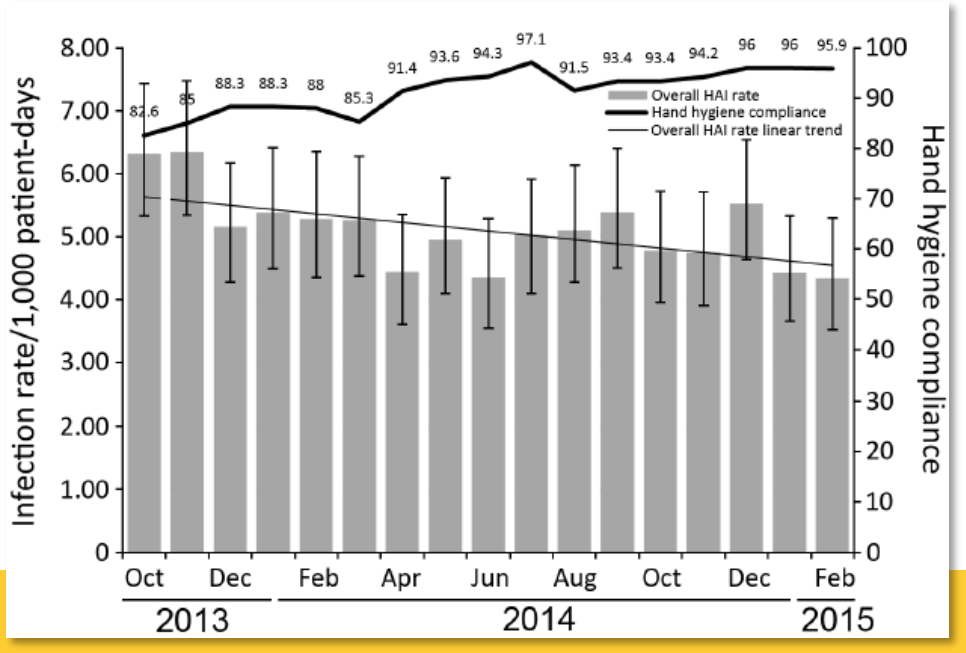
References:

Jefferson T, et al. Cochrane Database Syst Rev 2023:(1):CD006207.

Hand hygiene reduces healthcare-associated infections (HAIs)

Reduction of Healthcare-Associated Infections by Exceeding High Compliance with Hand Hygiene Practices

Emily E. Sickbert-Bennett, Lauren M. DiBiase, Tina M. Schade Willis, Eric S. Wolak, David J. Weber, William A. Rutala



- 6% reduction in overall HAIs
  - 14% reduction in hospital-acquired *C. diff* infections (HA-CDI)

References:

Sickbert-Bennett EE, et al. Emerg Infect Dis 2016

BRITISH MEDICAL JOURNAL 19 NOVEMBER 1977

Hands as route of transmission for Klebsiella species

MARK CASEWELL, IAN PHILLIPS

British Medical Journal, 1977, 2, 1315-1317

taken by putting the hand into a sterile extra-large "I

Performance feedback of hand hygiene, using alcohol gel as the skin decontaminant, reduces the number of inpatients newly affected by MRSA and antibiotic costs

A. MacDonald*, F. Dinah, D. MacKenzie, A. Wilson

88 THE NEW ENGLAND JOURNAL OF MEDICINE July 9, 1992

COMPARATIVE EFFICACY OF ALTERNATIVE HAND-WASHING AGENTS IN REDUCING NOSOCOMIAL INFECTIONS IN INTENSIVE CARE UNITS

BRADLEY N. DOEBBELING, M.D., M.S., GAIL L. STANLEY, M.D., CAROL T. SHEETZ, R.N., B.S.N., MICHAEL A. PFALLER, M.D., ALISON K. HOUSTON, B.A., LINDA ANNIS, NING LI, M.B., M.S., AND RICHARD P. WENZEL, M.D., M.Sc.

An Organizational Climate Intervention Associated With Increased Handwashing and Decreased Nosocomial Infections

Elaine L. Larson, PhD; Eve Early, MPH; Patricia Cloonan, PhD; Sandra Sugrue, RN; Michael Parides, PhD

Use of alcohol hand sanitizer as an infection control strategy in an acute care facility

Jessica Hilburn, MT (ASCP), CIC[a]
Brian S. Hammond[b]
Eleanor J. Fendler, PhD[b]
Patricia A. Groziak, MS[b]
Houston, Texas, and Akron, Ohio

Handwashing practices in an intensive care unit: The effects of an educational program and its relationship to infection rates

John M. Conly, MD*
Shirley Hill, RN
Jean Ross, RN
Joy Lertzman, RN
Thomas J. Louie, MD
Winnipeg, Manitoba, Canada

Effectiveness of a hospital-wide programme to improve compliance with hand hygiene

Didier Pittet, Stéphane Hugonnet, Stephan Harbarth, Philippe Mourouga, Valérie Sauvan, Sylvie Touveneau, Thomas V Perneger, and members of the Infection Control Programme


CAN WE ASK WHY?

Hand hygiene adherence remains low.

- In LMICs: compliance is only ~9% during care of critically ill pts
- ICUs: 30-40%, non-ICUs: 60%
- In HICs: compliance rarely exceed 70%
- Practice varies among healthcare personnel within the same unit and same facility.

References:

WHO 2021

Boyce JM, WHO Hand Hygiene Guidelines 2009

Erasmus V, et al. Infect Control Hosp Epidemiol 2010

Stockphoto

Factors: Poor Adherence (Observed)

- Doctor status (rather than a nurse)
- Nursing assistant status (rather than a nurse)
- Physiotherapist
- Technician
- Male sex
- Working in intensive care
- Working in surgical care unit
- Working in emergency care
- Working in anesthesiology
- Working during the week (vs. weekend)
- Wearing gowns/gloves
- Before contact with patient environment
- After contact with patient environment (e.g., equipment)
- Caring of pts <65 years
- Caring of pts recovering from clean/clean-contaminated surgery in PACU
- Pt care in non-isolation room
- Duration of contact with pt (≤ 2 mins)
- Interruption in patient-care activities
- Automated sink
- Activities with high risk of cross-transmission
- Understaffing or overcrowding
- High patient-to-nurse ratio and more shifts per day (for HD unit)
- High number of opportunities for hand hygiene per hour of pt care

References:

Boyce JM, WHO Hand Hygiene Guidelines 2009

Factors: Poor Adherence (Self-Reported)

- Handwashing agents cause irritations and dryness
- Sinks are inconveniently located or shortage of sinks
- Lack of soap, paper towel, handwashing agents
- Often too busy or insufficient time
- Pt needs take priority
- Hand hygiene interferes with HCW-patient relationship
- Low risk of acquiring infection from pts
- Wearing of gloves or belief that glove use obviates the need for hand hygiene
- Lack of institutional guidelines/lack of knowledge of guidelines and protocols
- Lack of knowledge, experience and education
- Lack of rewards/encouragement
- Lack of role model from colleagues or superiors
- Not thinking about it, forgetfulness
- Skepticism about the value of hand hygiene
- Disagreement with recommendations
- Lack of scientific information of definitive impact of improved hand hygiene on HAI rates

References:

Boyce JM, WHO Hand Hygiene Guidelines 2009

Factors: Poor Adherence (Additional Perceived Barriers)

- Lack of active participation in hand hygiene promotion at individual or institutional level
- Lack of institutional priority for hand hygiene
- Lack of administrative sanction of non-compliers or rewarding of compliers
- Lack of institutional safety climate/ culture of personal accountability of HCWs to perform hand hygiene

References:

Boyce JM, WHO Hand Hygiene Guidelines 2009

Strategies for Successful Hand Hygiene Promotion in Healthcare Settings

Multimodal. Multidisciplinary.

Strategy	Action
Hand hygiene education	
Promote/facilitate skin care for HCWs' hands	
Routine observation and feedback	
System change	• Make hand hygiene possible, easy, convenient • Make alcohol-based handrub available • Make water and soap continuously available • Install voice prompts
Improve institutional safety climate	• General • Promote active participation at individual and institutional level • Avoid overcrowding, understaffing, excessive workload • Institute administrative sanction/rewarding • Ensure patient empowerment
Combination of several of the above strategies	

References:

Boyce JM, WHO Hand Hygiene Guidelines 2009

Evidence on implementation strategies

Generally effective	Sometimes effective	Little or no effect
Educational outreach visits	Audit and feedback	Educational materials
Reminders	Local opinion leaders	Didactic educational meetings
Interactive education visits	Local consensus processes	
Multifaceted intervention including 2 or more of the following:	Patient-mediated interventions	
• Audit and feedback		
• Reminders		
• Local consensus process		
• Marketing		

References:

Boyce JM, WHO Hand Hygiene Guidelines 2009
Bero LA, et al. BMJ 1998
Grimshaw J, et al. Qual Health Care 1995
Grimshaw J, Russell IT. Lancet 1993
Thomas LH, et al. J Adv Nurs 1999

Hand Hygiene:
Updates & Recent Studies

Infection Control & Hospital Epidemiology (2023), **44**, 355–376
doi:10.1017/ice.2022.304

SHEA

SHEA/IDSA/APIC Practice Recommendations

SHEA/IDSA/APIC Practice Recommendation: Strategies to prevent healthcare-associated infections through hand hygiene: 2022 Update

Janet B. Glowicz PhD, RN, CIC[1], Emily Landon MD[2], Emily E. Sickbert-Bennett PhD, MS, CIC[3,4], Allison E. Aiello PhD[5], Karen deKay MSN, RN, CNOR, CIC[6], Karen K. Hoffmann BSN, MS, CIC[7], Lisa Maragakis MD, MPH[8], Russell N. Olmsted MPH, CIC[9], Philip M. Polgreen MD, MPH[10], Polly A. Trexler MS, CIC[11], Margaret A. VanAmringe MHS[12], Amber R. Wood MSN, RN, CNOR, CIC[6], Deborah Yokoe MD, MPH[13] and Katherine D. Ellingson PhD[14]

[1]Division of Healthcare Quality and Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia, [2]Department of Infectious Diseases, MacLean Center for Clinical Medical Ethics, The University of Chicago Medical Center, Chicago, Illinois, [3]Department of Infectious Diseases and Department of Epidemiology, University of North Carolina Chapel Hill, North Carolina, [4]Carolina Antimicrobial Stewardship Program, UNC Gillings School of Global Public Health, UNC Hospitals, Chapel Hill, North Carolina, [5]Department of Epidemiology, Robert N. Butler Columbia Aging Center, Columbia University, New York, New York, [6]Association of periOperative Registered Nurses (AORN), Denver, Colorado, [7]Division of Infectious Diseases, University of North Carolina School of Medicine, Chapel Hill, North Carolina, [8]Department of Medicine, Johns Hopkins University School of Medicine, The Johns Hopkins Hospital, Baltimore, Maryland, [9]Trinity Health, Livonia, Michigan, [10]Department of Internal Medicine, Carver College of Medicine, University of Iowa, Iowa City, Iowa, [11]Healthcare Epidemiology and Infection Control, The Johns Hopkins Health System, Baltimore, Maryland, [12]The Joint Commission, Office of Public Policy and Government Relations, Washington, DC, [13]Department of Medicine, University of California San Francisco, UCSF Health–UCSF Medical Center, San Francisco, California and [14]Department of Epidemiology and Biostatistics, College of Public Health, The University of Arizona, Tucson, Arizona

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

- Basic practices (2014) → essential practices (2022)
- Special approaches (2014) → additional approaches (2022)
- Addition of 2 new essential practices
  - glove use
  - prevention of environmental contamination

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

1. Promote the maintenance of healthy hand skin and fingernails
2. Select appropriate products
3. Ensure the accessibility of hand hygiene supplies
4. Ensure appropriate glove use to reduce hand and environmental contamination
5. Take steps to reduce environmental contamination associated with sinks and sink drains
6. Monitor adherence to hand hygiene
7. Provide timely and meaningful feedback to enhance a culture of safety

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

4. Ensure appropriate glove use to reduce hand and environmental contamination

a. Use gloves for all contact with the patient and environment as indicated by standard and contact precautions during care of individuals with organisms confirmed to be less susceptible to biocides (eg, *C. difficile*, Norovirus)

b. Educate HCP about the potential for self-contamination and environmental contamination when gloves are worn

c. Clean hands immediately following glove removal. If handwashing is indicated and sinks are not immediately available, use ABHS and then wash hands as soon as possible

d. Educate and confirm the ability of HCP to doff gloves in a manner that avoids contamination

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

5. Take steps to reduce environmental contamination associated with sinks and sink drains

a. Ensure that handwashing sinks are constructed according to local administrative codes
b. Include handwashing sinks in water infection control risk assessments for healthcare settings
c. If possible, dedicate sinks to handwashing
d. Educate HCP to refrain from disposing substances that promote growth of biofilms (e.g., intravenous solutions, medications, food, or human waste) in handwashing sinks

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

5. Take steps to reduce environmental contamination associated with sinks and sink drains

e. Use an EPA-registered hospital disinfectant to clean sink bowls and faucets daily

f. Do not keep medications or patient care supplies on countertops or mobile surfaces that are within 1 m (3 feet) of sinks

g. Provide disposable or single-use towels to dry hands. Do not use hot air dryers in patient care areas

h. Consult with state or local public health officials when investigating confirmed or suspected outbreaks of healthcare-associated infections due to waterborne pathogens of plumbing in the facility

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

1. Promote the maintenance of healthy hand skin and fingernails.

a. Promote the preferential use of ABHS in most clinical situations

b. Perform hand hygiene as indicated by the CDC or the WHO Five Moments

c. Include fingernail care in facility-specific policies related to hand hygiene

- HCP should maintain short, natural fingernails.
- Nails should not extend past the fingertip.
- HCP who provide direct or indirect care in high-risk areas (eg, ICU, perioperative) should not wear artificial fingernail extenders
- Prohibitions against fingernail polish (standard or gel shellac) are at the discretion of the infection prevention program, except among scrubbed individuals who interact with the sterile field during surgical procedures; these individuals should not wear fingernail polish or gel shellac

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

1. Promote the maintenance of healthy hand skin and fingernails.

d. Include measures for primary and secondary prevention of dermatitis

e. Provide HCP with readily accessible, facility-approved hand moisturizers

f. Engage all HCP in primary prevention of occupational irritant and allergic contact dermatitis

g. Provide cotton glove liners for HCP with hand irritation and educate these HCP on their use

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

3.	**Ensure the accessibility of hand hygiene supplies.** (Quality of evidence: HIGH)
a.	Ensure that ABHS dispensers are unambiguous, visible, and accessible within the workflow of HCP.[105–111] (Quality of evidence: HIGH)
b.	In private rooms, consider 2 ABHS dispensers the minimum threshold for adequate numbers of dispensers: 1 dispenser in the hallway, and 1 in the patient room.[102] (Quality of evidence: HIGH)
c.	In semiprivate rooms, suites, bays, and other multipatient bed configurations, consider 1 dispenser per 2 beds the minimum threshold for adequate numbers of dispensers. Place ABHS dispensers in the workflow of HCP.[48] (Quality of evidence: LOW)
d.	Ensure that the placement of hand hygiene supplies (eg, individual pocket-sized dispensers, bed-mounted ABHS dispenser, single-use pump bottles) is easily accessible for HCP in all areas where patients receive care.[103,104] (Quality of evidence: HIGH)
e.	Evaluate the risk of intentional consumption. Utilize dispensers that mitigate this risk, such as wall-mounted dispensers that allow limited numbers of activations within short periods (eg, 5 seconds). (Quality of evidence: LOW)
f.	Have surgical hand rub and scrub available in perioperative areas. (Quality of evidence: HIGH)
g.	Consider providing ABHS hand rubs or handwash with FDA-approved antiseptics for use in procedural areas and prior to high-risk bedside procedures (eg, central-line insertion). (Quality of evidence: LOW)

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

NOT considered routine part of hand hygiene

- Do not supply individual pocket-sized ABHS dispensers in lieu of minimum thresholds for accessible wall-mounted dispensers
- Do not refill or “top-off” soap dispensers, moisturizer dispensers, or ABHS dispensers intended for single use
- Do not use antimicrobial soaps formulated with triclosan as an active ingredient
- Do not routinely double-glove except when specifically recommended in response to certain high-consequence pathogens

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

SHEA/IDSA/APIC Hand Hygiene 2022 Update

NOT considered routine part of hand hygiene

- Do not routinely disinfect gloves during care except when specifically recommended in response to certain high-consequence pathogens
- Do not remove access to ABHS when responding to organisms that are anticipated to be less susceptible to biocides (eg, C. difficile or norovirus)
- Do not attempt to remediate potential biofilms in sink drains with disinfectants lacking EPA registration for this use

References:

Glowicz JB, et al. Infect Control Hosp Epidemiol 2023

Recent Studies

- Efficacy of hand hygiene methods
- Impact of gloving practices on infection rates
- Monitoring hand hygiene behavior

Recent Studies: Efficacy of Hand Hygiene Methods

- 10-stroke-scrub
- 3-step hand hygiene technique
- 6 moments of hand hygiene

10-Stroke-Scrub (10SS)

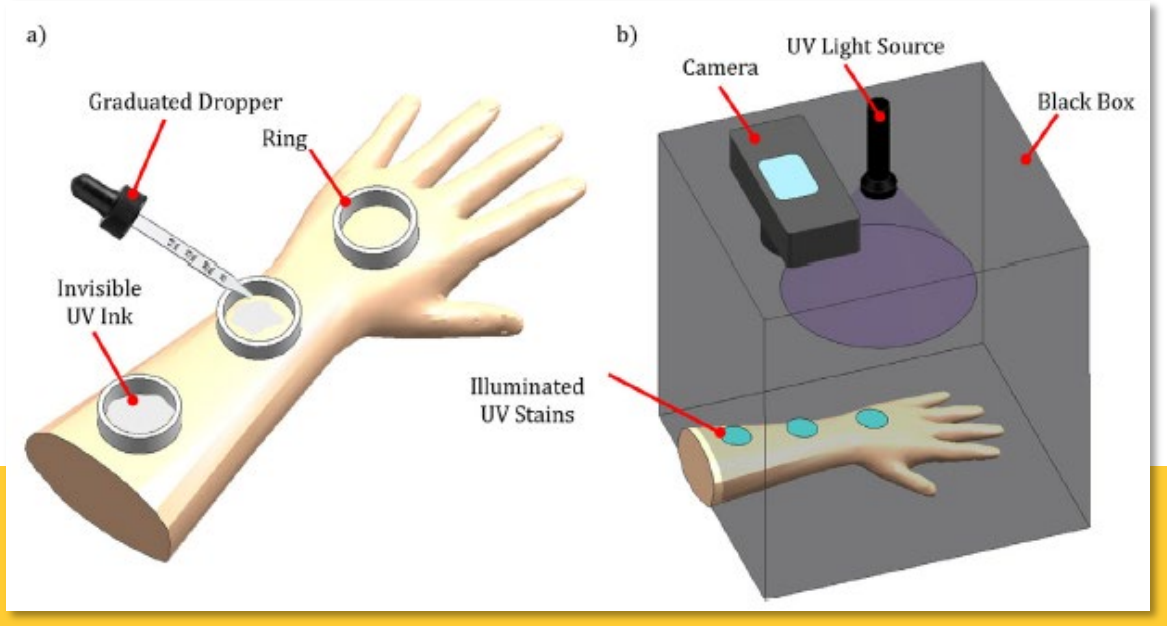
THE SURGEON 21 (2023) 344–350

A new checklist surgical hand scrub to replace time-based methods – A pixel intensity analysis

Lercan Aslan [a,,1], Omer Subasi [b,1], Duygu Mizikoglu [c], Olgar Birsel [d], Seval Tanrikulu Kirisci [d], Ada Bas [a], Munam Arshad [b], Ismail Lazoglu [b], Aksel Seyahi [d]*

[a] Koc University Hospital, Department of Orthopaedics and Traumatology, Istanbul 34365, Turkey
[b] Manufacturing and Automation Research Center, Koc University, Istanbul 34450, Turkey
[c] Koc University Hospital, Operation Room Nursery, Istanbul 34365, Turkey
[d] Koc University, School of Medicine, Department of Orthopaedics and Traumatology, Istanbul 34365, Turkey

- Compared with 4-min scrub (4MS) by WHO
- UV ink on dorsal forearm

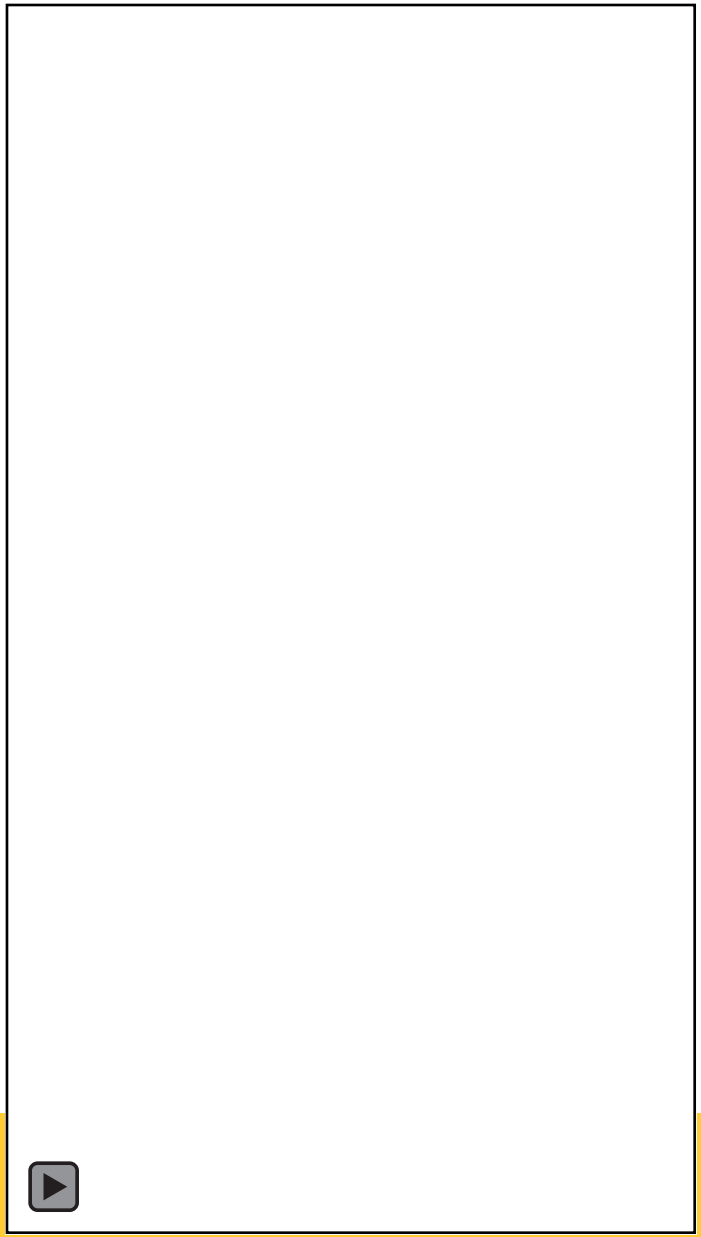


References:

Aslan L, et al. Surgeon. 2023

10-Stroke-Scrub (10SS)

- Hand & forearm divided into regions
  - Palm
  - Dorsal
  - All finger sides
  - Inner-outer wrist
  - Forearm
  - Elbow surfaces
- Stroke: back-and-forth, 10x
- No repeat scrubbing once 10-stroked

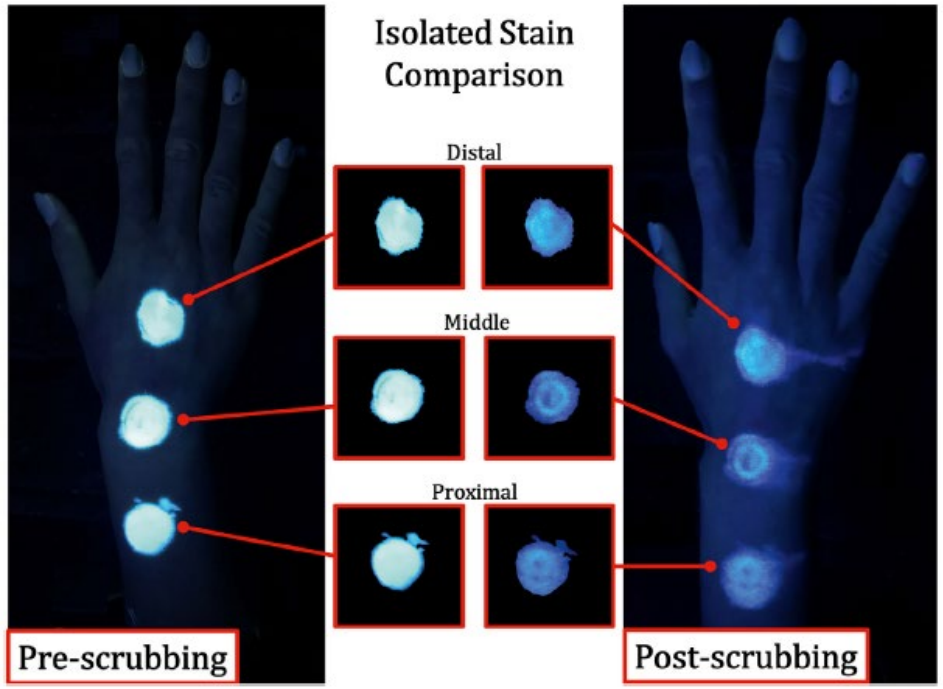


References:

Aslan L, et al. Surgeon. 2023

10-Stroke-Scrub

- Pre- and post-scrubbing UV stain comparison using pixel intensity analysis (% decrease in average brightness $\Delta Q_{ave}\%$)
- 10SS was more efficient in removing UV ink stains than 4-min scrub (4MS)
- 4MS: nonuniform stain removal (proximal stains were removed more compared to distal)
- 10SS: uniform stain removal



References:

Aslan L, et al. Surgeon. 2023

3-Step Hand Hygiene Technique

Rub hands palm to palm

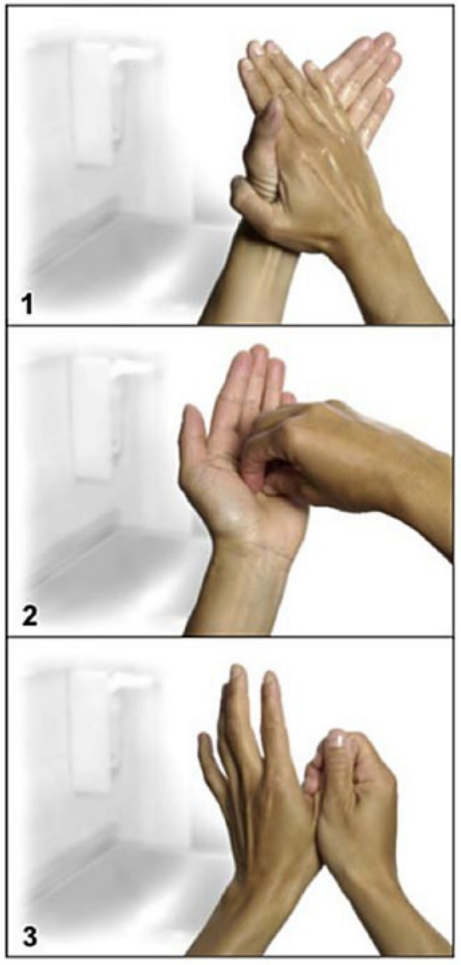
Right palm over left backhand with interlaced fingers and vice versa

Palm to palm with finger interlaced

Backs of fingers to opposing palms with fingers interlocked

Rotational rubbing of left thumb clasped in right palm and vice versa

Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa



1. Cover all surfaces of the hands

2. Rotational rubbing of fingertips in the palm of the alternate hand

3. Rotational rubbing of both thumbs

References:

Duarte Valim M, et al. J Infect Dev Ctries. 2023

handinscan.hu/alternatives-for-the-who-6-step-protocol/

Tschudin-Sutter S, et al. Clin Microbiol Infect. 2017

3-Step Hand Hygiene Technique

- Low overall adherence: 63% (38/60) BUT 13% only correctly applied considering adequate time and correct 3-step hand hygiene technique
- Low adherence to 2nd & 3rd steps
  - 1st step = 38/38 (100%), 2nd step = 20/38 (53%), 3rd step = 12/38 (32%)
- Most common microorganism isolated: CoNS
- No growth of potentially pathogenic microorganisms in 100% of those who carried out correct 3-step technique

References:

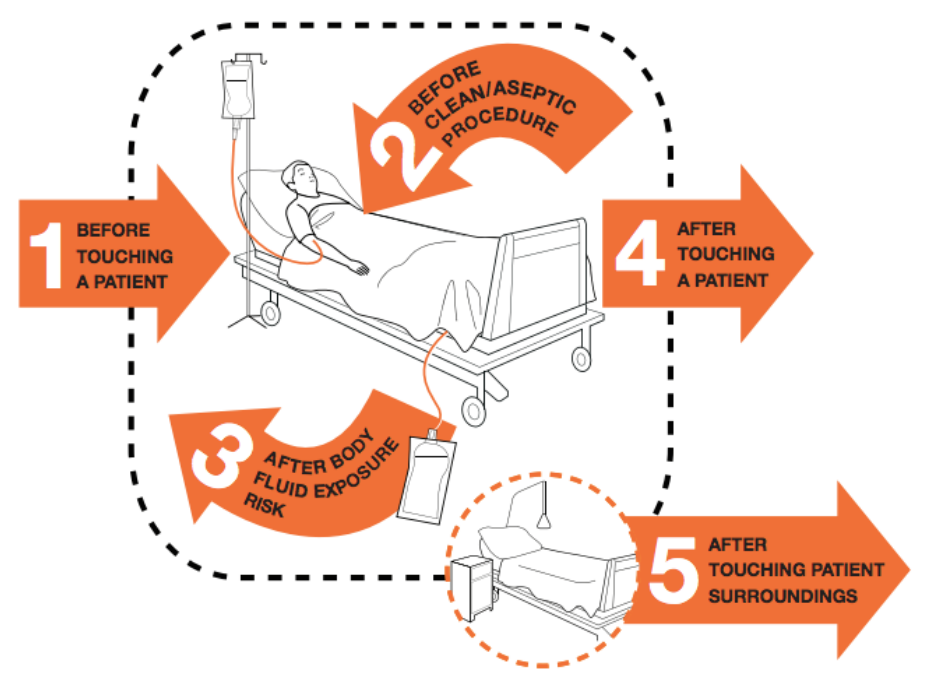
Duarte Valim M, et al. J Infect Dev Ctries. 2023

handinscan.hu/alternatives-for-the-who-6-step-protocol/

Tschudin-Sutter S, et al. Clin Microbiol Infect. 2017

6 Moments of Hand Hygiene

- Quasi-experimental study in China
- Cleaning staff: 5 moments were used less frequently and 3 of these moments were rarely noted



Epidemiology and Infection

www.cambridge.org/hyg

Original Paper

Cite this article: He W, Chen X, Cheng X, Li Y, Feng B, Wang Y (2023). Exploring the effect of novel six moments on hand hygiene compliance among hospital cleaning staff members: a quasi-experimental study. *Epidemiology and Infection*, **151**, e73, 1–6
https://doi.org/10.1017/S0950268823000602

Exploring the effect of novel six moments on hand hygiene compliance among hospital cleaning staff members: a quasi-experimental study

Wenbin He[1], Xiaoyan Chen[1], Xiaolin Cheng[1], Yan Li[2], Bilong Feng[1,3] and Ying Wang[2,3†]

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- 6 moments
  - Before cleaning and disinfection
  - After preparation of tools
  - After cleaning and disinfection
  - After doffing PPE
  - After transferring medical waste from the site
  - After environmental sorting of waste

References:

WHO 2009

He W, et al. Epidemiol Infect. 2023

6 Moments of Hand Hygiene

- 89 hospital cleaning staff
- 4 groups
  - Control: no HH training
  - Case group 1: 5- and 6-step training, 30-min training sessions at start of every month (3 months) addressing HH concepts, methods and 5-moments issues
  - Case group 2: training of case group 1 but 30-min training sessions additionally addressed 6-moments issues
  - Case group 3: training of case group 1 PLUS on-site teaching to simulate HH practice/behavior in the work environment + signs featuring the 6 moments displayed

References:

He W, et al. Epidemiol Infect. 2023

6 Moments of Hand Hygiene

- Improvement in hand hygiene adherence
  - Control: no improvement
  - Group 1: 31% → 43%
  - Group 2: 24% → 59%
  - Group 3: 27% → 84%
- Moments with highest adherence: (1) after doffing PPE and (2) after transferring medical waste from the site
- Peak hours of hand hygiene activity: 6-9 AM and 2-3 PM
- 6 moments of hand hygiene can serve as adherence monitoring indicator and direct relevant training interventions to improve HH among hospital cleaning staff

References:

He W, et al. Epidemiol Infect. 2023

Recent Studies: Impact of Gloving Practices on Infection Rates

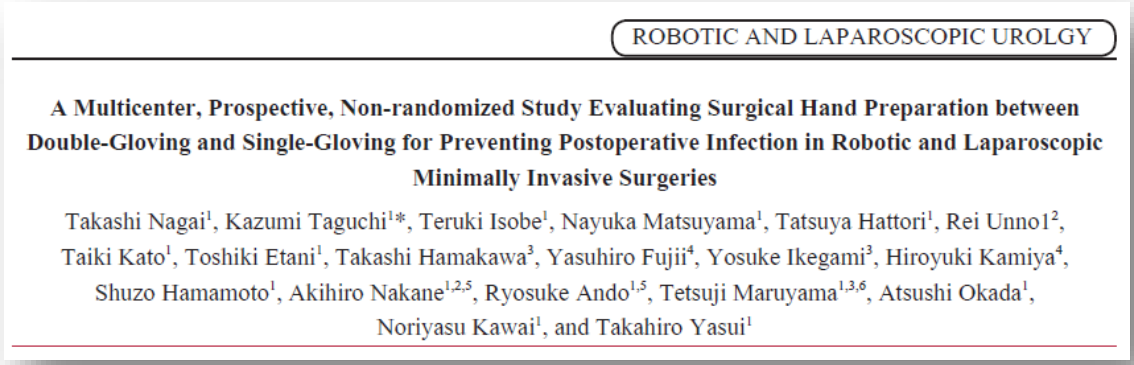
- Double gloves for urologic robotic/laparoscopic surgeries
- Microbiological profile of gloves used by food handlers

References:

Ansell

Double Gloves in Urologic Surgeries

- Prospective, nonrandomized multicenter study in Japan
- Double gloving (n = 221) vs single gloving (n = 251)
- Outcomes: postoperative fever, surgical site infection rates



ROBOTIC AND LAPAROSCOPIC UROLGY

A Multicenter, Prospective, Non-randomized Study Evaluating Surgical Hand Preparation between Double-Gloving and Single-Gloving for Preventing Postoperative Infection in Robotic and Laparoscopic Minimally Invasive Surgeries

Takashi Nagai[1], Kazumi Taguchi[1]*, Teruki Isobe[1], Nayuka Matsuyama[1], Tatsuya Hattori[1], Rei Unno1[2], Taiki Kato[1], Toshiki Etani[1], Takashi Hamakawa[3], Yasuhiro Fujii[4], Yosuke Ikegami[3], Hiroyuki Kamiya[4], Shuzo Hamamoto[1], Akihiro Nakane[1,2,5], Ryosuke Ando[1,5], Tetsuji Maruyama[1,3,6], Atsushi Okada[1], Noriyasu Kawai[1], and Takahiro Yasui[1]

- Lower incidence of postoperative fever in double gloving vs single gloving (11.7% vs 23.4%)
- No difference in SSI rates

References:

Nagai T, et al. Urol J. 2023

Gloves in Food Handlers

Journal of Food Protection 86 (2023) 100146

Contents lists available at ScienceDirect

Journal of Food Protection

journal homepage: www.elsevier.com/locate/jfp

Research Note

Microbiological Profiles of Disposable Gloves Used for Handling Ready-to-Eat Foods

Renuka Selvaraj [1], Er Jun Cheng [1], Patrick Gan [1], Jia Quan Oh [1], Kyaw Thu Aung [1,2,*]

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[2] School of Biological Sciences, Nanyang Technological University, 60 Nanyang Drive, Singapore 637551, Singapore

- Random: 50 food establishments in Singapore
- Swabbed gloves
- Standard Plate Counts (SPC)
- Damaged gloves: higher mean SPC

References:

Selvaraj R, et al. J Food Prot 2023

Recent Studies: Monitoring Hand Hygiene Behavior

- Self-reported hand hygiene adherence
- Acceptability of video-based monitoring: HCP
- Acceptability of video-based monitoring: Patients

Self-Reported Hand Hygiene Adherence

- Cross-sectional study
- 9 hospitals in the Netherlands
- Capability, Opportunity, Motivation-Behavior (COM-B) hand hygiene questionnaire vs observation data
- No association between self-reported and observed hand hygiene adherence
- Self-reported hand hygiene adherence is NOT a valid substitute for direct hand hygiene observations.

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Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

Validity of self-reported compliance and behavioural determinants of observed compliance: an application of the COM-B hand hygiene questionnaire in nine Dutch hospitals

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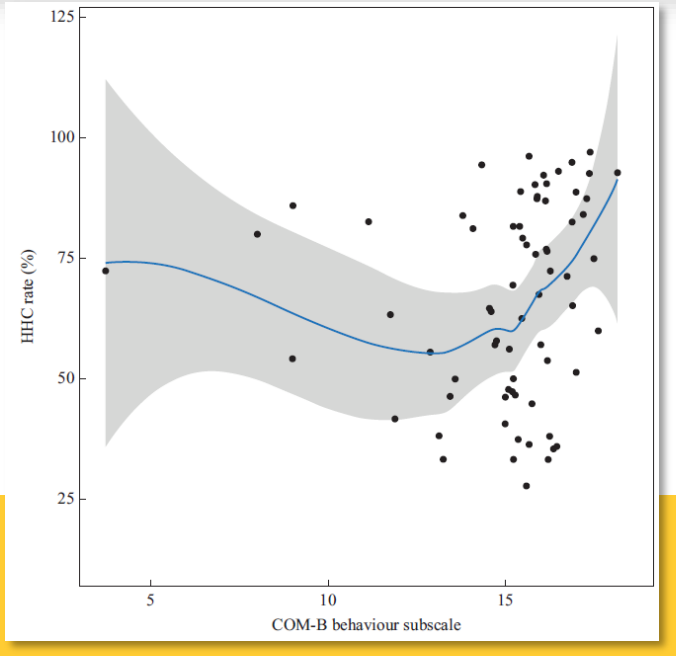

References:

Van Dijk MD, et al. J Hosp Infect 2023

Video Monitoring Acceptability: HCP

- Video-based monitoring of hand hygiene is largely unexamined
- Trial of video monitoring in Australia
- 2 group interviews: 5 HCP
- 4 themes
  1. Fears
  2. Concerns for patients
  3. Changes to feedback
  4. Behavioral responses to the cameras

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Major Article

Health care workers' experiences of video-based monitoring of hand hygiene behaviors: a qualitative study

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[e] Department of Infection Prevention and Control, Division of Infectious Diseases and Sexual Health, Westmead Hospital and Western Sydney Local Health District, Westmead, NSW, Australia

References:

McKay KJ, et al. Am J Infect Control 2023

Video Monitoring Acceptability: Patients

- Semi-structured interviews: 8 patients in Australia

- 4 themes
  1. Quality and safety of care versus privacy
  2. Consumer involvement: knowledge, understanding and consent
  3. Technical features of the system
  4. Rules of operation

PLOS ONE

Video based monitoring systems for hand hygiene compliance auditing: What do patients think?

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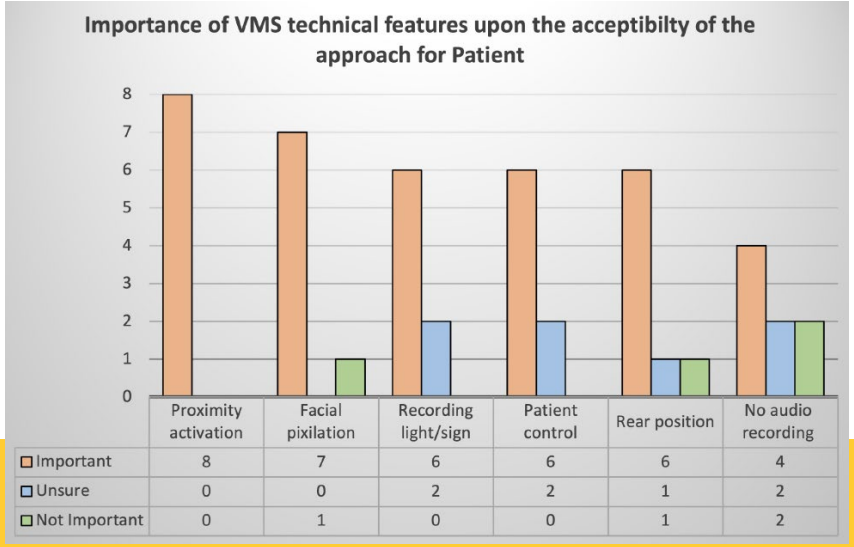

References:

McKay KJ, et al. PLoS One 2023

Conclusion

- Hand hygiene reduces infection rates including healthcare-associated infections.
- Adherence to hand hygiene remains low.
- Multifactorial barriers to hand hygiene adherence are addressed with multimodal and multidisciplinary strategies.
- Glove use and prevention of environmental contamination are two new essential practices identified in the 2022 Update of the SHEA/IDSA/APIC Practice Recommendations.
- Different handwashing techniques continue to be examined.
- Self-reported hand hygiene adherence is not a valid substitute for direct observation.
- Acceptability of video-based monitoring is complex and has potential to complicate implementation.

THANK YOU

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