Pro- Con
Is Hand Hygiene the "be all & end all" of IC ?

Linda R. Greene, RN, MPS,CIC,FAPIC

Manager, Infection Prevention

University of Rochester Highland Hospital Rochester, NY

linda_greene@urmc.rochester.edu

Let's Look Ahead

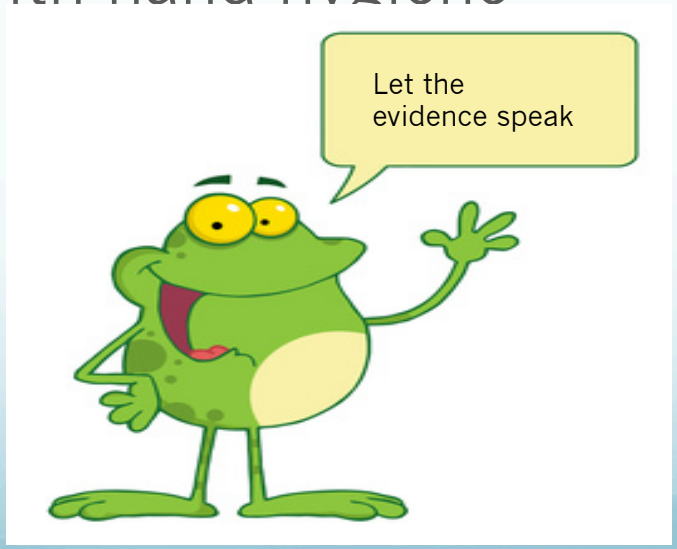
Imagine a world where hand hygiene was not an important part of our infection prevention practices


I HAVE SEEN THE FUTURE
GO BACK!


Germ Farm
GERMS
Scrub'em!
www.1st-in-handwashing.com

My Objectives Today

- Discuss why hand hygiene is such an essential component of infection prevention practice
- Review literature to support hand hygiene
- Describe social and psychological factors associated with hand hygiene



World Health Organization

Evidence of hand hygiene to reduce transmission and infections by multi-drug resistant organisms in health-care settings

Table: Key studies assessing the effect of hand hygiene interventions on MDROs' transmission and/or infection

Year Country	Setting	Effect on hand hygiene compliance and/or consumption of alcohol-based handrubs (ABHR)	Impact on MDROs'	Reference
2000 Switzerland	Hospital-wide	Significant increase in HH compliance from 48% to 66%. Increased consumption of ABHR from 3.5 to 15.4 L/1000 patient-days	Significant reduction in the annual overall prevalence of HAI (42%) and **MRSA*** cross-transmission rates (87%). Continuous increase in ABHR use, stable HAI rates and cost savings, in a follow-up study	Pittet D et al (9)
2008 Australia	1: 6 pilot hospitals 2: all public hospitals in Victoria (Australia)	1)Increase of HH compliance 21% to 48% . Increased consumption of ABHR from 5.3 to 27.6 L/ 1000 bed-days 2)Increase of HH compliance from 20% to 53%. Mean ABHR supply increased from 6.0 to 20.9 L/1000 bed-days	1) Significant reduction of **MRSA** bacteremia (from 0.05/1000 to 0.02/1000 pt-discharges per month) and of clinical MRSA isolates 2) Significant reduction of **MRSA** bacteremia (from 0.03/1000 to 0.01/1000 pt-discharges per month) and of clinical MRSA isolates	Grayson ML et al (11)
2009 USA	Hospital-wide 7 acute care facilities	Significant increase of HH compliance from 49% to 98% with sustained rates greater than 90%	Significant reduction of **MRSA** rates from 0.52 to 0.24 episodes/1000 patient days	Lederer JW et al (23)
2010 USA	2 acute hospitals	Significant increase of HH compliance from 65% to 82%	51% decrease in hospital-acquired **MRSA** cases during the 12-month*	Carboneau C et al (20)

Year Country	Setting	Effect on hand hygiene compliance and/or consumption of alcohol-based handrubs (ABHR)	Impact on MDROs'	Reference
2011 Australia	Nationwide (521 hospitals)	In sites not previously exposed to the campaign, increase of HH compliance went from 43.6% to 67.8%	Significant reduction of overall **MRSA** BSI (from 0,49 to 0,3497 per 10,000 patients-days) but not of hospital-onset MRSA BSI	Grayson ML et al (10)
2012 Hong Kong (China)	18 LTCFs (4 months)	Significant increase of HH compliance in intervention arms (27% to 61% and 22% to 49%) The proportions of ABHR usage among compliant actions increased from 33.9% - 53.2% to 90.3% - 94.6%	Significant decrease of 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)	Ho M et al (12)
2013 Saudi Arabia	Hospital-wide	Significant increase of HH compliance from 38% in 2006 to 83% in 2011 Significant increase in ABHR consumption over time from 10.3 to 57.3 L/1,000 patient-days.	Significant reduction of **MRSA** infections (from 0.42 to 0.08), VAP (from 6.1 to 0.8), CLA-BSI (from 8.2 to 4.8), catheter-associated UTI (from 7.1 to 3.5)	Al-Tawfiq AA et al (24)
2013 Spain	Hospital-wide	Significant HH compliance increase from 57% to 85%	Significant reduction of **MRSA** infections/colonization/10 000 pt-days*	Mestre G et al (25)

Literature

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

Improving hand hygiene from high to very high compliance has not been documented to decrease healthcare-associated infections. We conducted longitudinal analyses during 2013–2015 in an 853-bed hospital and observed a significantly increased hand hygiene compliance rate ($p<0.001$) and a significantly decreased healthcare-associated infection rate ($p = 0.0066$).

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 22, No. 9, September 2016

Findings

Healthcare-Associated Infections and Hand Hygiene

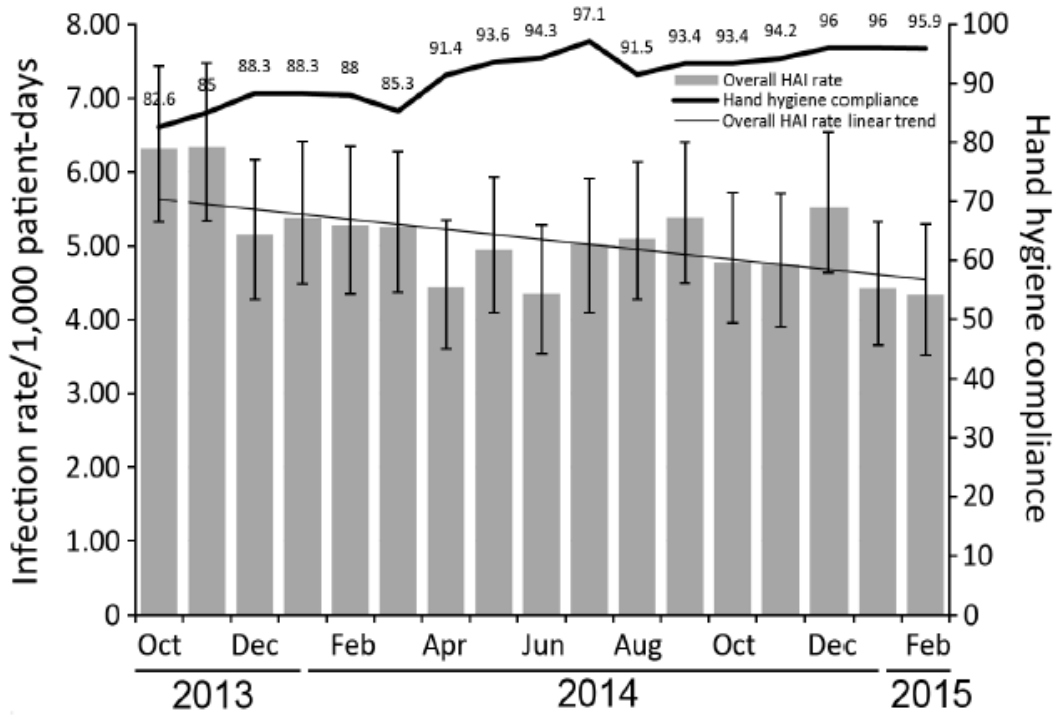
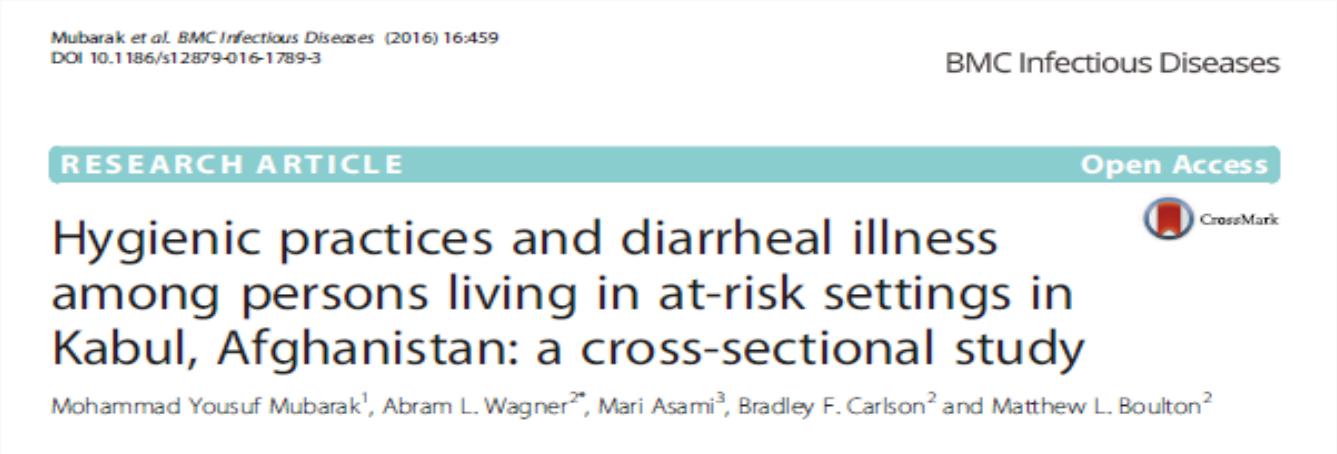


Figure. Overall healthcare-associated infection (HAI) rate and hand hygiene compliance by month, October 2013–February 2015. Numbers above data bar indicate monthly compliance percentages. Error bars indicate 95% CIs.

Diarrheal Illness



Mubarak et al. BMC Infectious Diseases (2016) 16:459
DOI 10.1186/s12879-016-1789-3

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Hygienic practices and diarrheal illness among persons living in at-risk settings in Kabul, Afghanistan: a cross-sectional study

Mohammad Yousuf Mubarak[1], Abram L. Wagner[2*], Mari Asami[3], Bradley F. Carlson[2] and Matthew L. Boulton[2]

Kabul, Afghanistan

- Compared Hygienic practices between persons living in internally displaced camp (IDP) to those living in an urban slum
- Knowledge and practices related to hand hygiene were reviewed

	Slum Dwellers	IDPs
Belief that it is necessary to wash hands	84%	64%
Washed hands before and after eating	31%	11%
Washed after defecating	25%	4%
Diarrhea in house Past 3 months	20%	54%

INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY MARCH 2016, VOL. 37, NO. 3

ORIGINAL ARTICLE

Hand Hygiene, Cohorting, or Antibiotic Restriction to Control Outbreaks of Multidrug-Resistant *Enterobacteriaceae*

Camille Pelat, PhD;[1,2] Lidia Kardaś-Słoma, PhD;[1,2,3] Gabriel Birgand, PhD;[1,2,3] Etienne Ruppé, PhD;[4] Michaël Schwarzinger, PhD;[1,2] Antoine Andremont, Prof;[4] Jean-Christophe Lucet, Prof;[1,2,3] Yazdan Yazdanpanah, Prof[1,2,5]

BACKGROUND. The best strategy for controlling extended-spectrum β-lactamase-producing *Enterobacteriaceae* (ESBL-PE) transmission in intensive care units (ICUs) remains elusive.

OBJECTIVE. We developed a stochastic transmission model to quantify the effectiveness of interventions aimed at reducing the spread of ESBL-PE in an ICU.

METHODS. We modeled the evolution of an outbreak caused by the admission of a single carrier in a 10-bed ICU free of ESBL-PE. Using data obtained from recent muticenter studies, we studied 26 strategies combining different levels of the following 3 interventions: (1) increasing healthcare worker compliance with hand hygiene before and after contact with a patient; (2) cohorting; (3) reducing antibiotic prevalence at admission with or without reducing antibiotherapy duration.

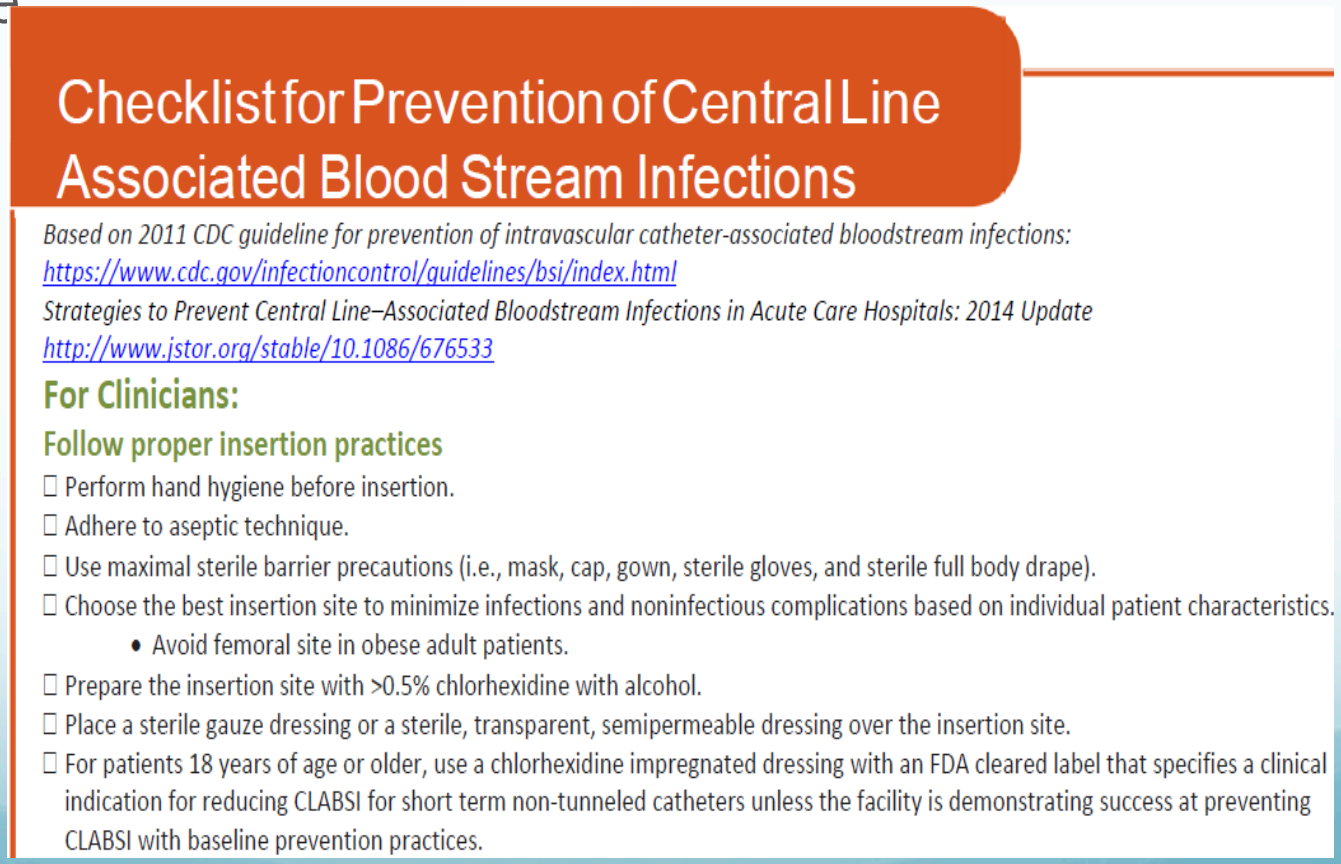
RESULTS. Improving hand hygiene compliance from 55% before patient contact and 60% after patient contact to 80% before and 80% after patient contact reduced the nosocomial incidence rate of ESBL-PE colonization by 91% at 90 days. Adding cohorting to hand hygiene improvement intervention decreased the proportion of ESBL-PE acquisitions by an additional 7%. Antibiotic restriction had the lowest impact on the epidemic. When combined with other interventions, it only marginally improved effectiveness, despite strong hypotheses regarding antibiotic impact on transmission.

CONCLUSION. Our results suggest that hand hygiene is the most effective intervention to control ESBL-PE transmission in an ICU.

Infect. Control Hosp. Epidemiol. 2016;37(3):272–280

What else?

There is no other infection prevention intervention that is present in almost every protocol or evidence-based guideline



Checklist for Prevention of Central Line Associated Blood Stream Infections

Based on 2011 CDC guideline for prevention of intravascular catheter-associated bloodstream infections:
https://www.cdc.gov/infectioncontrol/guidelines/bsi/index.html
Strategies to Prevent Central Line–Associated Bloodstream Infections in Acute Care Hospitals: 2014 Update
http://www.jstor.org/stable/10.1086/676533

For Clinicians:

Follow proper insertion practices

- ☐ Perform hand hygiene before insertion.
- ☐ Adhere to aseptic technique.
- ☐ Use maximal sterile barrier precautions (i.e., mask, cap, gown, sterile gloves, and sterile full body drape).
- ☐ Choose the best insertion site to minimize infections and noninfectious complications based on individual patient characteristics.
  - Avoid femoral site in obese adult patients.
- ☐ Prepare the insertion site with >0.5% chlorhexidine with alcohol.
- ☐ Place a sterile gauze dressing or a sterile, transparent, semipermeable dressing over the insertion site.
- ☐ For patients 18 years of age or older, use a chlorhexidine impregnated dressing with an FDA cleared label that specifies a clinical indication for reducing CLABSI for short term non-tunneled catheters unless the facility is demonstrating success at preventing CLABSI with baseline prevention practices.

CAUTI Prevention

CAUTI Prevention Tool - IUC Insertion Checklist

	Yes	Yes with Reminder	Comments
Before IUC Insertion :			
1) Determine if IUC is appropriate per the CDC Guidelines (CDC, 2009) (See page 1, Box 1). 2) Select smallest appropriate IUC (14 Fr., 5ml or 10 ml balloon is usually appropriate unless ordered otherwise). 3) Obtain assistance PRN (e.g., 2-person insertion, mechanical aids) to facilitate appropriate visualization/insertion. 4) Perform hand hygiene			

More Checklists

Prevention of Norovirus

- In a healthcare facility, patients with suspected norovirus may be placed in private rooms or share rooms with other patients with the same infection.
- Follow hand-hygiene guidelines, and carefully washing of hands with soap and water after contact with patients with norovirus infection
- Use gowns and gloves when in contact with, or caring for patients who are symptomatic with norovirus

Prevention of C difficile

Basic Practices

- Appropriate use of antimicrobials
- Hand hygiene per CDC/WHO recommendations
  - Measure healthcare personnel adherence
- Contact Precautions for CDI patients
  - Measure healthcare personnel adherence
- Cleaning and disinfection of equipment and environment
- Laboratory-based alert system for immediate notification to IP and clinical personnel of newly diagnosed CDI patients
- CDI surveillance, analysis, and reporting
- Educate healthcare personnel, patients, and families


UC insertion and maintenance
Central line insertion and Maintenance
Prevention of MDRO
Hand Hygiene
Prevention of diarrheal outbreaks
Surgical scurb
Prevention of c *difficile*

Hand Hygiene?








Hand Hygiene – those we care ab deserve no less!

clean hands save lives

Wash Your Paws!!