

Minute to Win it...Championing Infection Prevention and Control

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Disclosure

- Facilitator for the **Unilab Medical Education and Development** interactive sessions

Introduction

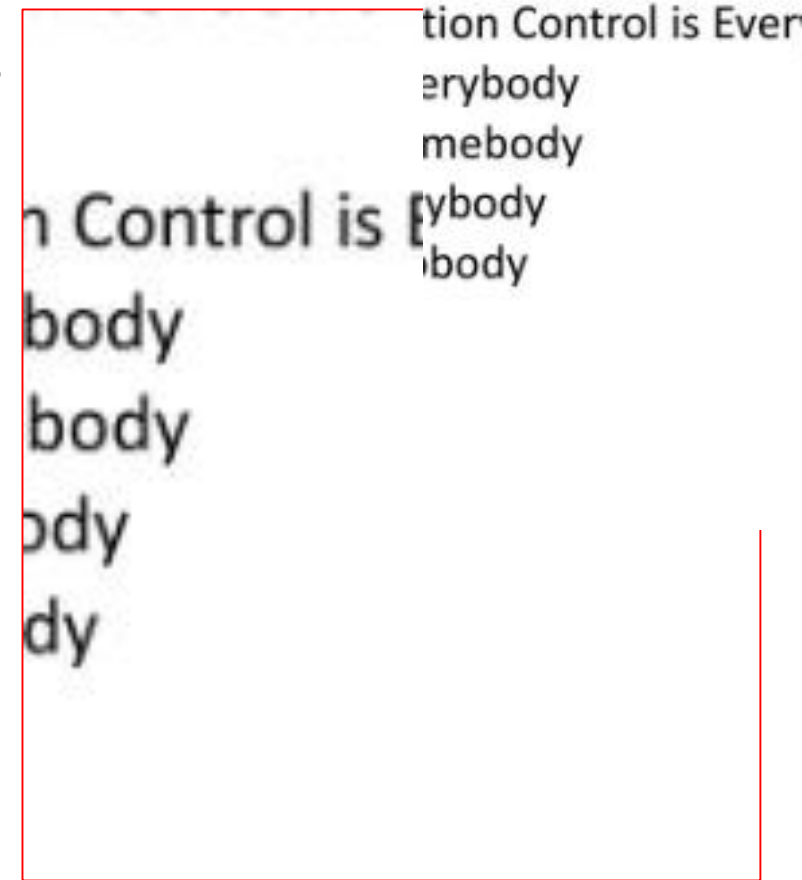
Healthcare –associated infections remain to be a global health concern, a major patient safety issue

BUT, are potentially preventable through an effective infection prevention and control program.

an Interaction

Infection Control is: Everybody's Business!

- Nobody's
- Anybody's
- Somebody's
- Everybody's





Infection Prevention is Everybody's Business

International Infection Prevention Week

October 14-20, 2018

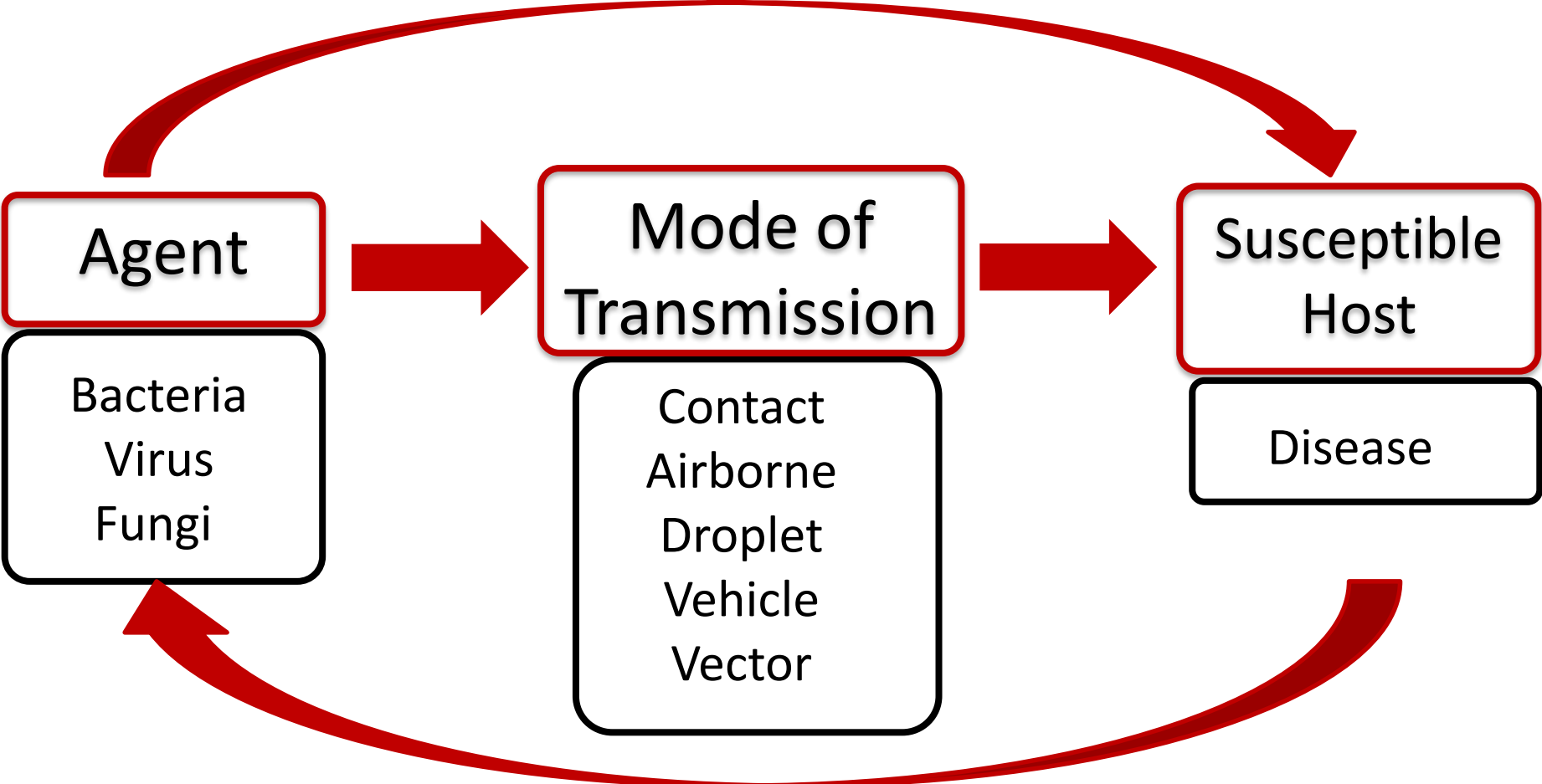
Association of Professionals in Infection Control and Epidemiology, Inc. (APIC)

Main Objective

- To review the basics of infection prevention and control through the H-E-A L-S approach

- **Health care-associated infection (HCAI, HAIs)**
 - Also referred to as “nosocomial” or “hospital” infection
 - An infection during the process of care in a health-care facility NOT present or incubating at the time of admission.
 - infections acquired in the health-care facility but appearing after discharge
 - occupational infections among health-care workers of the facility

CHAIN OF INFECTION



Berba RP (ed) for UPCM IPC Working Group. DOH Infection Prevention & Control Training Manual Volume I For Healthcare Workers 2018. Manila

Hands of healthcare worker : MOST IMPORTANT SOURCE

Impact of Health care-associated Infections(HCAI)

HCAI can cause:

- more serious illness
- prolongation of stay in a health-care facility
- long-term disability
- excess deaths
- high additional financial burden
- high personal costs on patients and their families



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Patient Safety

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SAVE LIVES

Clean Your Hands

PREVALENCE OF HEALTH CARE-ASSOCIATED INFECTION

- WORLDWIDE¹
 - Developed countries - 7% of hospitalized patients
 - Low and middle income countries- 5.7% to 19.1% of hospitalized patients

- SOUTHEAST ASIA² - 9%

¹Vilar-Compte et al. Infection Control in Limited Resources Countries: Challenges and Priorities. *Curr Infect Dis Rep* 2017, 19(20): 1-7.

²Ling, et al. The Burden of Healthcare-Associated Infections in Southeast Asia: A Systematic Literature Review and Meta-analysis. *Healthcare Epidemiology* 2015(60): 1690-1699.

Device-associated infection rates in ICUs in developing countries compared with NHSN rates(USA)

SURVEILLANCE NETWORK, Study Period, Country	Setting	No. of Patients	CLABSI (per 1000 device days)	VAP (per 1000 device days)	CAUTI (per 1000 device days)
INICC, 2002-2007 18 developing countries inclg Philippines + ¹	PICU	1808	6.9	7.8	4.0
NHSN, 2006-2007, USA ²	PICU	/	2.9	2.1	5.0
INICC, 2002-2007, developing countries inclg Philippines+ ¹	Adult ICU#	26155	8.9	20.0	6.6
NHSN, 2006-2007, USA ²	Adult ICU #	/	1.5	2.3	3.1

Overall (pooled mean) infection rates/1000 device-days

INICC = International Nosocomial Infection Control Consortium; NHSN = National Healthcare Safety Network;

¹ Rosenthal V et al. *Am J Infect Control* 2008

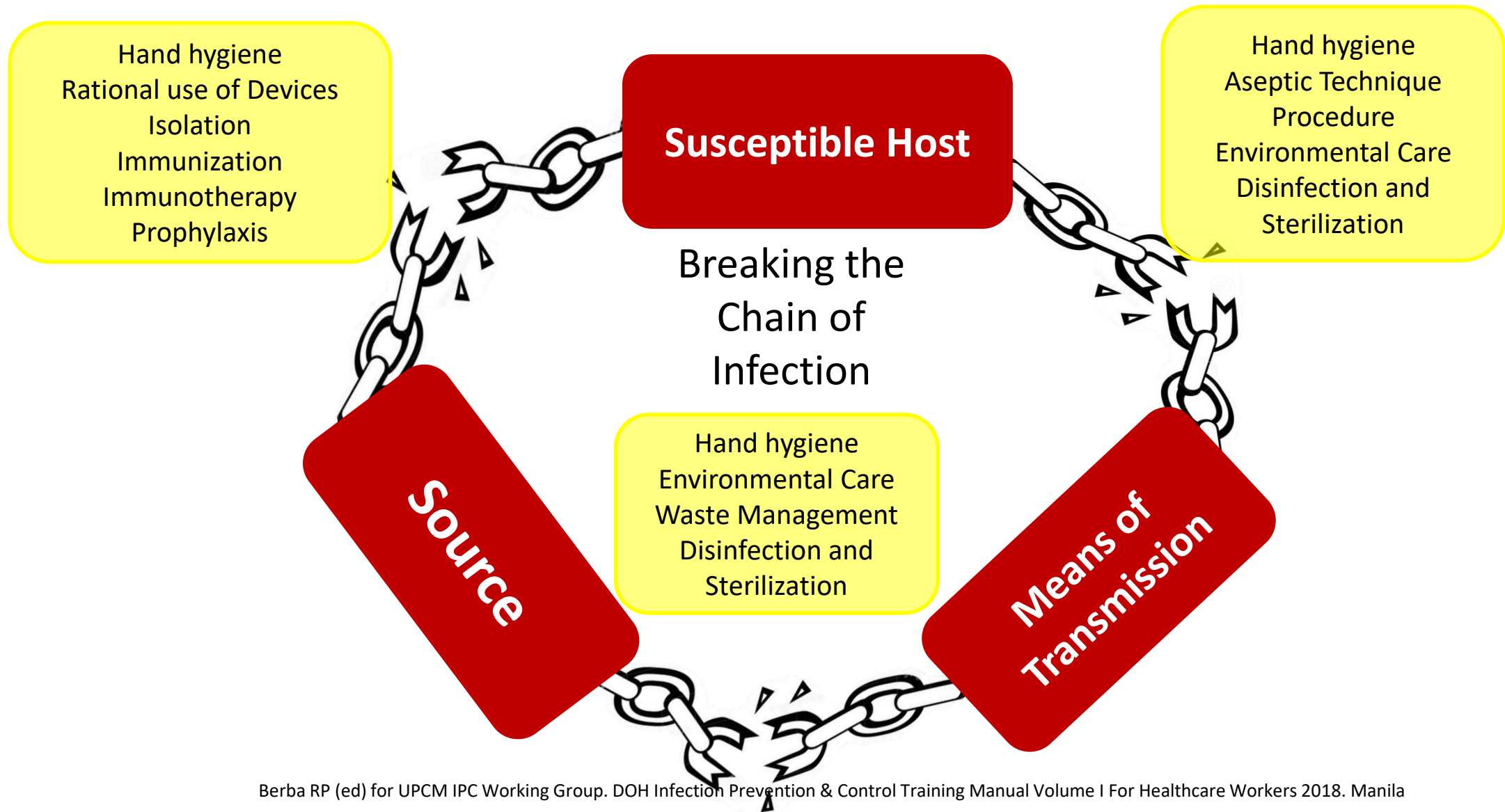
² NHSN report. *Am J Infect Control* 2008

† Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, El Salvador, India, Kosova, Lebanon, Macedonia, Mexico, Morocco, Nigeria, Peru, Philippines, Turkey, Uruguay

Medical/surgical ICUs

Burden of Health care-associated infections

- “Although often hidden from public attention, the very real endemic, on- going problem is one that NO institution or country can claim to have solved, despite many efforts. “
 - At least 30% of HAIs can be prevented by an effective infection prevention and control program



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An effective IPC program can minimize transmission of infectious agents & development of HAI



DOH National Policy on Infection Control Administrative order No.2016-0002

- signed and approved on January 2016
- developed to guide, standardize and improve the practice of infection control in the country across all levels of healthcare facilities, private or public, classified as Level 1 facility, level 2, or 3 and whether in rural or urban.

DOH Infection Prevention and Control Training Manual

DOH INFECTION PREVENTION
& CONTROL TRAINING MANUAL

VOLUME 1 FOR HEALTHCARE WORKERS



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VOLUME 1 FOR HEALTHCARE WORKERS



The UPCM IPC Working Group
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Department of Health

- up-to-date, practical, relatively concise guide in implementing HAI prevention measures
- used in conjunction with the user's institutional procedures on infection control

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VOLUME 1 FOR HEALTHCARE WORKERS



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H-E-A-L-S Approach

- acronym for easy recall
- Integrates the 10 best strategies for Infection Prevention Control(IPC)

H of **H-E -A -L -S** Approach **Hand Hygiene**

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H of **H-E -A -L -S** Approach **Hand Hygiene**

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- the single most effective measure to reduce HAIs and the cross-transmission of pathogens



Healthcare workers' HANDS (HCWs')

- when NOT CLEAN are the main route of cross-transmission of potentially harmful bugs
- 50-70% of HAIs are linked to poor hand hygiene.



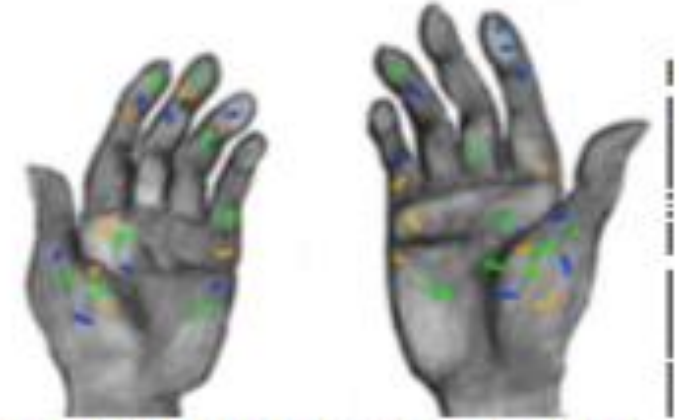
5 Steps of Hand Transmission



Step 1: germs **present** on patient skin and immediate environment surfaces



Step 2: germs **transfer** onto health-care worker's hands



Step 3: germs **survive** on hands for several minutes



Figure 10. Organisms surviving in



Figure 11. Organisms may grow and



Step 4: suboptimal or omitted hand cleansing results in hands **remaining contaminated**



Step 5: contaminated hands **transmit** germs via direct contact with patient or patient's immediate environment



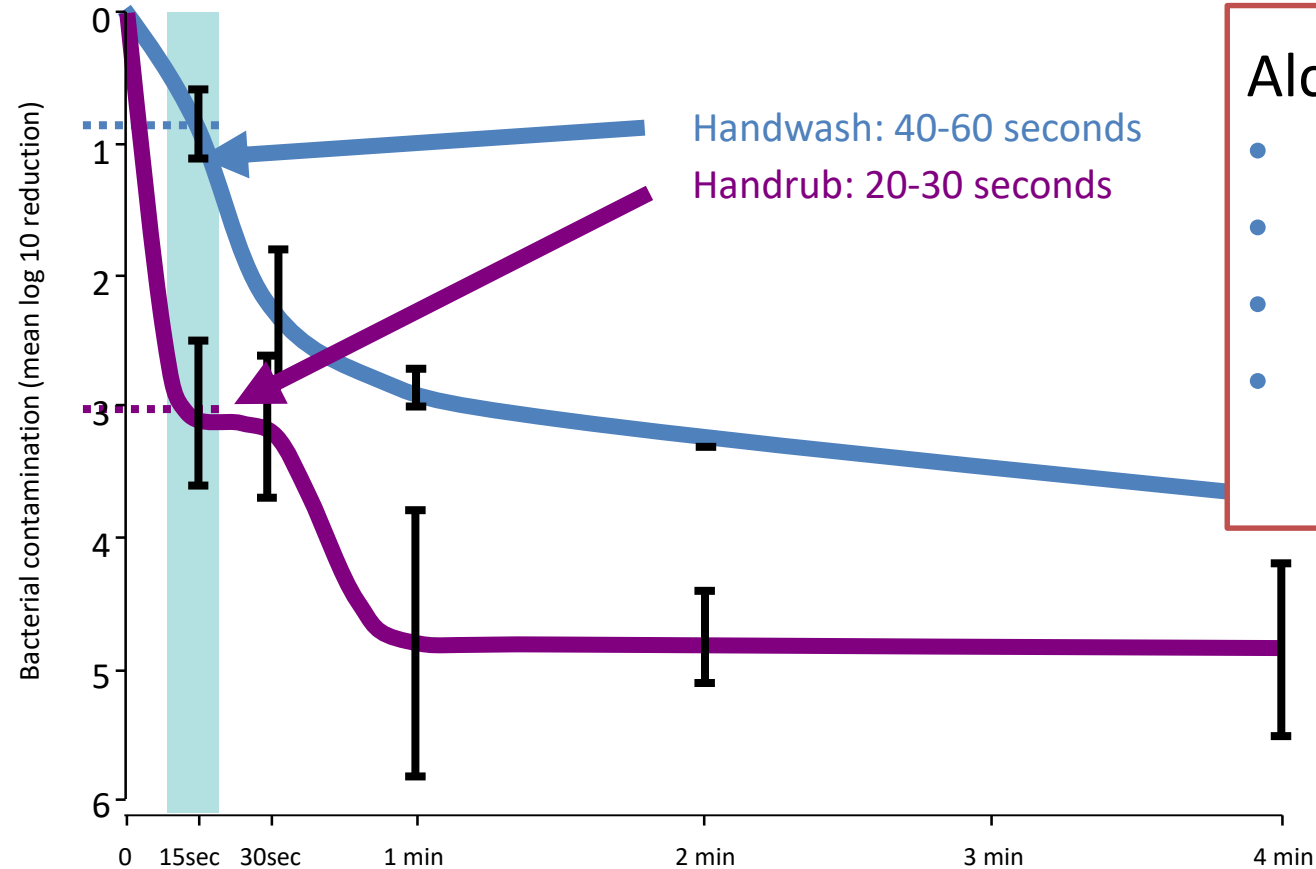
Figure 14. The HCW can also come within patient's immediate

Your 5 Moments for Hand Hygiene



Hand Hygiene: Handwash versus Handrub

Application time of hand hygiene and reduction of bacterial contamination



Alcohol-based Handrub is:

- faster
- more effective
- better tolerated
- done at point-of-care

Alcohol-based hand rub is the solution to obstacles to improve hand hygiene compliance

Do handwashing with soap and water when hands are visibly dirty or following visible exposure to body fluids

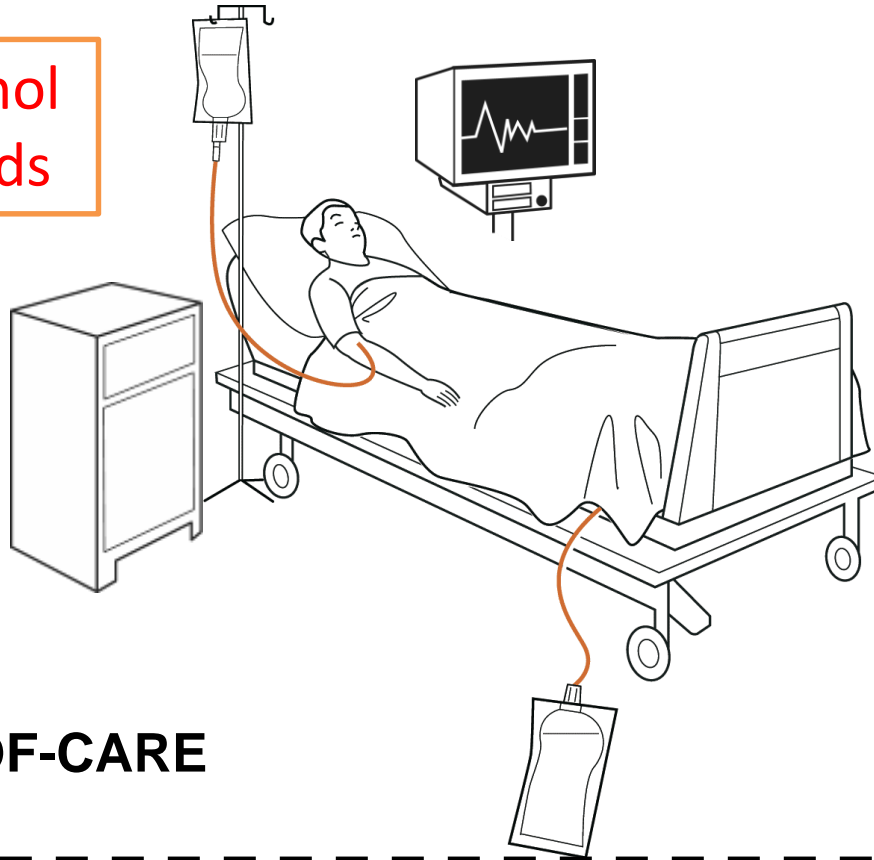


**Alcohol-based handrub
Is the gold standard
in all other clinical
situations**



OPTIMAL HAND HYGIENE SHOULD BE PERFORMED

- 3 ml of alcohol
- 20-30 seconds



AT THE
POINT-OF-CARE

Why? To protect yourself and the health-care environment from harmful patient germs



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WHO Guidelines
on Hand Hygiene in Health Care

First Global Patient Safety Challenge
Clean Care is Safer Care



SAVE LIVES: Clean Your Hands

5 May 2009–2020

- Part of the WHO :Clean Care is Safer Care
The First Global Patient Safety Challenge

- Emphasizes the importance of clean hands in health care



SAVE LIVES: Clean Your Hands

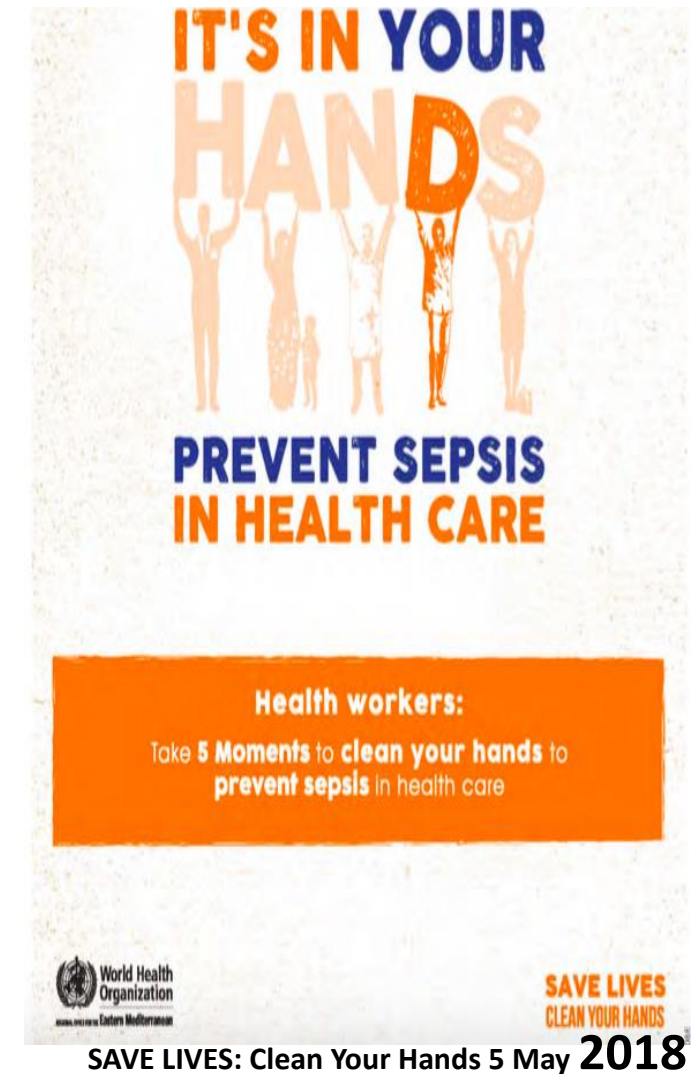
WHO's global annual call to action for health workers for continual, sustainable best practice in hand hygiene at the point of care



SAVE LIVES: Clean Your Hands 5 May 2016



SAVE LIVES: Clean Your Hands 5 May 2017



SAVE LIVES: Clean Your Hands 5 May 2018

- Recognizing Sepsis as a Global Health Priority-WHO Resolution



The NEW ENGLAND
JOURNAL of MEDICINE

N Engl J Med 2017; 377:414-417



Healthcare-associated sepsis and the role of clean hands

International Journal of Infectious Diseases 70 (2018) 101–103

- Linked to exogenous cross-transmission
- HCWs' hands are the most important vehicle for microbial cross-transmission to patients
- 50-70% of HAIs are linked to poor hand hygiene
- Conclusion: increasing hand hygiene compliance could play a pivotal role in preventing healthcare-associated sepsis in both developing and developed countries



Top 5 Healthcare- Associated Infections

	2017	2018
1. Sepsis	115 (35.49%)	233 (47.55%)
a) LCBSI	72 (22.22%)	133 (27.14%)
b) Clinical sepsis	43 (13.27%)	103 (21.02%)
2. HAP	109 (33.64%)	139 (28.37%)
3. VAP	33 (10.19%)	52 (10.61%)
4. SSTI	13 (4.01%)	9 (1.84%)
5. UTI	8 (2.47%)	14 (2.86%)



Top 3 Pathogens for Laboratory-confirmed bloodstream infections (LCBSI)

Pathogens	2017	2018
1. Gram negative	63	58
<i>K. pneumoniae</i> (ESBL)	40(7)	37(6)
<i>A. baumannii</i>	12	12
<i>S. marcescens</i>	11	9
2. Fungal- <i>Candida</i> sp.	25	40
3. Gram positive- CONS	16	26

SAVE LIVES: Clean Your Hands 5 May 2019



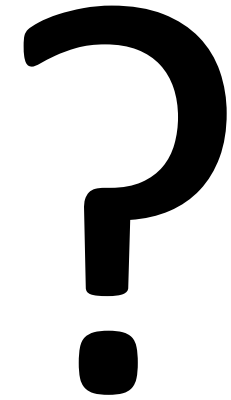
**CLEAN CARE
FOR ALL
IT'S IN YOUR
HANDS**

#HandHygiene

#InfectionPrevention

#HealthForAll

What is your compliance rate to hand hygiene



Your 5 Moments for Hand Hygiene



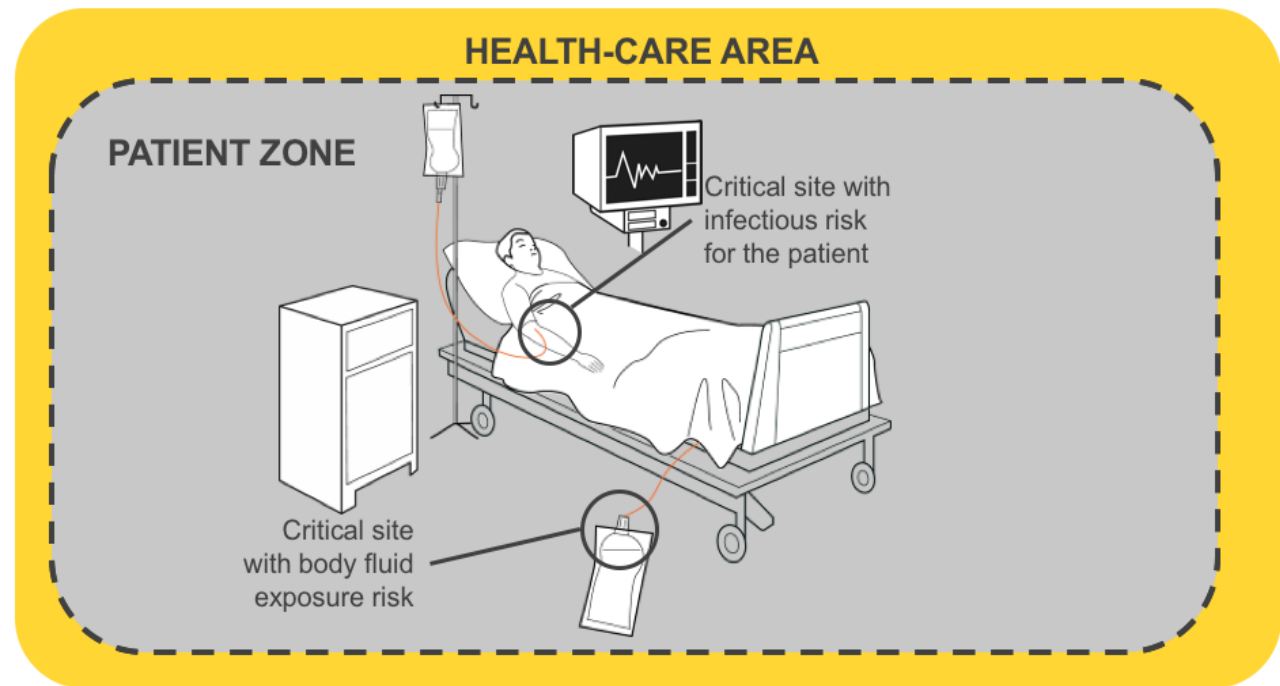
E of **H -E -A L- S** Approach

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Environmental Sanitation

Patient Environment in Healthcare Setting

The geographical conceptualization of the transmission risk



- harbor a reservoir of potentially harmful multidrug-resistant organisms (MDROs).
- environmental contamination increases risk of HAIs

Pittett D et al. Lancet Infect Dis 2006;6:641-652.

Huselage K et al. Infect Control Hosp Epidemiol 2010; 31(8):850-853

Survival time of multidrug-resistant organisms (MDROs) on dry inanimate objects

Table 1. Summary of survival time versus prior room occupancy risk for healthcare-associated infections.

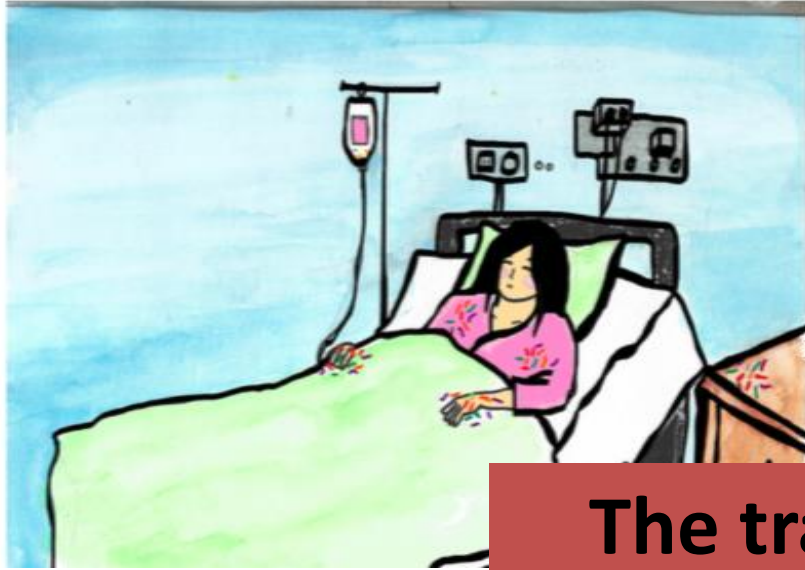
Organism	Survival time*	Prior room occupancy risk increase [§]
MRSA	7 days to >12 months	1.5
VRE	5 days to >46 months	2.25
<i>Pseudomonas aeruginosa</i>	6 h to 16 months	1.75
<i>Clostridium difficile</i>	>5 months (spores)	2.5
<i>Acinetobacter baumannii</i>	3 days to 11 months	3.5
CRE	19 days	
<i>Norovirus (feline calicivirus)</i>	8 h to 7 days	Limited data
<i>Rotavirus</i>	6–60 days	Limited data

Adapted from Kramer *et al.* [2006], Otter *et al.* [2013], and Havill *et al.* [2014].

*Survival times of multidrug-resistant organisms (MDROs) on dry inanimate objects. Range depends on experimental design and methods of assessing contamination.

[§]Ratio of increased risk associated with the room being previously occupied by patients infected with common MDROs.

5 Steps of Hand Transmission



Step 1: germs present on patient



The transfer of microorganisms is mostly through the hands of HCWs.

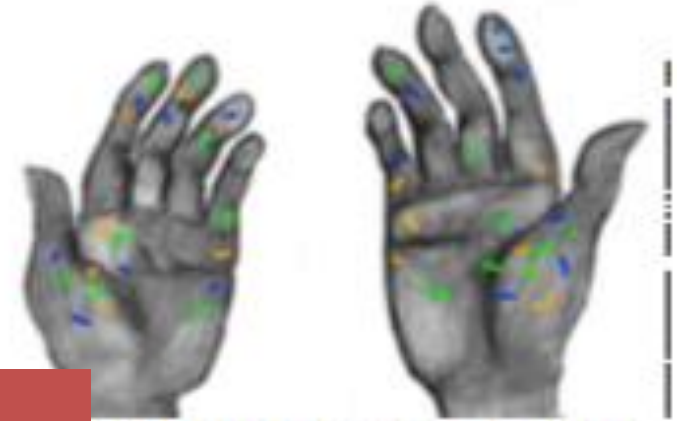


Figure 10. Organisms surviving in



organisms surviving in

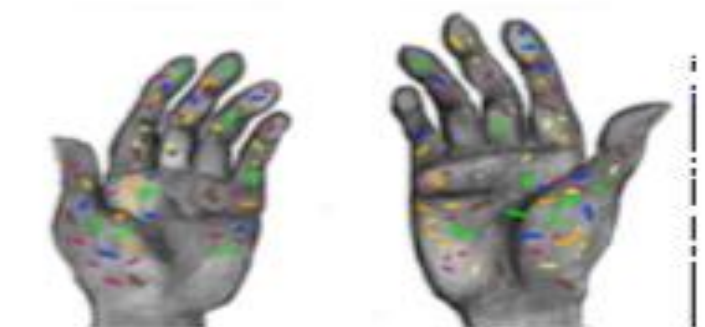


Figure 11. Organisms may grow and



Step 5: contaminated hands transmit germs via direct contact



Figure 14. The HCW can also come within patient's immediate

Step 4: suboptimal or omitted hand cleansing results in hands remaining contaminated

Step 5: contaminated hands transmit germs via direct contact

E of **H-E -A -L -S** Approach **Environmental Hygiene**

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Effective Ways to Disrupt Transmission and Spread of Microorganisms in Healthcare Settings

- **Cleaning** (frequently touched surfaces e.g., bedrails, charts, commodes, doorknobs,etc)
- **Disinfection and Sterilization**

A of **H-E-A L-S** Approach

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Antimicrobial Stewardship

Battle Against Antimicrobial Resistance

DOH- Antimicrobial Resistance Surveillance Program (ARSP) 2017 Data Summary Report



Figure 49. Percentage ESBL producing *K. pneumoniae*, DOH ARSP, 2017

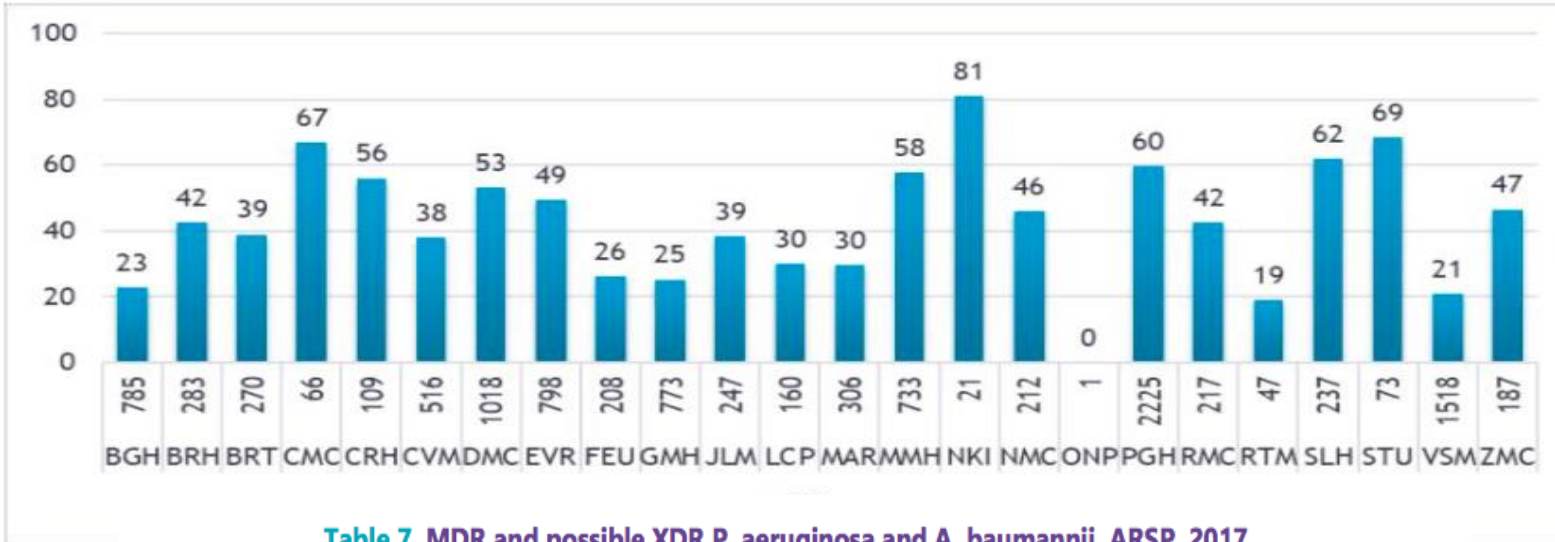


Table 7. MDR and possible XDR *P. aeruginosa* and *A. baumannii*, ARSP, 2017

Organism	Number of isolates tested	Percentage MDR	Percentage Possible XDR
<i>Pseudomonas aeruginosa</i>			
All isolates	6,776	21%	16%
Blood isolates	420	18%	13%
<i>Acinetobacter baumannii</i>			
All isolates	5,030	63%	52%
Blood isolates	657	47%	33%

- Multidrug Resistant Organisms (**MDROs**) on the rise
- Misuse /Overuse of antimicrobials lead to antimicrobial resistance
- MDRO Infections are more difficult to treat

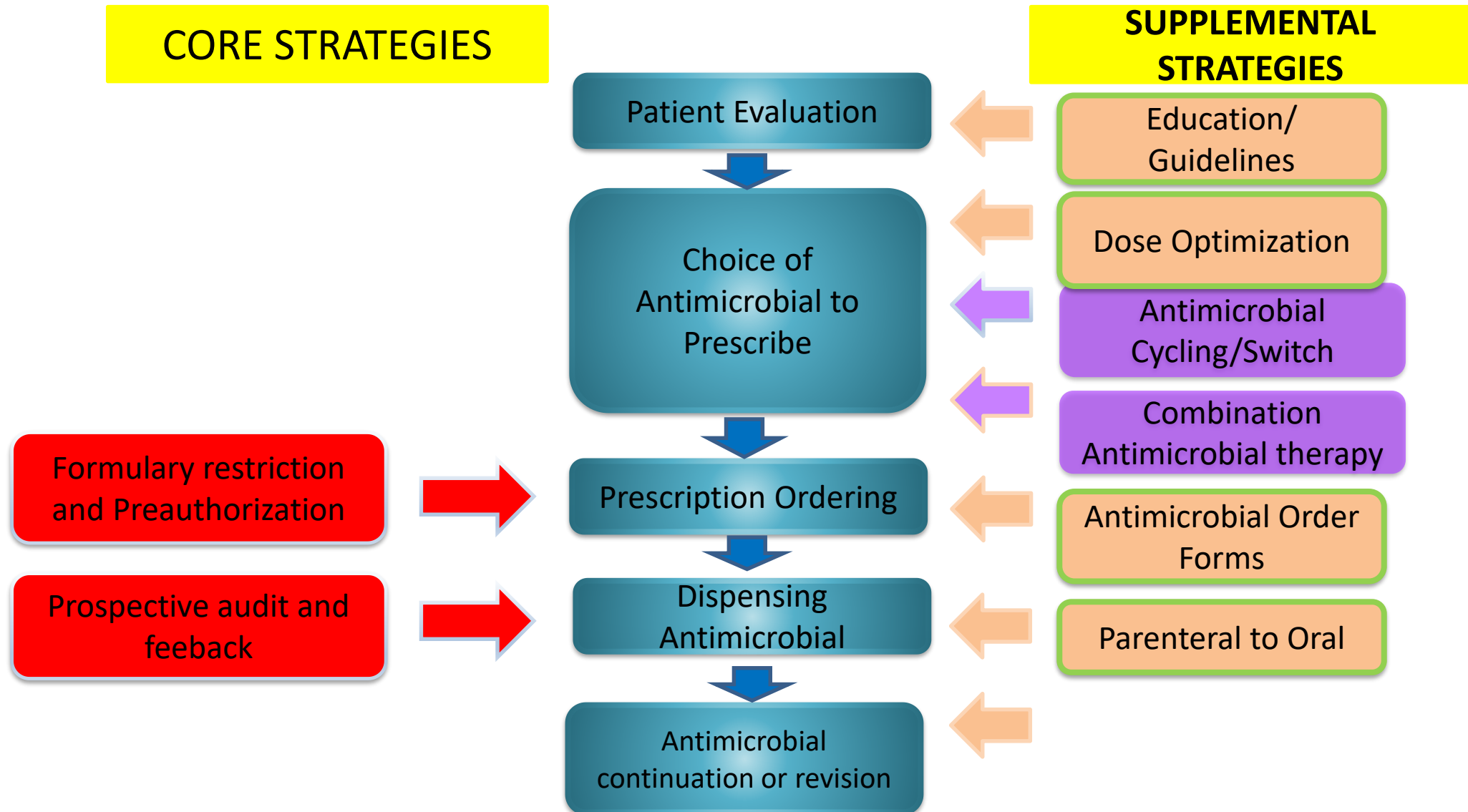
A of **H-E-A-L-S** Approach **Antimicrobial Stewardship**

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- limits the inappropriate use and optimize antimicrobial selection, dosing, route, and duration of therapy to maximize clinical cure or prevention of infection while limiting the unintended consequences (e.g. resistance, adverse drug events, and cost)

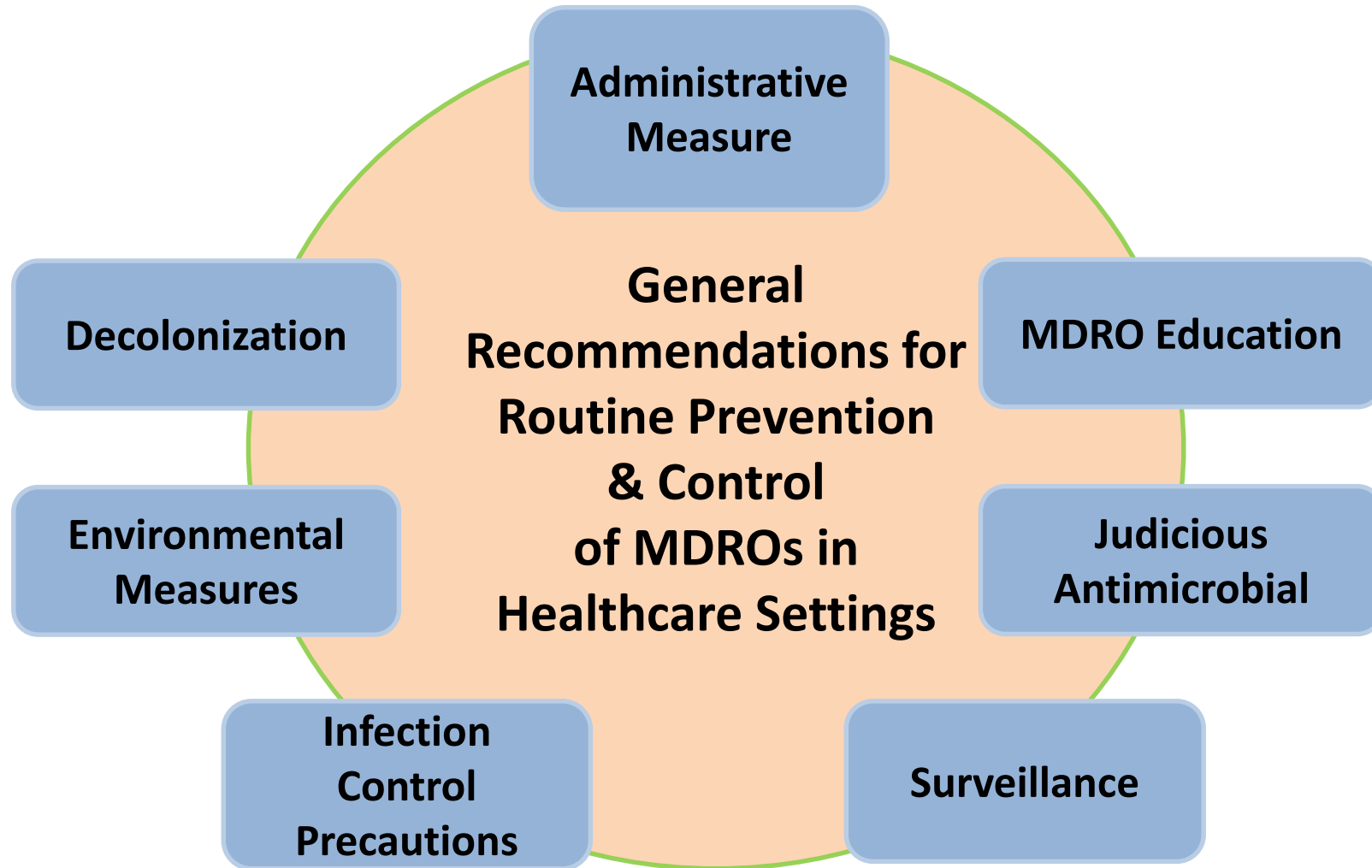
Antimicrobial Stewardship AMS Strategies

Dellit TH et al. Antimicrobial Stewardship Guidelines • CID 2007:44 (15 January)



Interventions for Prevention and Control of MDROs in Healthcare Setting

Siegel JD et al. Available from: <https://www.cdc.gov/infectioncontrol/guidelines/mdro/>



Evidence support the use of **multiple interventions** to reduce the rates of MDRO in acute care hospitals.

- The Department of Health requires all hospitals to implement and monitor their Antimicrobial Stewardship Programs **effective 2022**

L of **H E A L S** Approach

Lowering of HAIs Through Bundle

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L of **H E A L S** Approach **Lowering of HAIs Through Bundle**

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Health Care “Bundle” - a set of evidence-based interventions (3-5) for a defined patient population & care setting ; if implemented together, will result in significantly better outcomes

Resar R, Gri n FA, Haraden C, Nolan TW. *Using Care Bundles to Improve Health Care Quality*. (Available on www.IHI.org)

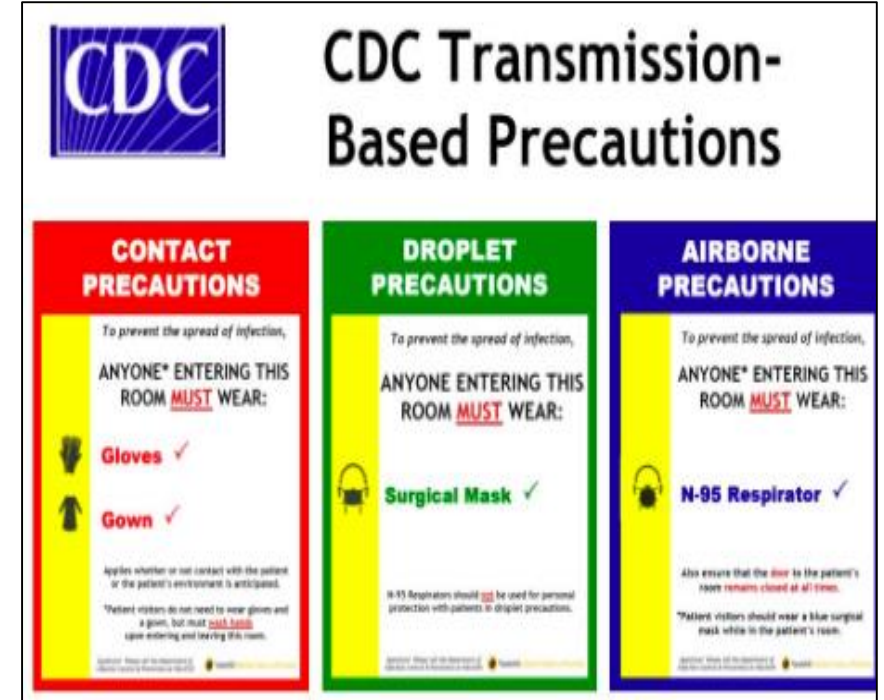
Summary of the Bundles of Care

CLABSI	VAP	CAUTI	SSI
<ol style="list-style-type: none"> 1.) Hand hygiene before IVD insertion; 2.) Maximal barrier precaution during the insertion procedure 3.) Cutaneous antisepsis with CHG; 4.) Optimal catheter insertion site selection, with the subclavian vein the preferred site for CVCs 5.) Daily review of continued need , with immediate removal when no longer needed 	<ol style="list-style-type: none"> 1.) Elevation of the head of the bed 30-45 degree; 2.) Daily sedation hold; 3.) Deep vein thrombosis 4.) Gastric ulcer prophylaxis; 5.) Oral care 	<ol style="list-style-type: none"> 1.) Hand hygiene; 2.) Cutaneous and meatal antisepsis 3.) Sterile field and sterile gloves; 4.) Single attempt at insertion allowed for each catheter 5.) Adequate UC ball boon inflation; 6.) Daily review of the need for a UC with prompt removal if no longer needed 	<ol style="list-style-type: none"> 1.) Cutaneous antisepsis 2.) Appropriate antimicrobial dose and selection 3.) Prophylactic antibiotics within 60 min before surgery; 4.) Glycemic control 5.) Normothermia pre-and post operatively

“But...core components of infection control must be in place before “bundles” are implemented...”

Key Elements of Standard Precautions

1. Hand hygiene
2. Wearing of PPE's (Gloves, Masks, Gowns)
3. Prevention of needlestick/sharp injury
4. Respiratory & cough etiquette
5. Environmental cleaning
6. Linens
7. Waste disposal
8. Patient care equipment



S of **H E A L S** Approach **Surveillance and HCW Safety**

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S of **H E A L S** Approach **Surveillance and HCW Safety**

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Surveillance

- Establish rate of HAIs at your setting
- Assess current infection prevention protocols
- Provide regular feedback for continuous improvement

S of **HEALS** Approach **Surveillance and HCW Safety**

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Safety of HCWs

- Screening and cohorting patients
- Isolation precautions
- Vaccination of employees (TDaP, HepB, Influenza, Varicella, MMR)

Conclusion

- **Infection Prevention and Control is Everybody's Business!**

- **H-E -A -L -S Approach**

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H- Hand Hygiene

E- Environmental Sanitation

A- Antimicrobial Stewardship

L- Lowering of HAIs Through Bundles

S- Surveillance and HCW Safety

- Be a champion in infection and prevention control !
- Be the Change!



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Minute to Win it...Championing Infection Prevention and Control

It takes **LESS THAN A MINUTE** to do alcohol – based handrub in **5** important moments and together with other infection prevention and control measures, these **MAY HELP WIN** the war against healthcare infections!

Thank You!