Fight Antibiotic Resistance: It's in Your Hands
Prof. Didier Pittet and Prof. Benedetta Allegranzi, World Health Organization
Sponsored by the WHO Infection Control Global Unit

UNIVERSITÉ DE GENÈVE
FACULTÉ DE MÉDECINE

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WHO Collaborating Centre on Patient Safety Infection Control & Improving Practices

Fight Antibiotic Resistance: It's in Your Hands

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www.webbertraining.com May 5, 2017

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http://www.who.int/infection-prevention/campaigns/clean-hands/2017/en/

http://tinyurl.com/WHO5May2017 2

Hosted by Claire Kilpatrick, WHO Infection Control Global Unit
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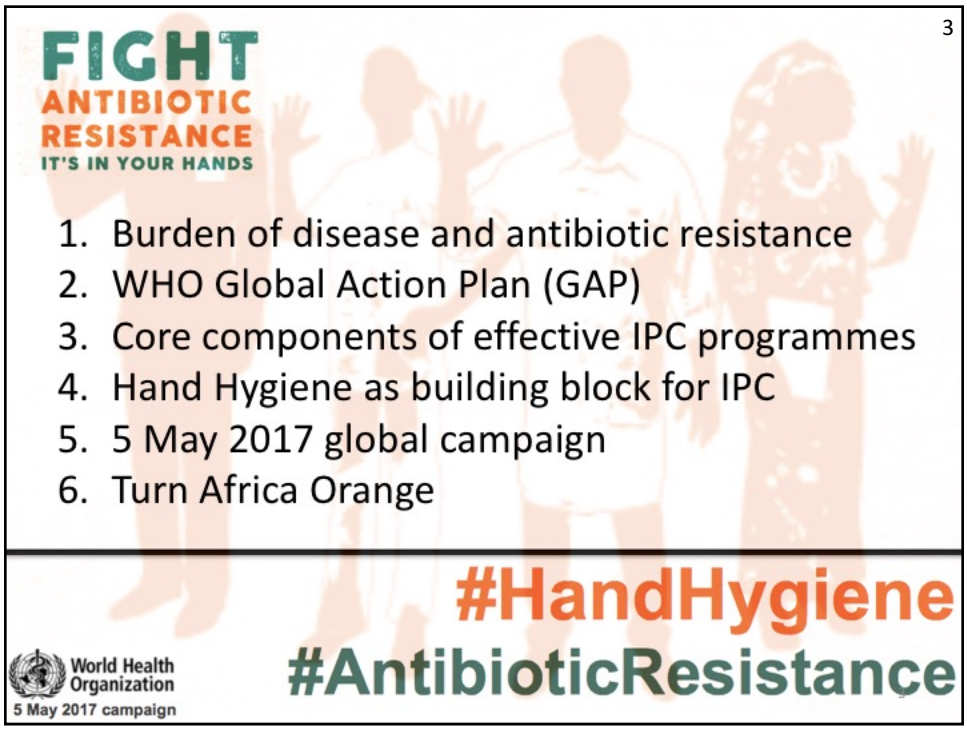
www.webbertraining.com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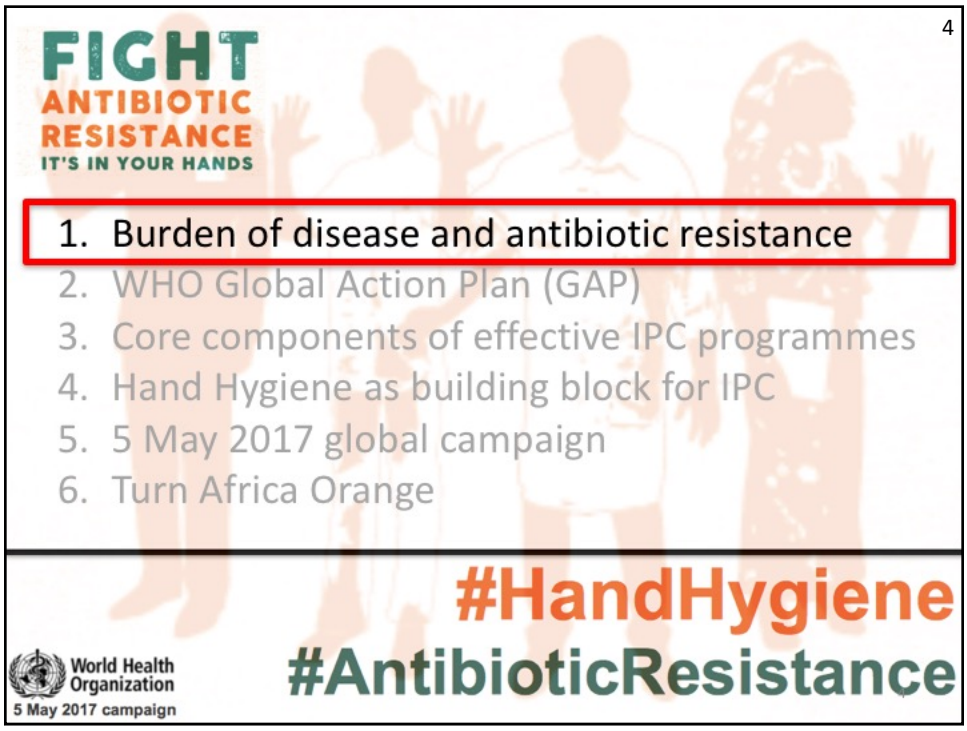
FIGHT
ANTIBIOTIC
RESISTANCE
IT'S IN YOUR HANDS
1. Burden of disease and antibiotic resistance
2. WHO Global Action Plan (GAP)
3. Core components of effective IPC programmes
4. Hand Hygiene as building block for IPC
5. 5 May 2017 global campaign
6. Turn Africa Orange
#HandHygiene
#AntibioticResistance
World Health Organization
5 May 2017 campaign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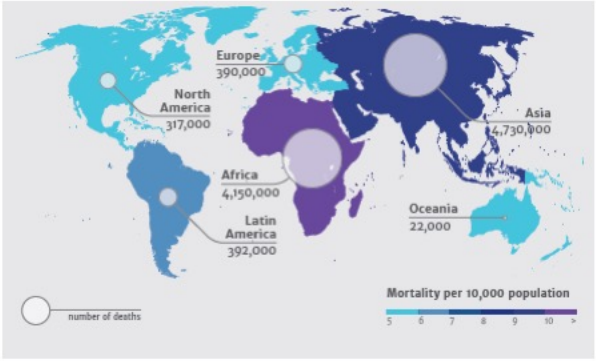
The Ever Expanding Global Concern of AMR

Mortality & Economic impact

- By 2050, lead to 10 million deaths/year
- Reduction of 2 to 3.5 percent in GDP
- Costing the world up to $100 trillion

Deaths attributable to AMR every year by 2050



J. O'Neil, 2014. Antimicrobial Resistance: Tackling a crisis for the health and wealth of nations.

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ECDC Point Prevalence Study 2011-12

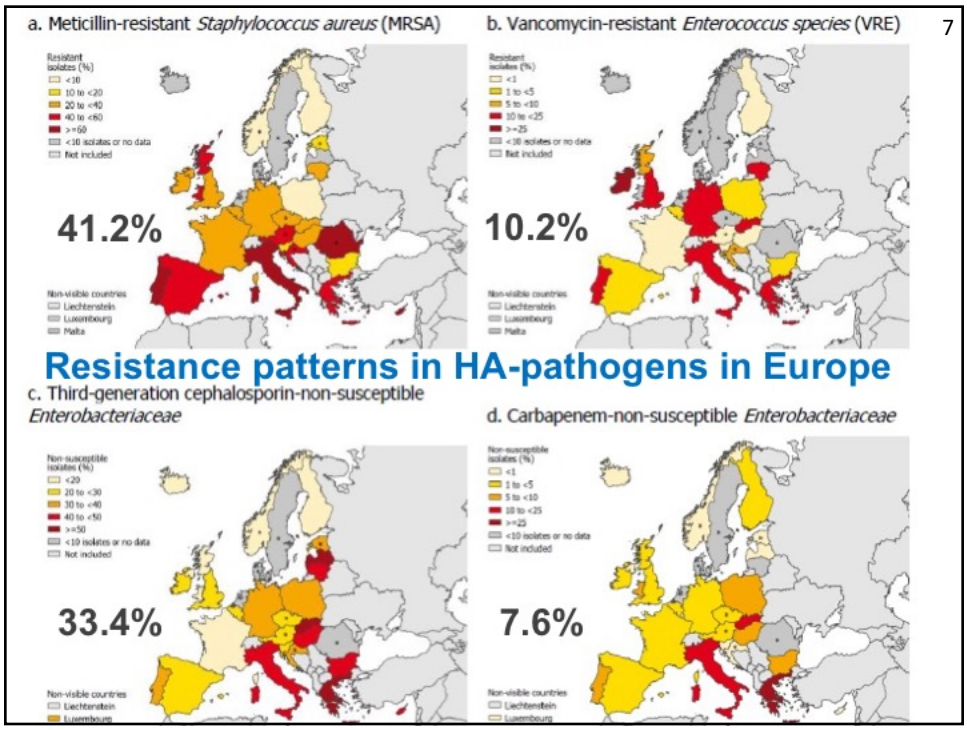
(ECDC, Point Prev Report 2011-12)

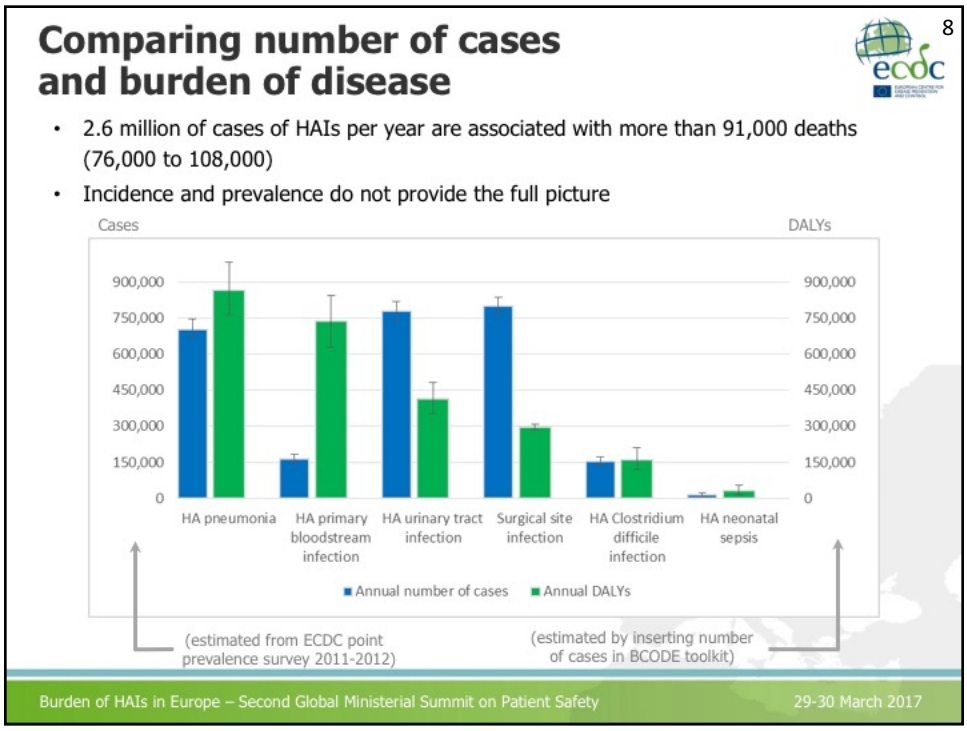
HAI type	LN-INT	P50 (LN-INT)	HAI inc.%	(95% CI)	N HAIs /year	(95% CI)	% of total HAIs	(95% CI)
Pneumonia/LRT	8.9	6.7	0.95	(0.58-1.66)	860 938	(522 771-1 500 038)	24.4	(14.8-42.5)
Urinary tract	8.0	6.3	0.98	(0.58-1.72)	888 106	(527 129-1 554 275)	25.2	(14.9-44.0)
Surgical site	15.0	9.3	0.60	(0.33-1.17)	543 149	(298 167-1 062 673)	15.4	(8.4-30.1)
Bloodstream	11.3	8.7	0.35	(0.19-0.93)	312 822	(171 262-844 423)	8.9	(4.9-23.9)
Gastro-intestinal	13.3	9.3	0.29	(0.14-0.66)	258 327	(127 121-593 452)	7.3	(3.6-16.8)
Systemic	7.5	5.7	0.26	(0.11-1.82)	236 387	(100 646-1 647 657)	6.7	(2.9-46.7)
Skin/soft tissue	12.8	9.0	0.11	(0.05-0.31)	103 146	(43 564-277 627)	2.9	(1.2-7.9)
Other HAI types	13.2	7.9	0.36	(0.17-0.85)	326 903	(151 302-770 238)	9.3	(4.3-21.8)
Total HAIs [a]					**3 529 778**	**(1 941 962-8 250 382)**		

HAI prevalence: 6%

87,539 affected patients every day

Estimated incidence per year: 3.2 M (1.9-5.2) affected patients


a. Meticillin-resistant *Staphylococcus aureus* (MRSA)
b. Vancomycin-resistant *Enterococcus species* (VRE)
7
41.2%
10.2%
Resistance patterns in HA-pathogens in Europe
c. Third-generation cephalosporin-non-susceptible *Enterobacteriaceae*
d. Carbapenem-non-susceptible *Enterobacteriaceae*
33.4%
7.6%


Comparing number of cases and burden of disease
8
ecdc
• 2.6 million of cases of HAIs per year are associated with more than 91,000 deaths (76,000 to 108,000)
• Incidence and prevalence do not provide the full picture
Cases
DALYs
900,000
750,000
600,000
450,000
300,000
150,000
0
HA pneumonia
HA primary bloodstream infection
HA urinary tract infection
Surgical site infection
HA Clostridium difficile infection
HA neonatal sepsis
Annual number of cases
Annual DALYs
(estimated from ECDC point prevalence survey 2011-2012)
(estimated by inserting number of cases in BCODE toolkit)
Burden of HAIs in Europe – Second Global Ministerial Summit on Patient Safety
29-30 March 2017

Contribution of incidence and mortality to the burden of HAIs

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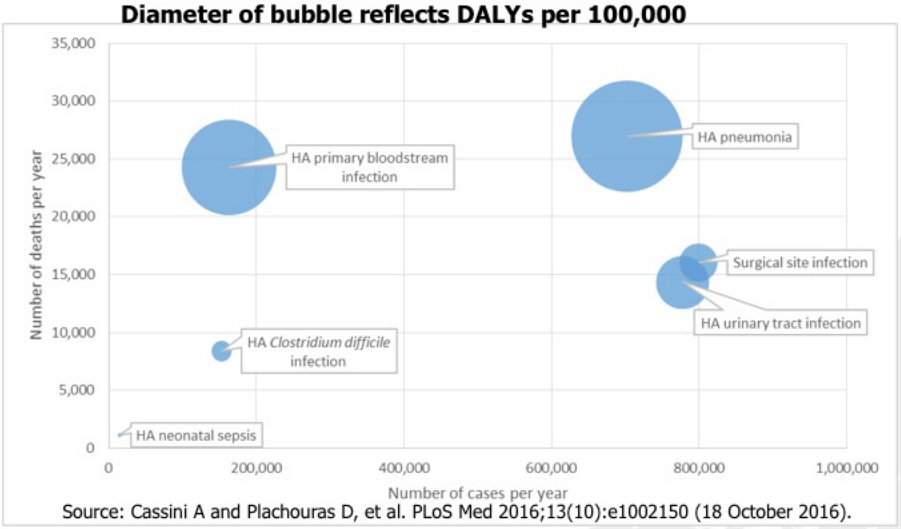
Burden of HAIs in EU/EEA Member States – 2011-2012
Diameter of bubble reflects DALYs per 100,000



Source: Cassini A and Plachouras D, et al. PLoS Med 2016;13(10):e1002150 (18 October 2016).

Burden of HAIs in Europe – Second Global Ministerial Summit on Patient Safety 29-30 March 2017

Comparing the burden of HAIs with other infectious diseases (BCoDE project 2015)

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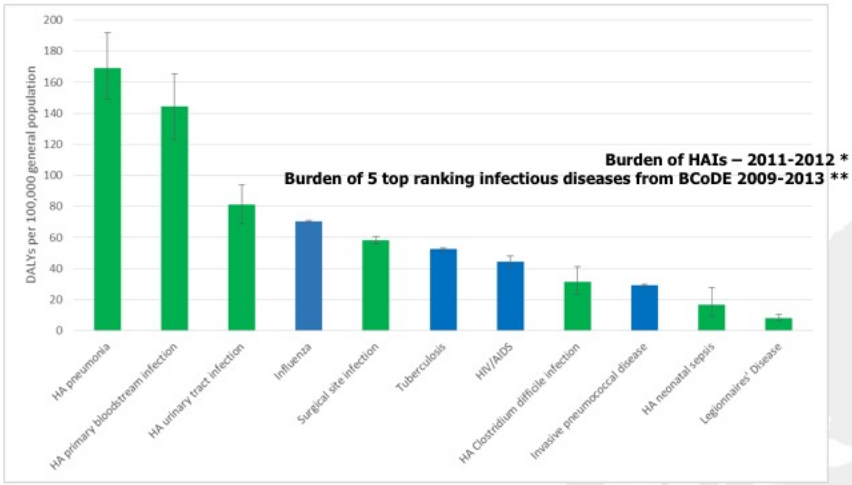
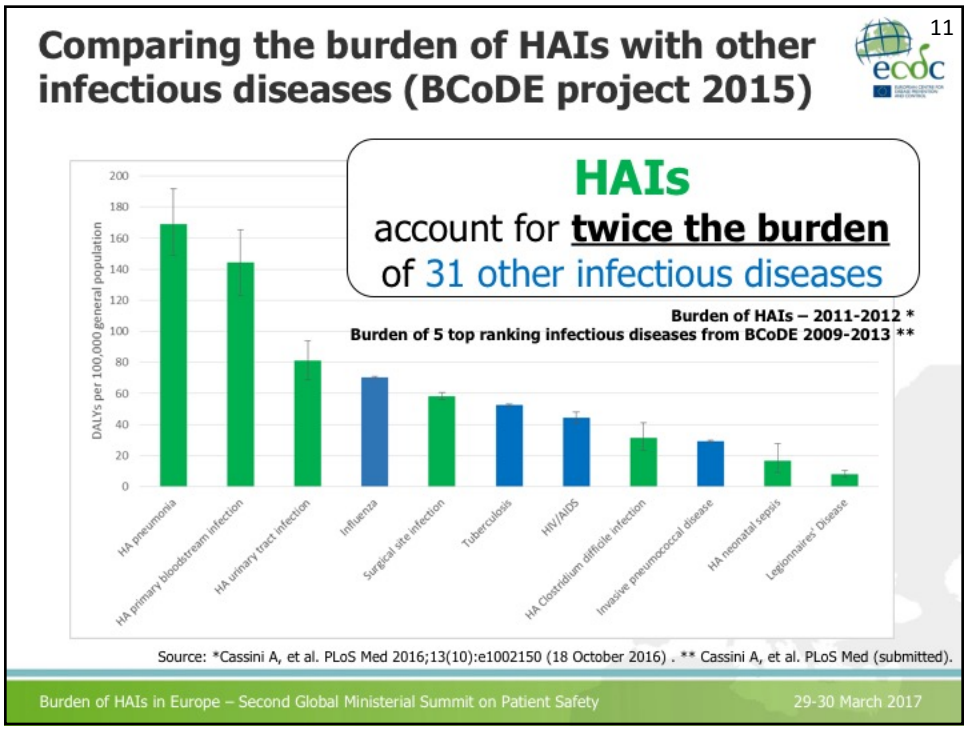


Source: *Cassini A, et al. PLoS Med 2016;13(10):e1002150 (18 October 2016) . ** Cassini A, et al. PLoS Med (submitted).

Burden of HAIs in Europe – Second Global Ministerial Summit on Patient Safety 29-30 March 2017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Comparing the burden of HAIs with other infectious diseases (BCoDE project 2015)
ecdc
HAIs
account for twice the burden
of 31 other infectious diseases
Burden of HAIs – 2011-2012 *
Burden of 5 top ranking infectious diseases from BCoDE 2009-2013 **
DALYs per 100,000 general population
200
180
160
140
120
100
80
60
40
20
0
HA pneumonia
HA primary bloodstream infection
HA urinary tract infection
Influenza
Surgical site infection
Tuberculosis
HIV/AIDS
HA Clostridium difficile infection
Invasive pneumococcal disease
HA neonatal sepsis
Legionnaires' Disease
Source: *Cassini A, et al. PLoS Med 2016;13(10):e1002150 (18 October 2016) . ** Cassini A, et al. PLoS Med (submitted).
Burden of HAIs in Europe – Second Global Ministerial Summit on Patient Safety
29-30 March 2017


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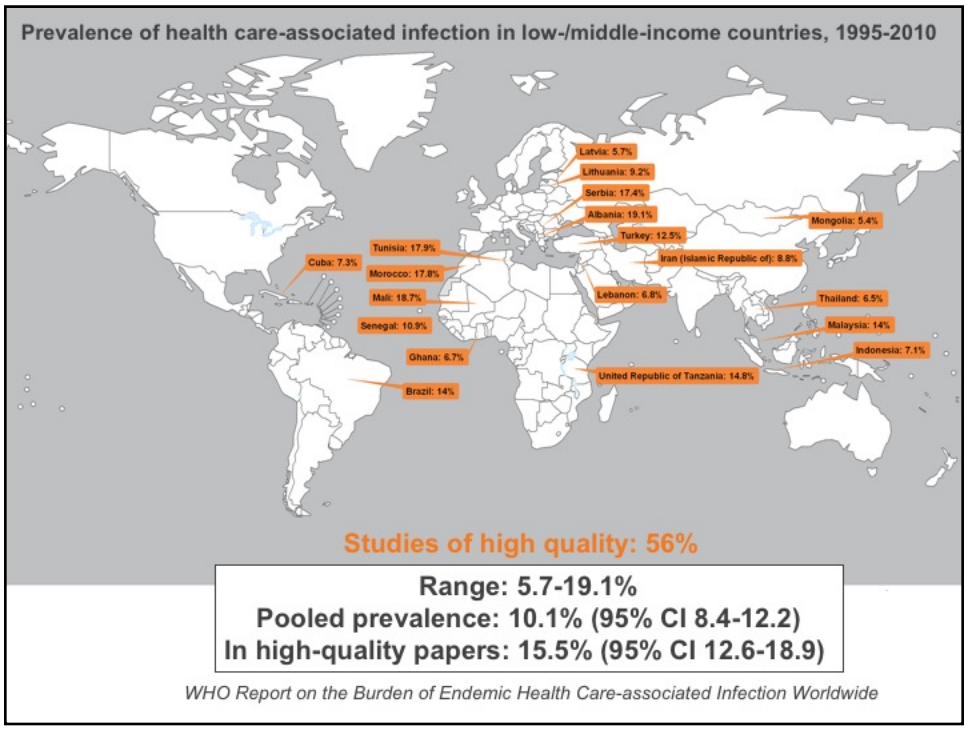
Healthcare-Associated Infections (HAI) burden worldwide
Allegranzi B et al.
Lancet 2011;377:228-41
Articles
Burden of endemic health-care-associated infection in developing countries: systematic review and meta-anal
World Health Organization
Patient Safety
Published on 5 May 2011
http://www.who.int/gpsc/en/
Report on the Burden of Endemic Health Care-Associated Infection Worldwide
Clean Care is Safer Care
Systematic reviews
Bagheri Nejad S, et al. WHO Bull 2011;89:757-765
World Health Organization
Patient Safety



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Causes of HAI by infection site

Pathogens	Number of isolates (%) (total number of studies 36)									
	BSI (5 studies)	%	SSI (20 studies)	%	UTI (4 studies)	%	VAP/HAP (7 studies)	%	Total	%
S. aureus	62	14.5	245	20.3	4		47	10.2	358	14.6
Coagulase Neg Staph	92	21.5	92	7.6				3.3	200	8.2
Enterococcus spp	48	11.2	38	3.1				0.2	129	5.3
E. coli	25	5.8	245			.7	6	1.3	331	13.5
Pseudomonas spp	52	12.1				15.1	134	29.2	449	18.3
Enterobacteriaceae (excl E coli)	49			25.7	37	10.5	92	20.0	489	20.0
Acinebacter spp				1.5	23	6.6	110	24.0	204	8.3
Candida spp			13	1.1	130	37.0	1	0.2	174	7.1
Other			37	3.1	6	1.7	53	11.5	113	4.6
Total		100	1209	100	351	100	459	100	2447	100

MRSA: 54.5%

Allegranzi B et al.
Lancet 2011;377:228-41

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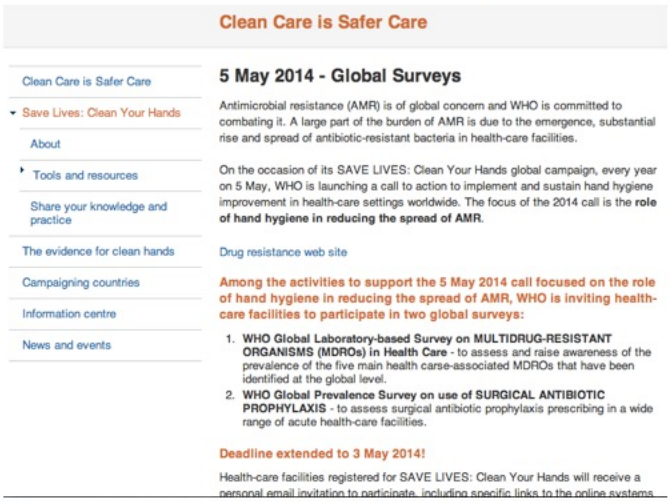
The WHO Global AMR Surveys - 2014



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WHO laboratory-based global survey on multidrug-resistant organisms (MDROs) in health care

- **Objectives:**
  1. To obtain a snapshot of the prevalence of MDROs isolated among inpatients in a wide range of health-care facilities worldwide
  2. To collect information about the microbiological methods used for isolation and detection of resistance
- **Design**: online survey (1st March-30 June 2014) based on:
  - the routine collection of clinical blood and urine (MSU & CSU) culture specimens
  - Only 1st isolate from inpatients during one week
- **Participants**: health-care settings registered for the WHO SAVE LIVES: Clean Your Hands global campaign and other WHO-associated networks
- **Main targeted Resistance patterns:**

MRSA, VRE, ESBL and CR in *E. coli* & *Klebsiella* spp, MRAB

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World Health Organization | *Presented at ECCMID 2017* | SAVE LIVES Clean Your Hands

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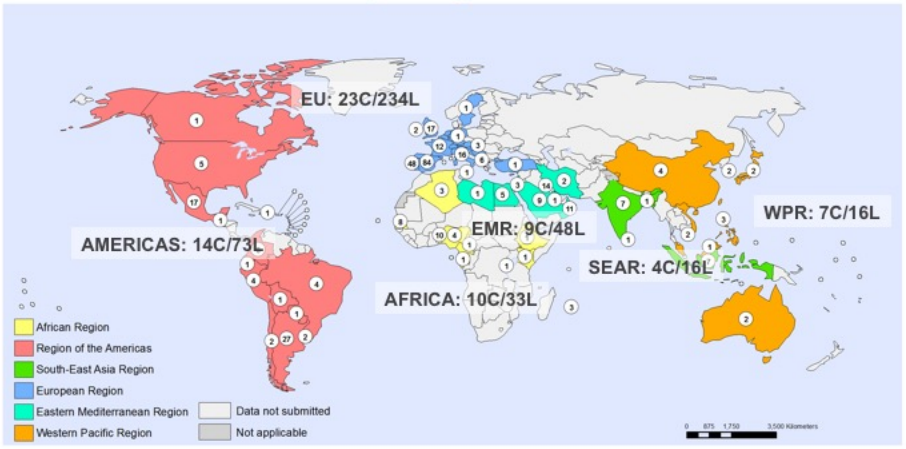
Participating Countries



- 67 countries
- 420 laboratories

Presented at ECCMID 2017

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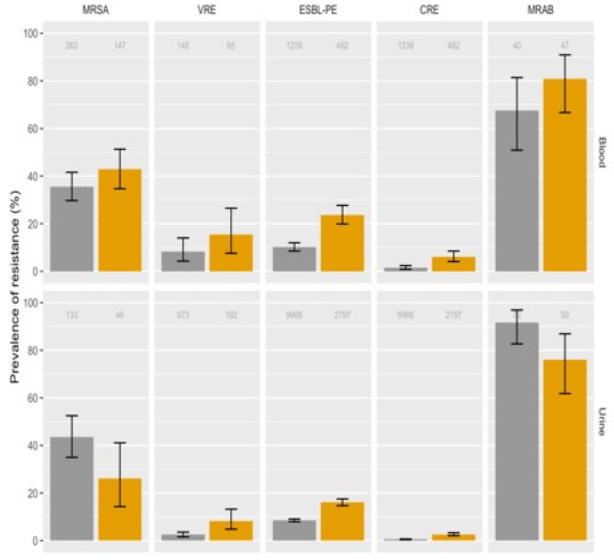
Prevalence of multidrug resistance from inpatient clinical blood and urine specimens (2014)*



Significantly higher MRSA, ESBL-PE, CRE, and MRAB prevalence from blood cultures **in LMICs**

* 380 high-quality laboratories worldwide

Presented at ECCMID 2017

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CDC estimates of AMR in the United States

The toll of AR in the US alone is staggering

Estimated minimum number of illnesses and deaths caused annually by antibiotic resistance*:

At least

2,049,442 illnesses

23,000 deaths

**bacteria and fungus included in this report*

PLUS at least 500,000 illnesses and 15,000 deaths from C. difficile infections

https://www.cdc.gov/drugresistance/about.html

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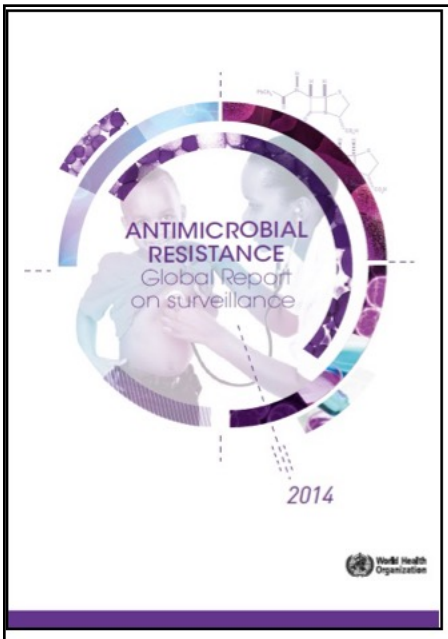

http://www.who.int/antimicrobial-resistance/publications/surveillancereport/en/

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Bacteria commonly causing infections in hospitals and in the community

Name of bacterium/ resistance	Examples of typical diseases	No. out of 194 Member States providing data	No. of WHO regions with national reports of 50% resistance or more
Escherichia coli/	Urinary tract infections, blood stream infections		
- vs 3rd gen. cephalosporins		86	5/6
- vs fluoroquinolones		92	5/6
Klebsiella pneumoniae/	Pneumonia, blood stream infections, urinary tract infections		
- vs 3rd gen. cephalosporins		87	6/6
- vs 3rd carbapenems		71	2/6
Staphylococcus aureus/	Wound infections, blood stream infections		
- vs methicillin "MRSA"		85	5/6

http://www.who.int/antimicrobial-resistance/publications/surveillancereport/en/

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Staphylococcus aureus:
Resistance to β-lactams: MRSA

	Reported range of resistance (%)*	
	National data	Published data***
African Region	12–80	0–100
Region of the Americas	21–90	2–90
Eastern Mediterranean Region	10–53	0–92
European Region	0.3–60	27–80
South- East Asian Region	10–26	2–81
Western Pacific Region	4–84	60

* Based on at least 30 tested bacterial isolates
** Publication data are complementary to national data, not from the same countries

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Escherichia coli:
Resistance to third-generation cephalosporins

	Reported range of resistance (%)*	
	National data	Published data**
African Region	2–70	0–87
Region of the Americas	0–48	0–68
Eastern Mediterranean Region	22–63	2–94
European Region	3–82	0–8
South- East Asian Region	16–68	19–95
Western Pacific Region	0–77	8–71

* Based on at least 30 tested bacterial isolates
** Publication data are complementary to national data, not from the same countries

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Klebsiella pneumoniae

Resistance to 3rd-generation cephalosporins

	Reported range of resistance (%)*	
	National data	Published data**
African Region	8–77	9–69
Region of the Americas	4–71	15–56
Eastern Mediterranean Region	22–50	6–75
European Region	2–82	4–61
South- East Asian Region	34–81	5–100
Western Pacific Region	1–72	27–35

* Based on at least 30 tested bacterial isolates
** Publication data are complementary to national data, not from the same countries

Resistance to carbapenems

	Reported range of resistance (%)*	
	National data	Published data**
African Region	0–4	-
Region of the Americas	0–11	0–2
Eastern Mediterranean Region	0–54	0–21
European Region	0–68	2–7
South- East Asian Region	0–8	0–55
Western Pacific Region	0–8	0–11

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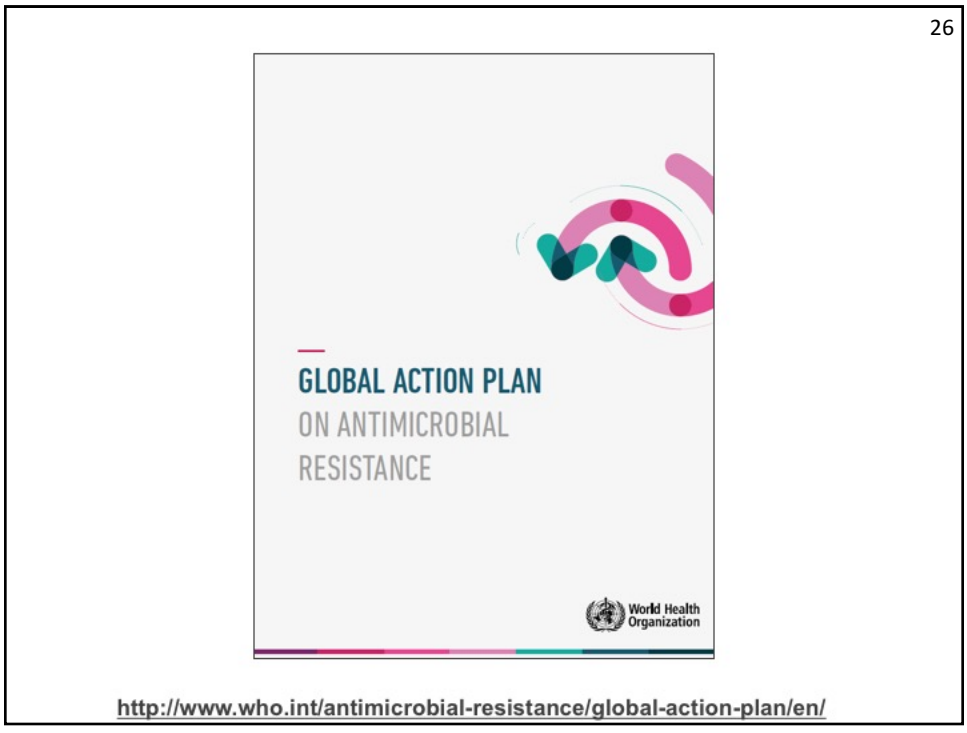
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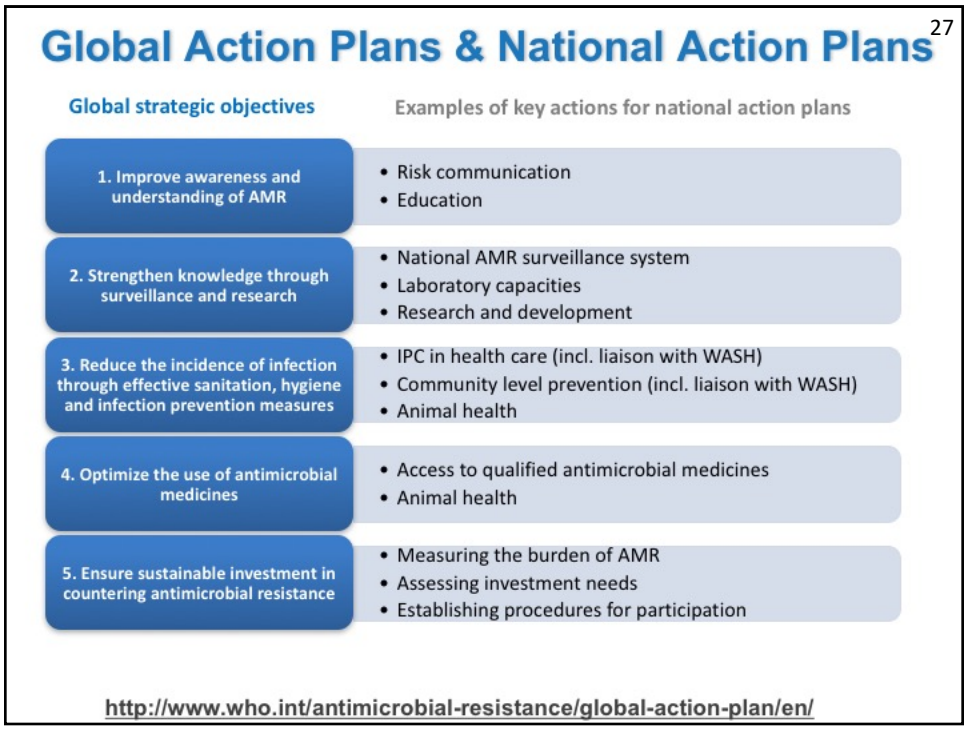
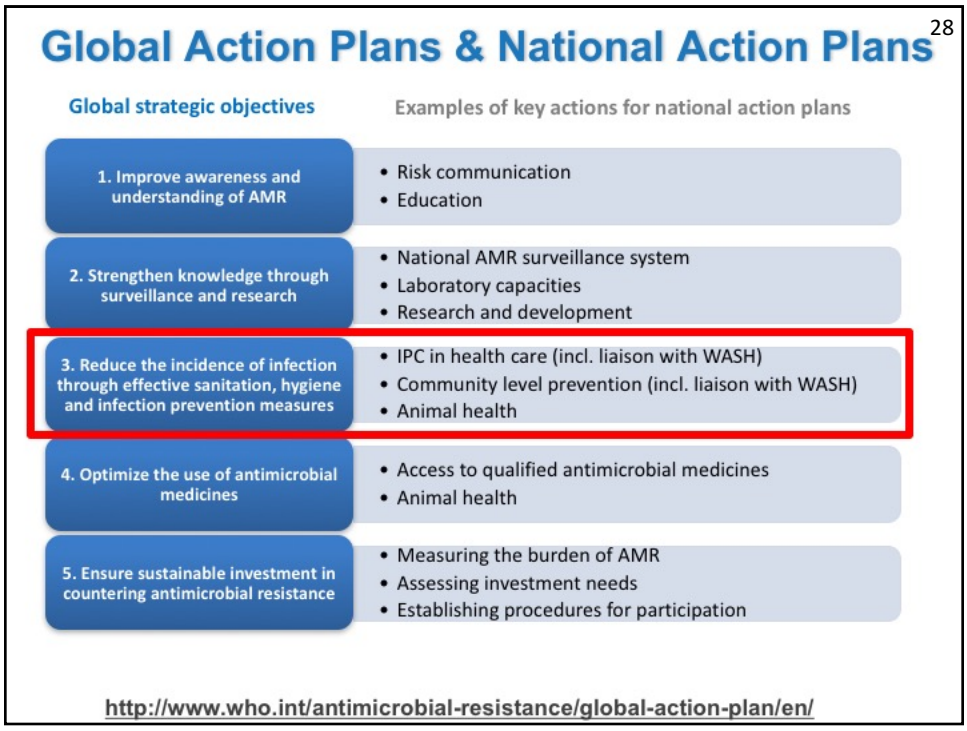
GLOBAL ACTION PLAN
ON ANTIMICROBIAL
RESISTANCE
World Health Organization
http://www.who.int/antimicrobial-resistance/global-action-plan/en/


Global Action Plans & National Action Plans
27
Global strategic objectives
Examples of key actions for national action plans
1. Improve awareness and understanding of AMR
• Risk communication
• Education
2. Strengthen knowledge through surveillance and research
• National AMR surveillance system
• Laboratory capacities
• Research and development
3. Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures
• IPC in health care (incl. liaison with WASH)
• Community level prevention (incl. liaison with WASH)
• Animal health
4. Optimize the use of antimicrobial medicines
• Access to qualified antimicrobial medicines
• Animal health
5. Ensure sustainable investment in countering antimicrobial resistance
• Measuring the burden of AMR
• Assessing investment needs
• Establishing procedures for participation
http://www.who.int/antimicrobial-resistance/global-action-plan/en/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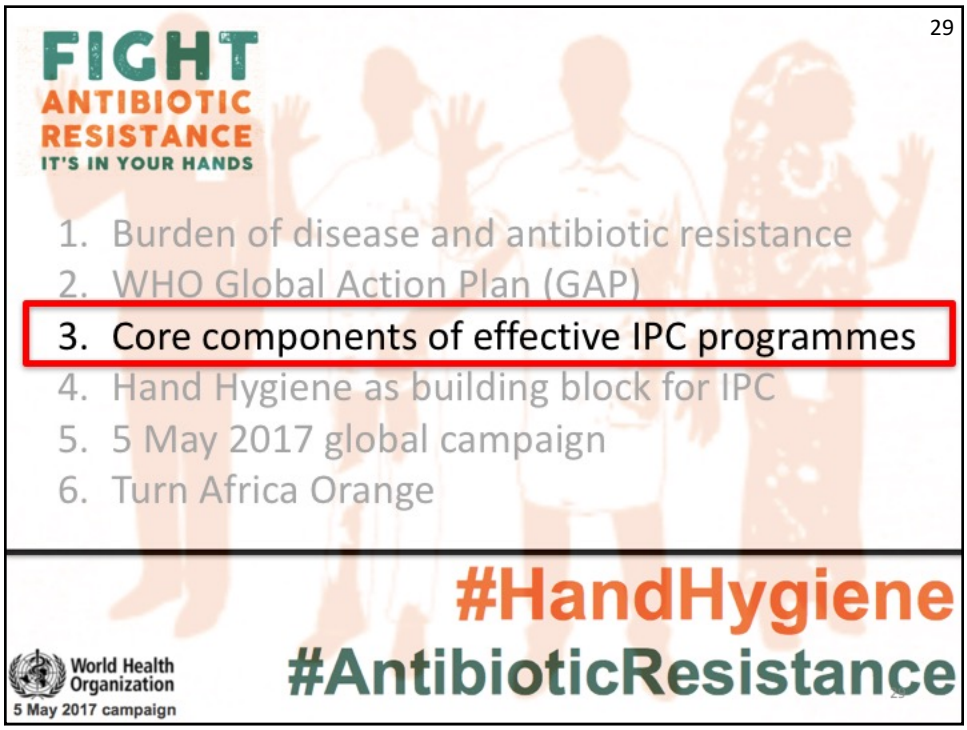
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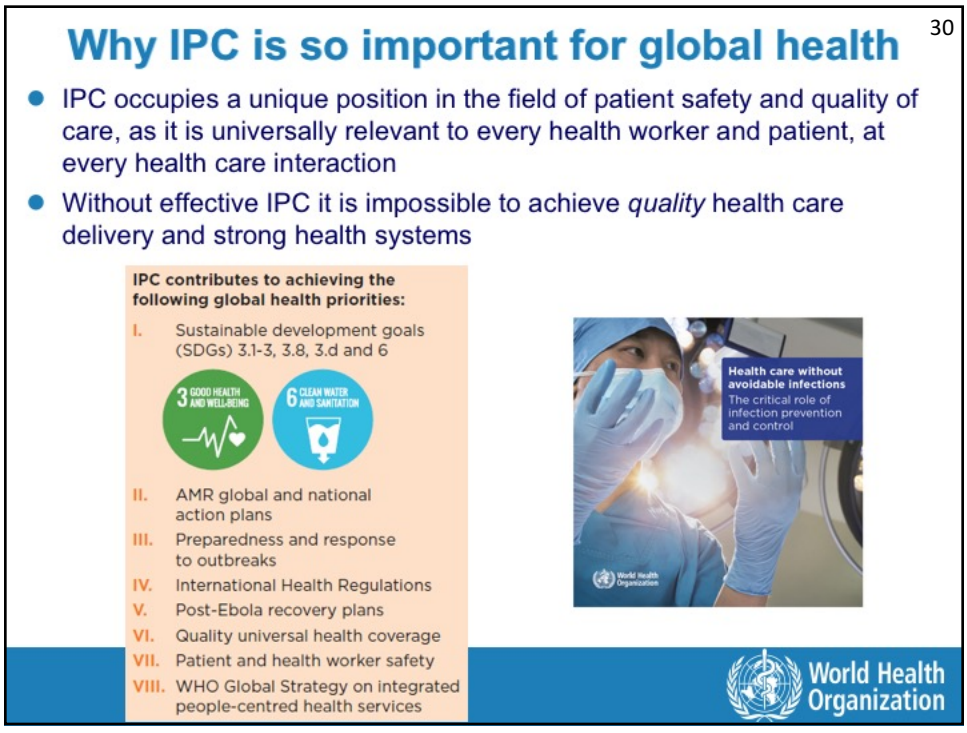
30
Why IPC is so important for global health
IPC occupies a unique position in the field of patient safety and quality of care, as it is universally relevant to every health worker and patient, at every health care interaction
Without effective IPC it is impossible to achieve *quality* health care delivery and strong health systems
IPC contributes to achieving the following global health priorities:
I. Sustainable development goals (SDGs) 3.1-3, 3.8, 3.d and 6
3 GOOD HEALTH AND WELL-BEING
6 CLEAN WATER AND SANITATION
II. AMR global and national action plans
III. Preparedness and response to outbreaks
IV. International Health Regulations
V. Post-Ebola recovery plans
VI. Quality universal health coverage
VII. Patient and health worker safety
VIII. WHO Global Strategy on integrated people-centred health services
Health care without avoidable infections
The critical role of infection prevention and control
World Health Organization

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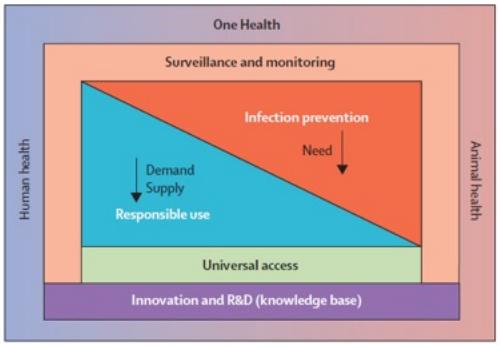
Exploring the evidence base for national and regional policy interventions to combat resistance

Lancet 2016; 387: 285–95

Osman A Dar, Rumina Hasan, Jørgen Schlundt, Stephan Harbarth, Grazia Caleo, Fazal K Dar, Jasper Littmann, Mark Rweyemamu, Emmeline J Buckley, Mohammed Shahid, Richard Kock, Henry Lishi Li, Haydar Giha, Mishal Khan, Anthony D So, Khalid M Bindayna, Anthony Kessel, Hanne Bak Pedersen, Govin Permanand, Alimuddin Zumla, John-Arne Røttingen, David L Heymann



IPC interventions can:

- minimise the spread of pathogens, including R ones
- decrease the likelihood of infection in health-care settings
- reduce the overall need for antimicrobials

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WHO Global Survey - 2015

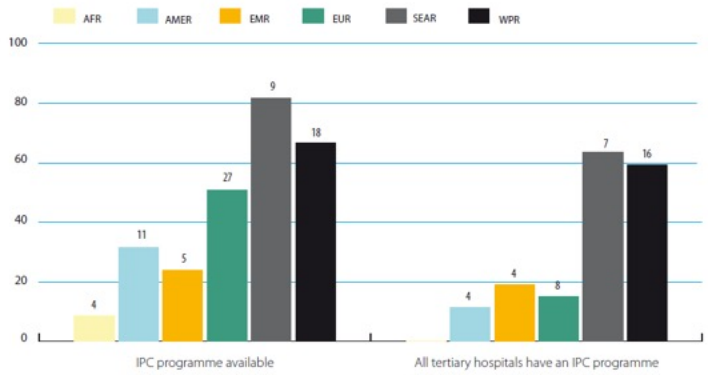

Figure 1.9 – **Percentages of Member States that had an infection prevention and control (IPC) programme and in which all tertiary hospitals had such a programme, all regions**
(Note: numbers above the bars represent the numbers of Member States that answered "yes")

AFR, WHO African Region; AMER, WHO Region for the Americas; EMR, WHO Eastern Mediterranean Region; EUR, WHO European Region; SEAR, WHO South-East Asia Region; WPR, WHO Western Pacific Region

http://www.who.int/antimicrobial-resistance/publications/situationanalysis/en/

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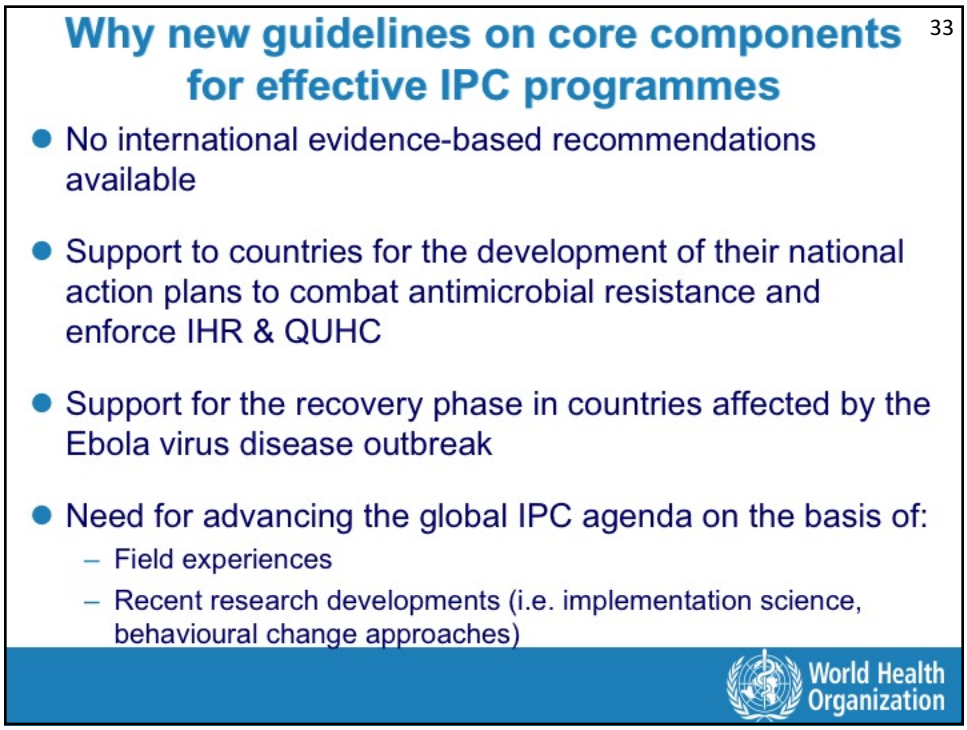
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Why new guidelines on core components for effective IPC programmes
No international evidence-based recommendations available
Support to countries for the development of their national action plans to combat antimicrobial resistance and enforce IHR & QUHC
Support for the recovery phase in countries affected by the Ebola virus disease outbreak
Need for advancing the global IPC agenda on the basis of:
– Field experiences
– Recent research developments (i.e. implementation science, behavioural change approaches)
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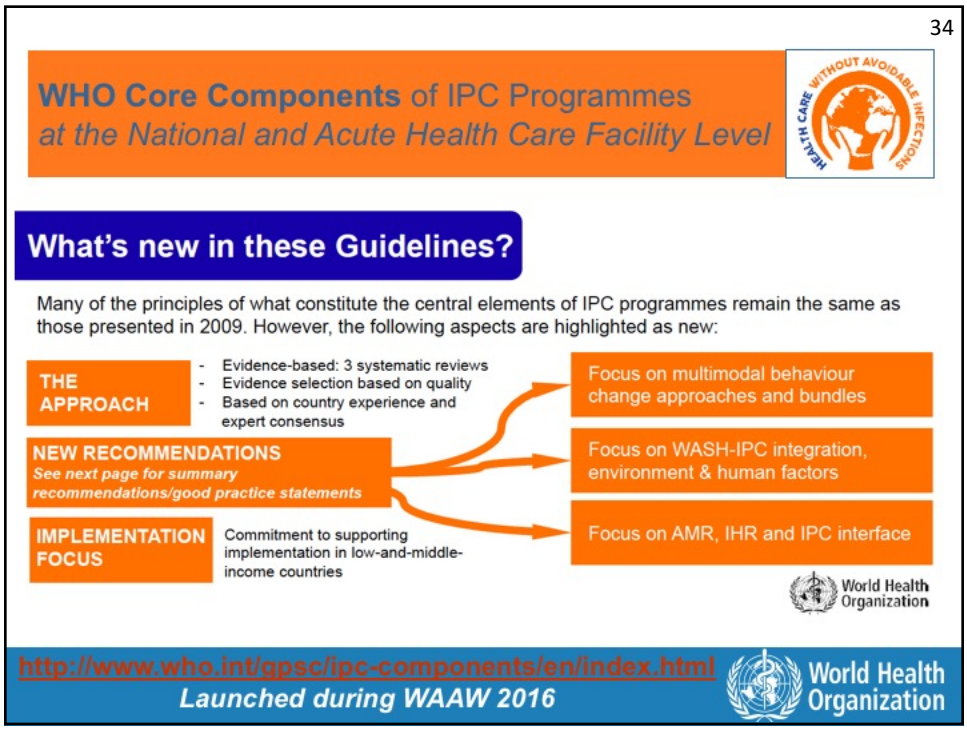
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WHO Core Components of IPC Programmes
at the National and Acute Health Care Facility Level
HEALTH CARE WITHOUT AVOIDABLE INFECTIONS
What's new in these Guidelines?
Many of the principles of what constitute the central elements of IPC programmes remain the same as those presented in 2009. However, the following aspects are highlighted as new:
THE APPROACH
- Evidence-based: 3 systematic reviews
- Evidence selection based on quality
- Based on country experience and expert consensus
NEW RECOMMENDATIONS
See next page for summary recommendations/good practice statements
IMPLEMENTATION FOCUS
Commitment to supporting implementation in low-and-middle-income countries
Focus on multimodal behaviour change approaches and bundles
Focus on WASH-IPC integration, environment & human factors
Focus on AMR, IHR and IPC interface
World Health Organization
http://www.who.int/gpsc/ipc-components/en/index.html
Launched during WAAW 2016
World Health Organization

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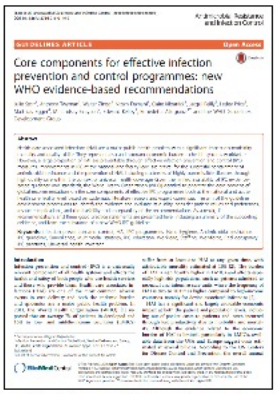
New WHO Guidelines on Core Components of IPC Programmes *at the National and Acute Health Care Facility Level*



https://aricjournal.biomedcentral.com/articles/10.1186/s13756-016-0149-9

http://www.who.int/gpsc/ipc-components/en/index.html

Launched during WAAW, on 15 November 2016

World Health Organization

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Background supporting the recommendations

World Health Organization

New WHO core components for IPC programmes

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- **8 Core components**
- 11 evidence based recommendations
- 3 good practice statements

R= recommendation; GPS: good practice statement

World Health Organization

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Core component 1: IPC programmes

1 IPC Programmes — R1a *Strong*; R1b *GPS*

An IPC programme with a dedicated, trained team should be in place in each **acute health care facility** for the purpose of preventing HAI and combating AMR through IPC good practices.

Stand-alone, active **national** IPC programmes with clearly defined objectives, functions and activities for the purpose of preventing HAI and combating AMR through IPC good practices should be established. National IPC programmes should be linked to other relevant national programmes and professional organizations.

Evidence from 2 high-quality studies shows that IPC programmes including dedicated, trained professionals are effective in reducing HAIs in acute care facilities.

World Health Organization

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Core Component 2: IPC Guidelines

2	Evidence Based Guidelines	R2 *Strong*	Evidence-based guidelines should be developed and implemented for the purpose of reducing HAI and AMR. Education and training of relevant health care workers on guideline recommendations and monitoring of adherence with guideline recommendations should be undertaken to achieve successful implementation.

Evidence from 6 high-quality studies shows that guidelines on the most important IPC good practices and procedures are effective to reduce HAI when implemented in combination with health care workers' education and training.

World Health Organization

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Core Component 3: IPC Education & Training

3	Education & Training	R3a *Strong* 3b *GPS*	**At the facility level** IPC education should be in place for all health care workers by utilizing team- and task-based strategies that are participatory and include bedside and simulation training to reduce the risk of HAI and AMR. The **national** IPC programme should support education and training of the health workforce as one of its core functions.

Evidence from 15 high-quality studies at facility level shows that IPC education that involves frontline health care workers in a practical, hands-on approach and incorporates individual experiences is associated with decreased HAI and increased hand hygiene compliance.

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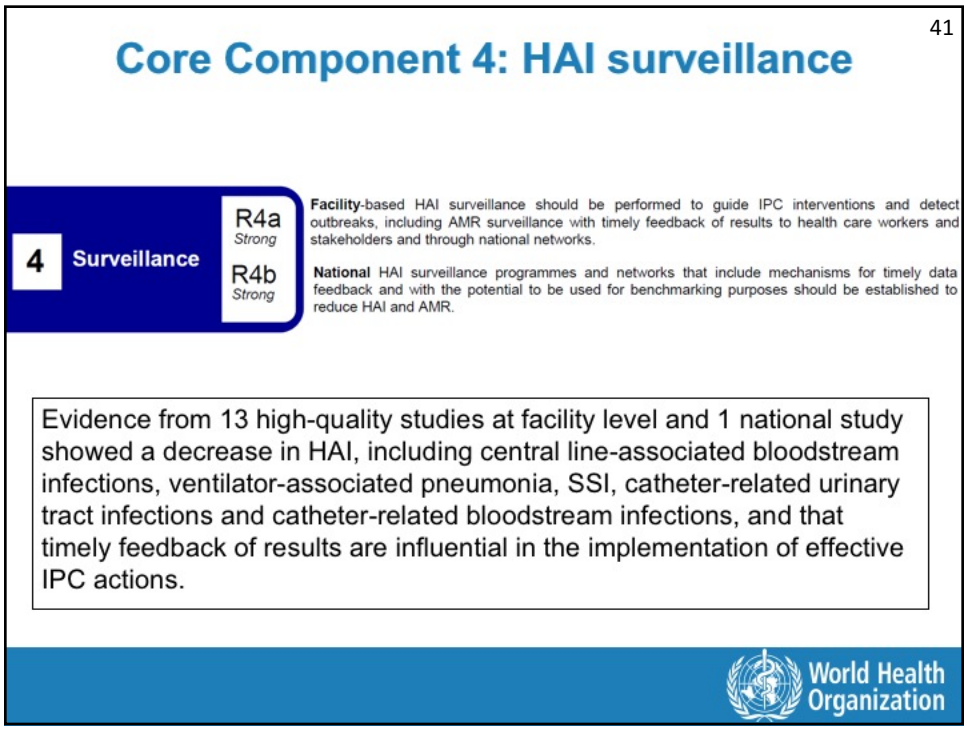
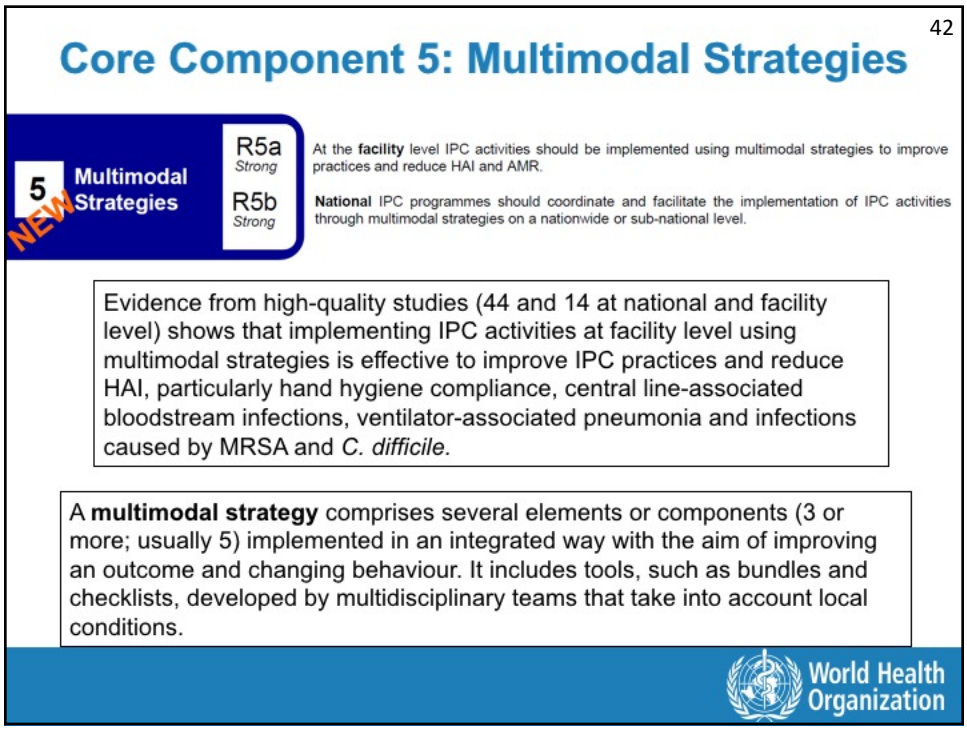

41
Core Component 4: HAI surveillance
4 Surveillance
R4a Strong
R4b Strong
Facility-based HAI surveillance should be performed to guide IPC interventions and detect outbreaks, including AMR surveillance with timely feedback of results to health care workers and stakeholders and through national networks.
National HAI surveillance programmes and networks that include mechanisms for timely data feedback and with the potential to be used for benchmarking purposes should be established to reduce HAI and AMR.
Evidence from 13 high-quality studies at facility level and 1 national study showed a decrease in HAI, including central line-associated bloodstream infections, ventilator-associated pneumonia, SSI, catheter-related urinary tract infections and catheter-related bloodstream infections, and that timely feedback of results are influential in the implementation of effective IPC actions.
World Health Organization


42
Core Component 5: Multimodal Strategies
5 NEW Multimodal Strategies
R5a Strong
R5b Strong
At the facility level IPC activities should be implemented using multimodal strategies to improve practices and reduce HAI and AMR.
National IPC programmes should coordinate and facilitate the implementation of IPC activities through multimodal strategies on a nationwide or sub-national level.
Evidence from high-quality studies (44 and 14 at national and facility level) shows that implementing IPC activities at facility level using multimodal strategies is effective to improve IPC practices and reduce HAI, particularly hand hygiene compliance, central line-associated bloodstream infections, ventilator-associated pneumonia and infections caused by MRSA and C. difficile.
A multimodal strategy comprises several elements or components (3 or more; usually 5) implemented in an integrated way with the aim of improving an outcome and changing behaviour. It includes tools, such as bundles and checklists, developed by multidisciplinary teams that take into account local conditions.
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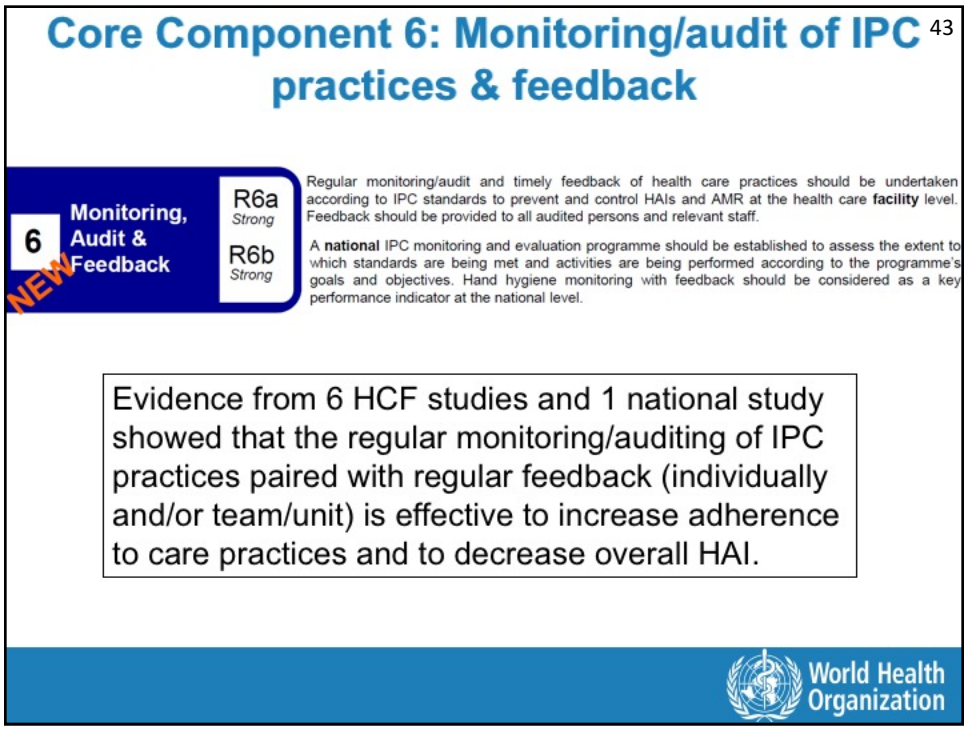
Core Component 6: Monitoring/audit of IPC practices & feedback
43
6
Monitoring, Audit & Feedback
NEW
R6a
Strong
R6b
Strong
Regular monitoring/audit and timely feedback of health care practices should be undertaken according to IPC standards to prevent and control HAIs and AMR at the health care facility level. Feedback should be provided to all audited persons and relevant staff.
A national IPC monitoring and evaluation programme should be established to assess the extent to which standards are being met and activities are being performed according to the programme's goals and objectives. Hand hygiene monitoring with feedback should be considered as a key performance indicator at the national level.
Evidence from 6 HCF studies and 1 national study showed that the regular monitoring/auditing of IPC practices paired with regular feedback (individually and/or team/unit) is effective to increase adherence to care practices and to decrease overall HAI.
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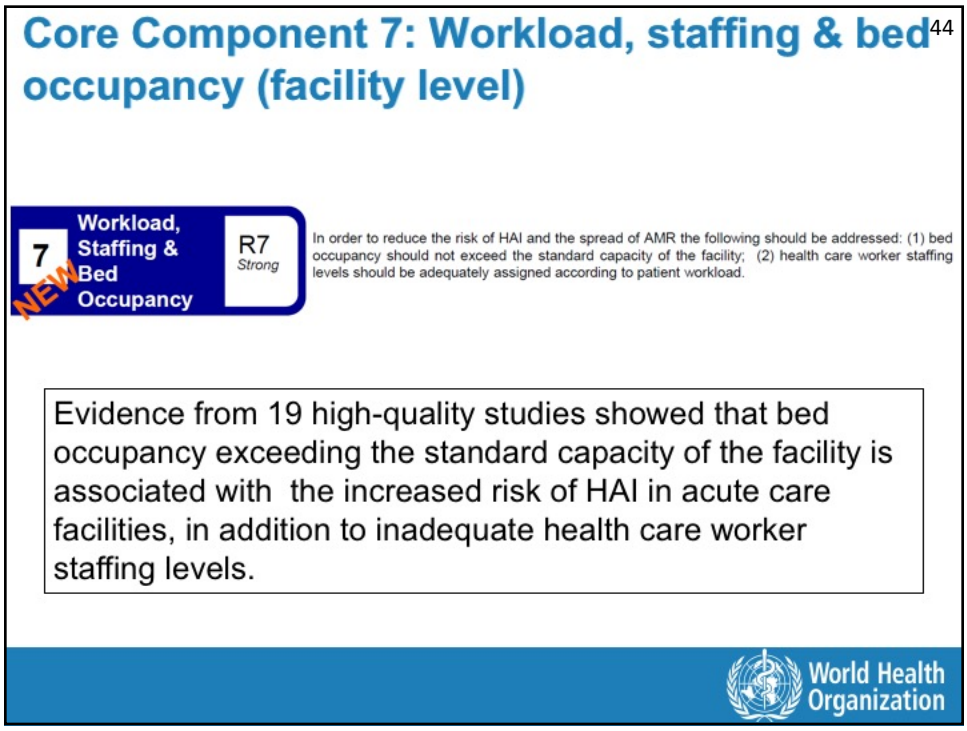
Core Component 7: Workload, staffing & bed occupancy (facility level)
44
7
Workload, Staffing & Bed Occupancy
NEW
R7
Strong
In order to reduce the risk of HAI and the spread of AMR the following should be addressed: (1) bed occupancy should not exceed the standard capacity of the facility; (2) health care worker staffing levels should be adequately assigned according to patient workload.
Evidence from 19 high-quality studies showed that bed occupancy exceeding the standard capacity of the facility is associated with the increased risk of HAI in acute care facilities, in addition to inadequate health care worker staffing levels.
World Health Organization

Core Component 8: Built environment, materials & equipment for IPC (facility level)

45

8 NEW Built Environment, materials & Equipment

8a *GPS*

R8b *Strong*

At the **facility** level patient care activities should be undertaken in a clean and/or hygienic environment that facilitates practices related to the prevention and control of HAI, as well as AMR, including all elements around the WASH infrastructure and services and the availability of appropriate IPC materials and equipment.

At the **facility** level materials and equipment to perform appropriate hand hygiene should be readily available at the point of care.

The GDG deemed it essential to describe the appropriate water and sanitation services, environment, and materials and equipment for IPC as a core component of effective IPC programmes at health care facilities.

Evidence from 11 studies showed that the ready availability of equipment and products at the point of care leads to an increase of compliance with good practices and the reduction of HAI.
In 6 of the 11 studies, the intervention consisted of the ready availability and optimal placement of hand hygiene materials and equipment in areas designated for patient care or where other health care procedures are performed and led to a significant increase of hand hygiene compliance.

New IPC core components: implications for low and middle income countries (1)

46

- Limited access to qualified and trained IPC professionals
- Limited human resources
- Inadequate budgets
- Implementation challenges
- Need for adaptation or tailoring to the cultural setting and local context, and according to available resources
- Availability of human resources and training, quality microbiological/laboratory support, information technology, and data management systems are requirements for surveillance and auditing; in their absence, surveillance based on clinical data could be considered.

World Health Organization

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New IPC core components: implications for low and middle income countries (2)

However:

- Resources invested are worth the net gain, irrespective of the context and despite the costs incurred
- Not all solutions require additional resources
- Some solutions can likely be low cost and local production (e.g. alcohol-based hand rubs) should be encouraged
- Partnerships or partners' collaborations could assist in the achievement of the core components delivery and funding

World Health Organization

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IPC Core Components dissemination & implementation

National Level
systematic review paper submitted to Lancet ID

Practical Guide

IPC Core Components field implementation in low-resource settings

National Level

Practical Guide

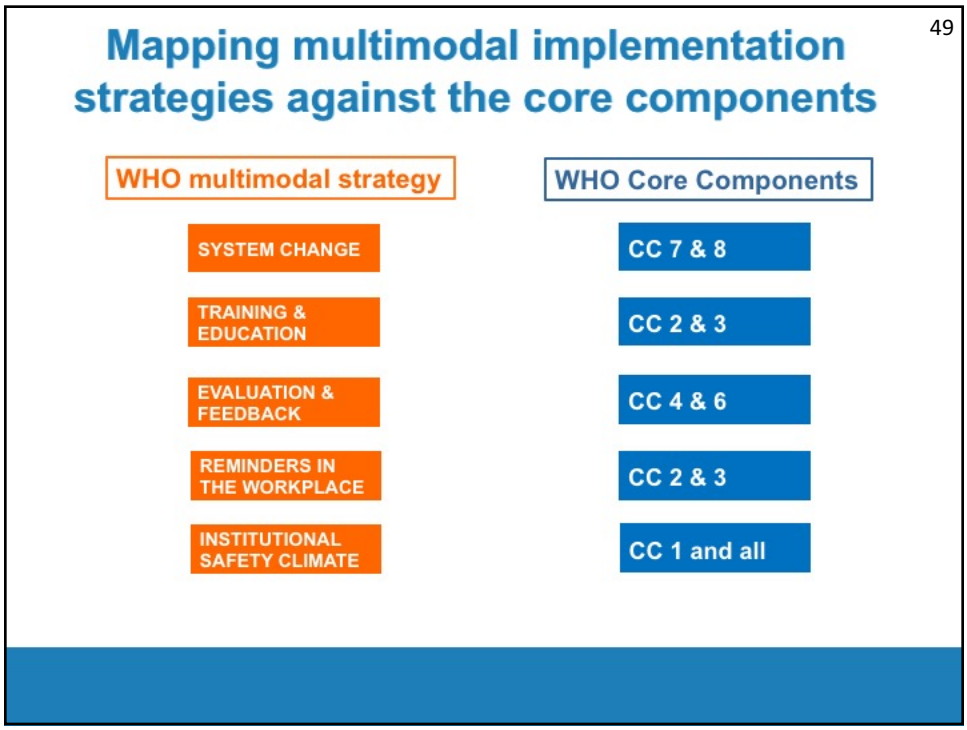
IPC Core Components field implementation in low-resource settings

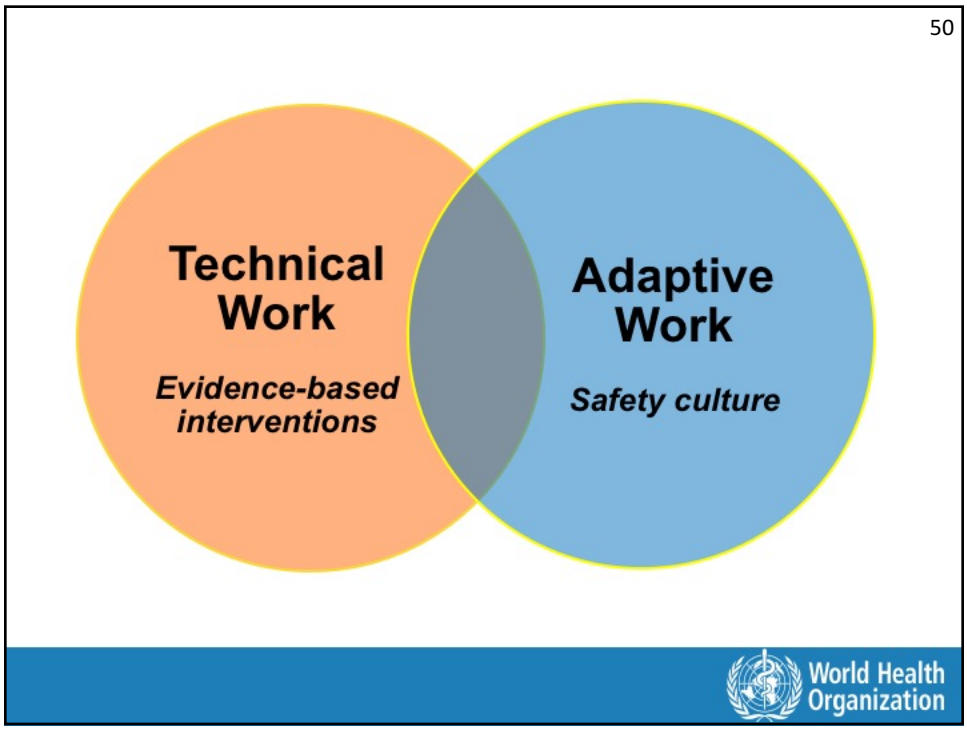
Facility Level

Assessment Framework & tools

Advanced IPC training packages

World Health Organization


49
Mapping multimodal implementation strategies against the core components
WHO multimodal strategy
WHO Core Components
SYSTEM CHANGE
CC 7 & 8
TRAINING & EDUCATION
CC 2 & 3
EVALUATION & FEEDBACK
CC 4 & 6
REMINDERS IN THE WORKPLACE
CC 2 & 3
INSTITUTIONAL SAFETY CLIMATE
CC 1 and all

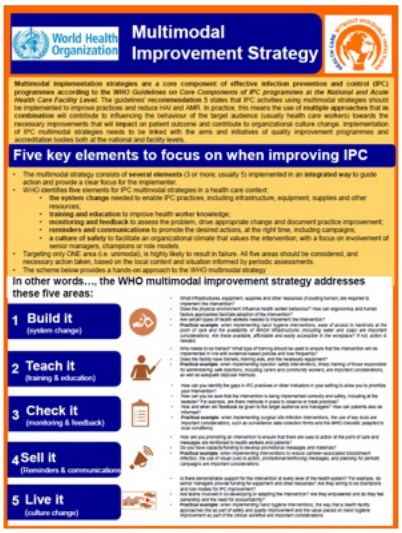

50
Technical Work
Evidence-based interventions
Adaptive Work
Safety culture
World Health Organization

Practical implementation of a multimodal improvement strategy

51

1 Build it (system change)
2 Teach it (training & education)
3 Check it (monitoring & feedback)
4 Sell it (Reminders & communications
5 Live it (culture change)

Source: J Storr & C. Kilpatrick



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IPC Core Components implementation at national level

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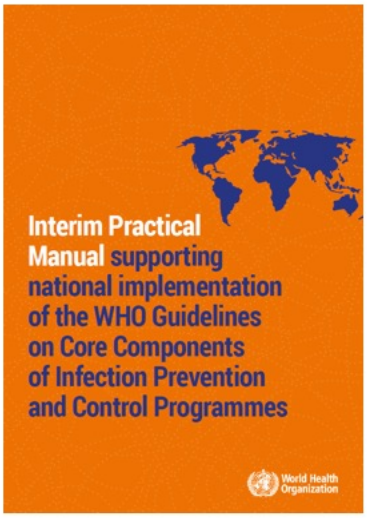

Core component	Recommendation	Checks to support implementation	Reference
1. IPC programmes	Establish active, stand-alone IPC programme for the purpose of preventing HAI and combating AMR through IPC good practices.	☐ Programme objectives, functions, and activities clearly outlined ☐ Technical team of trained infection preventionists in place ☐ Dedicated IPC budget allocated ☐ Evidence that IPC programme is linked with other relevant programmes and professional organizations	Practical Manual Chapter 1
2. Evidence-based guidelines	Develop evidence-based national IPC guidelines and related implementation strategies.	☐ Essential IPC guidelines/SOPs developed or adapted from international standards ☐ Necessary infrastructure and supplies to enable guideline implementation in place/being addressed ☐ Measures to support and mandate health care worker education and training on the guidelines (under-) development	Practical Manual Chapter 2
3. Education & training	Support education and training of health workforce.	☐ Curriculum target audience, learning objectives, competencies, and teaching strategy developed ☐ Pre-graduate and postgraduate IPC curricula (under-) development ☐ New employee orientation and in-service continuous training on IPC (under-) development	Practical Manual Chapter 3
4. Surveillance	Establish HAI surveillance programmes and networks that include mechanisms for timely feedback and can be used for benchmarking purposes.	☐ Support and engagement by governments and authorities for IPC surveillance secured ☐ Human and financial resources secured ☐ Microbiology and laboratory capacity (under-) development ☐ Surveillance strategy developed ✓ Clear objectives ✓ Standardized case definitions ✓ Methods ✓ Process for data analysis, reporting, and evaluation of data quality ☐ Specific training for data collectors established	Practical Manual Chapter 4

To be issued on 5 May!

http://www.who.int/infection-prevention/en/

World Health Organization

Other resources supporting implementation of IPC

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National policy-maker engagement brief

WHO SAVE LIVES: Clean Your Hands Global Campaign
5 May 2017

Fight antibiotic resistance - it's in your hands

Introduction

New videos on IPC and the Core Components

http://www.who.int/infection-prevention/en/ World Health Organization

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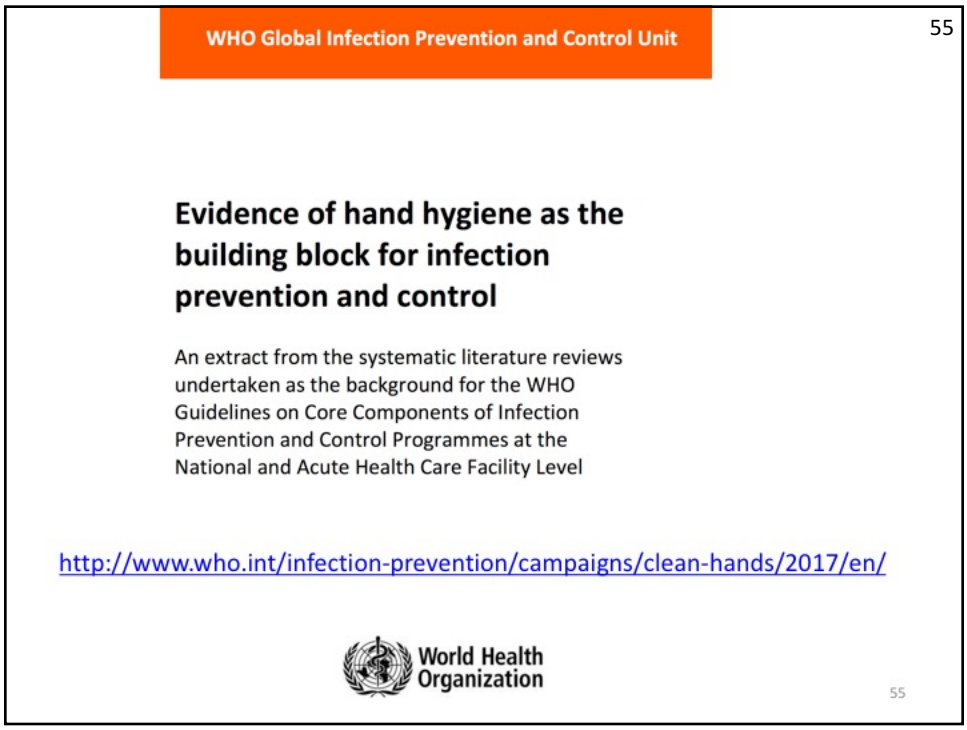
FIGHT ANTIBIOTIC RESISTANCE IT'S IN YOUR HANDS

1. Burden of disease and antibiotic resistance
2. WHO Global Action Plan (GAP)
3. Core components of effective IPC programmes
4. Hand Hygiene as building block for IPC
5. 5 May 2017 global campaign
6. Turn Africa Orange

World Health Organization
5 May 2017 campaign

#HandHygiene
#AntibioticResistance


WHO Global Infection Prevention and Control Unit
55
Evidence of hand hygiene as the building block for infection prevention and control
An extract from the systematic literature reviews undertaken as the background for the WHO Guidelines on Core Components of Infection Prevention and Control Programmes at the National and Acute Health Care Facility Level
http://www.who.int/infection-prevention/campaigns/clean-hands/2017/en/
World Health Organization
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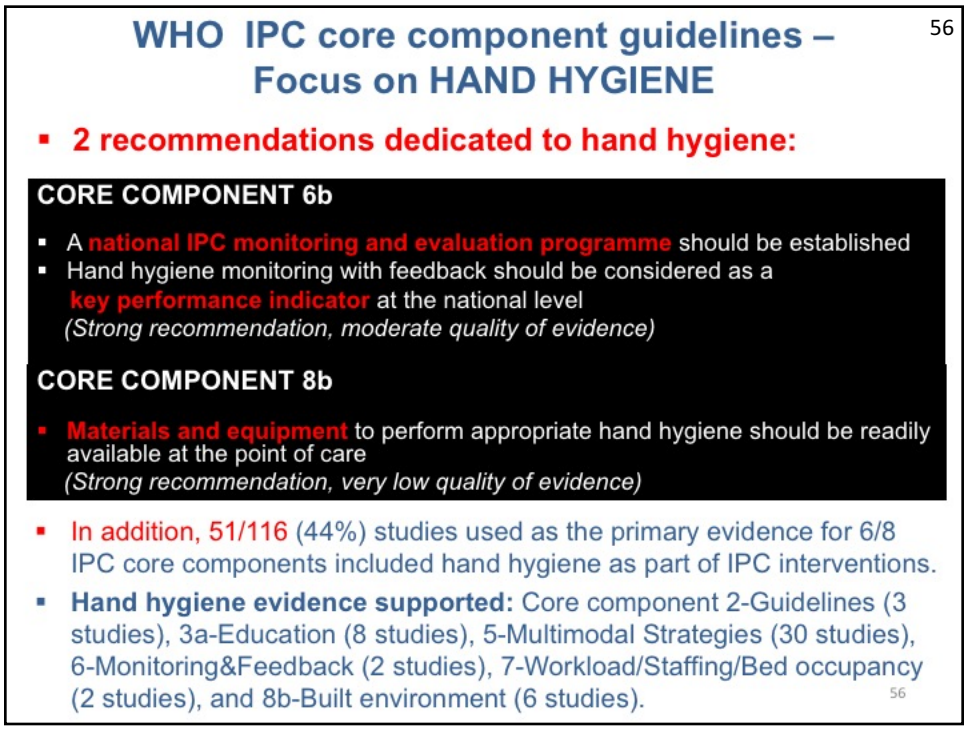
56
WHO IPC core component guidelines – Focus on HAND HYGIENE
2 recommendations dedicated to hand hygiene:
CORE COMPONENT 6b
A national IPC monitoring and evaluation programme should be established
Hand hygiene monitoring with feedback should be considered as a key performance indicator at the national level
(Strong recommendation, moderate quality of evidence)
CORE COMPONENT 8b
Materials and equipment to perform appropriate hand hygiene should be readily available at the point of care
(Strong recommendation, very low quality of evidence)
In addition, 51/116 (44%) studies used as the primary evidence for 6/8 IPC core components included hand hygiene as part of IPC interventions.
Hand hygiene evidence supported: Core component 2-Guidelines (3 studies), 3a-Education (8 studies), 5-Multimodal Strategies (30 studies), 6-Monitoring&Feedback (2 studies), 7-Workload/Staffing/Bed occupancy (2 studies), and 8b-Built environment (6 studies).
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Hand hygiene evidence – Key messages

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- Hand hygiene research drives the evidence on the need for **IPC guidelines** – to reduce HAI and AMR
- IPC guidelines should directly address how hand hygiene can prevent the spread of MDROs
- The evidence of hand hygiene education activities drives **IPC education and training** in health facilities
- Education and training should emphasize hand hygiene role in preventing the spread of MDROs in clinical workflow
- There is clear evidence that hand hygiene **multimodal improvement strategies** are effective in improving practices and preventing microbial transmission and infections
- A hand hygiene multimodal improvement strategy should describe how actions prevent transmission of MDROs including in the context of real life clinical workflow
- **Hand hygiene monitoring** plays a role in driving IPC standards and is a key performance indicator (national level)
- Using **hand hygiene audit** data is key to improve IPC and prevent the spread of resistant organisms
- Impact of **workload** can influence hand hygiene practices. This can be used to influence decisions on **staffing levels**
- **Hand hygiene equipment and products** (including at the point of care) are critical to IPC practices. Without **hand hygiene resources** the spread of resistant organisms will occur

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Hand hygiene multimodal improvement strategies improve practices and reduce HAI and AMR

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- **Out of 44 high-quality studies** supporting the **Core Component recommendation on multimodal strategies**, **28 (64%)** were on hand hygiene
- Additional **27 lower-quality studies** were on hand hygiene
- These studies showed that hand hygiene multimodal strategies:
  - Increase hand hygiene compliance
  - Reduce MRSA transmission
  - Reduce HAIs

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Successful components in Multimodal Strategies

- Accessibility to handrub
- Targeted training
- Role models
- Opinion leaders and champions
- Positive reinforcement
- Leveraging leadership commitment
- Principles of product marketing
- Financial incentives for high level hand hygiene performance

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Contents lists available at ScienceDirect
American Journal of Infection Control
journal homepage: www.ajicjournal.org
ELSEVIER
AJIC American Journal of Infection Control

Major article

A multifactorial action plan improves hand hygiene adherence and significantly reduces central line–associated bloodstream infections

Linda Johnson MSN, RN, CIC *, Sarah Grueber BHS, RRT, CIC, Cathy Schlotzhauer BSN, RN, CIC, Eileen Phillips MSN, RN, CIC, Paula Bullock MED, MT (ASCP), CIC, Jaime Basnett MSN, RN, CIC, Kristin Hahn-Cover MD, FACP
University of Missouri Health Care, Columbia, MO

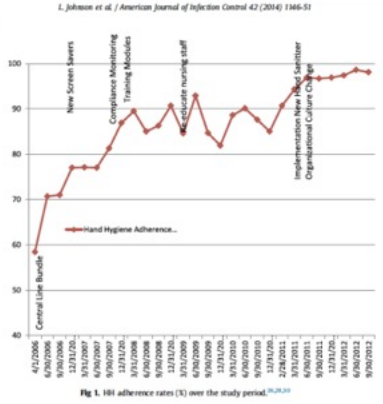

Fig 1. HH adherence rates (%) over the study period.

- 63,375 unobtrusive HH observations from April 2006 to September 2012
- The overall HH adherence rate ↑ from 58% in April 2006 to 98% in September 2012 (P < .001)
- **CLABSI rates ↓** decreased over the same period, from **4.08** per 1000 device-days to **0.42** per 1000 device-days.

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Major article

Promoting and sustaining a hospital-wide, multifaceted hand hygiene program resulted in significant reduction in health care-associated infections

Jaffar A. Al-Tawfiq MD [a,*], Mahmoud S. Abed RN [b], Nashma Al-Yami MSc [b], Richard B. Birrer MD [c]

J.A. Al-Tawfiq et al. / American Journal of Infection Control 41 (2013) 482-6

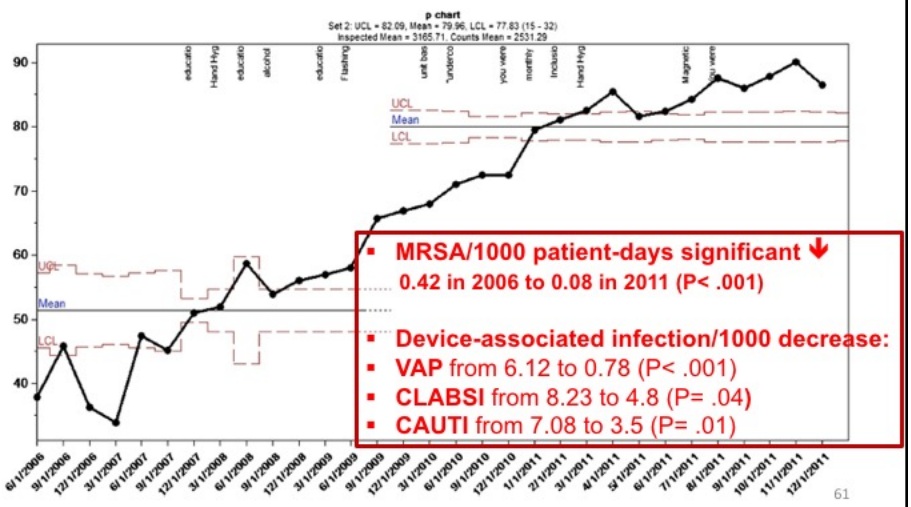

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Fig 1. Hand Hygiene Compliance rates (% of all observed opportunities) over the study period.

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OPEN ACCESS Freely available online PLOS ONE

The Feedback Intervention Trial (FIT) — Improving Hand-Hygiene Compliance in UK Healthcare Workers: A Stepped Wedge Cluster Randomised Controlled Trial

Christopher Fuller[1], Susan Michie[2], Joanne Savage[1], John McAteer[2], Sarah Besser[1¤a], Andre Charlett[3], Andrew Hayward[1], Barry D. Cookson[3], Ben S. Cooper[3¤b], Georgia Duckworth[3], Annette Jeanes[4], Jenny Roberts[5], Louise Teare[6], Sheldon Stone[1]*

1 Royal Free Campus, University College London Medical School, University College, London, United Kingdom, 2 University College London, London, United Kingdom, 3 Health Protection Agency, London, United Kingdom, 4 University College London Hospitals, London, United Kingdom, 5 London School of Hygiene and Tropical Medicine, London, United Kingdom, 6 Mid-Essex NHS Trust, Chelmsford, United Kingdom

Abstract

Introduction: Achieving a sustained improvement in hand-hygiene compliance is the WHO's first global patient safety challenge. There is no RCT evidence showing how to do this. Systematic reviews suggest feedback is most effective and call for long term well designed RCTs, applying behavioural theory to intervention design to optimise effectiveness.

Methods: Three year stepped wedge cluster RCT of a feedback intervention testing hypothesis that the intervention was more effective than routine practice in 16 English/Welsh Hospitals (16 Intensive Therapy Units [ITU]; 44 Acute Care of the Elderly [ACE] wards) routinely implementing a national cleanyourhands campaign). Intervention-based on Goal & Control theories. Repeating 4 week cycle (20 mins/week) of observation, feedback and personalised action planning, recorded on forms. Computer-generated stepwise entry of all hospitals to intervention. Hospitals aware only of own allocation. Primary outcome: direct blinded hand hygiene compliance (%).

Results: All 16 trusts (60 wards) randomised, 33 wards implemented intervention (11 ITU, 22 ACE). Mixed effects regression analysis (all wards) accounting for confounders, temporal trends, ward type and fidelity to intervention (forms/month used).

Intention to Treat Analysis: Estimated odds ratio (OR) for hand hygiene compliance rose post randomisation (1.44; 95% CI 1.18, 1.76;p<0.001) in ITUs but not ACE wards, equivalent to 7–9% absolute increase in compliance.

Per-Protocol Analysis for Implementing Wards: OR for compliance rose for both ACE (1.67 [1.28–2.22]; p<0.001) & ITUs (2.09 [1.55–2.81];p<0.001) equating to absolute increases of 10–13% and 13–18% respectively. Fidelity to intervention closely related to compliance on ITUs (OR 1.12 [1.04, 1.20];p = 0.003 per completed form) but not ACE wards.

Conclusion: Despite difficulties in implementation, intention-to-treat, per-protocol and fidelity to intervention, analyses showed an intervention coupling feedback to personalised action planning produced moderate but significant sustained improvements in hand-hygiene compliance, in wards implementing a national hand-hygiene campaign. Further implementation studies are needed to maximise the intervention's effect in different settings.

Annals of Internal Medicine | ARTICLE 63

Device-Associated Nosocomial Infections in 55 Intensive Care Units of 8 Developing Countries

Findings of an International Nosocomial Infection Control Consortium

Victor D. Rosenthal, MD; Dennis G. Maki, MD; Reinaldo Salomao, MD; Carlos Álvarez Moreno, MD; Yatin Mehta, MD; Francisco Higuera, MD; Luis Cuellar, MD; Özay Akan Arikan, MD; Rédouane Abouqal, MD; and Hakan Leblebicioglu, MD, for the International Nosocomial Infection Control Consortium*

Vol. 25 No. 1 INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY 47

EFFECT OF EDUCATION AND PERFORMANCE FEEDBACK ON RATES OF CATHETER-ASSOCIATED URINARY TRACT INFECTION IN INTENSIVE CARE UNITS IN ARGENTINA

Victor Daniel Rosenthal, MD, MSc, CIC; Sandra Guzman, RN, ICP; Nasia Safdar, MD

- Hand hygiene compliance ↑ from 23.1% to 65.2%
  RR, 2.82; CI 95%, 2.49 -3.20
- Catheter-associated UTI rates ↓ from 21.3 to 12.39 per 1,000 catheter-days (RR, 0.58; CI95, 0.39 to 0.86)

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ORIGINAL ARTICLE

Positive Deviance: A New Strategy for Improving Hand Hygiene Compliance

Alexandre R. Marra, MD; Luciana Reis Guastelli, RN; Carla Manuela Pereira de Araújo, RN; Jorge L. Saraiva dos Santos, RN; Luiz Carlos R. Lamblet, RN; Moacyr Silva Jr, MD; Gisele de Lima, PharmD; Ruy Guilherme Rodrigues Cal, MD; Ângela Tavares Paes, PhD; Miguel Cendoroglo Neto, MD; Luciana Barbosa, PharmD; Michael B. Edmond, MD, MPH, MPA; Oscar Fernando Pavão dos Santos, MD

OBJECTIVE. To evaluate the effectiveness of a positive deviance strategy for the improvement of hand hygiene compliance in 2 adult step-down units.

DESIGN. A 9-month, controlled trial comparing the effect of positive deviance on compliance with hand hygiene.

SETTING. Two 20-bed step-down units at a tertiary care private hospital.

METHODS. The first phase of our study was a 3-month baseline period (from April to June 2008) in which hand hygiene episodes were counted by use of electronic handwashing counters. From July to September 2008 (ie, the second phase), a positive deviance strategy was implemented in the east unit; the west unit was the control unit. During the period from October to December 2008 (ie, the third phase), positive deviance was applied in both units.

RESULTS. During the first phase, there was no statistically significant difference between the 2 step-down units in the number of episodes of hand hygiene per 1,000 patient-days or in the incidence density of healthcare-associated infections (HAIs) per 1,000 patient-days. During the second phase, there were 62,000 hand hygiene episodes per 1,000 patient-days in the east unit and 33,570 hand hygiene episodes per 1,000 patient-days in the west unit ($P < .01$). The incidence density of HAIs per 1,000 patient-days was 6.5 in the east unit and 12.7 in the west unit ($P = .04$). During the third phase, there was no statistically significant difference in hand hygiene episodes per 1,000 patient-days ($P = .16$) or in incidence density of HAIs per 1,000 patient-days.

CONCLUSION. A positive deviance strategy yielded a significant improvement in hand hygiene, which was associated with a decrease in the overall incidence of HAIs.

Infect Control Hosp Epidemiol 2010; 31:12-20

64

65

BMJ open

Comparison of strategies to reduce meticillin-resistant *Staphylococcus aureus* rates in surgical patients: a controlled multicentre intervention trial

Andie S Lee,[1,2] Ben S Cooper,[3,4] Surbhi Malhotra-Kumar,[5] Annie Chalfine,[6] George L Daikos,[7] Carolina Fankhauser,[1] Biljana Carevic,[8] Sebastian Lemmen,[9] José Antonio Martínez,[10] Cristina Masuet-Aumatell,[11] Angelo Pan,[12] Gabby Phillips,[13] Bina Rubinovitch,[14] Herman Goossens,[5] Christian Brun-Buisson,[15] Stephan Harbarth,[1] for the MOSAR WP4 Study Group

- A large, prospective, controlled, interventional cohort study, with 6-month baseline, 12-month intervention and 6-month washout phases
- 33 surgical wards of 10 hospitals in nine countries in Europe and Israel
- The two strategies compared were (1) enhanced hand hygiene promotion and (2) universal MRSA screening with contact precautions and decolonisation (intranasal mupirocin and chlorhexidine bathing) of MRSA carriers.
- Neither strategy when used alone was associated with significant changes in MRSA rates. Combining both strategies was associated with a reduction in the rate of MRSA clinical cultures of 12% per month (adjusted incidence rate ratios (aIRR) 0.88, 95% CI 0.79 to 0.98).

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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

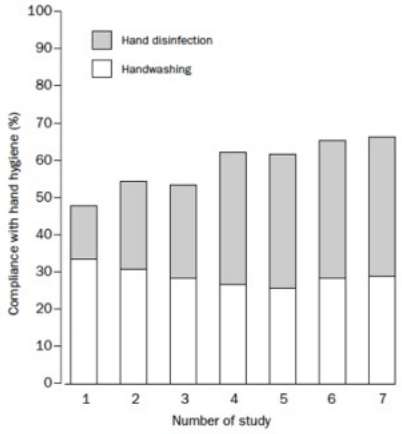

Figure 1: **Hand-hygiene compliance trend during seven consecutive hospital-wide surveys, University of Geneva Hospitals, 1994–97**

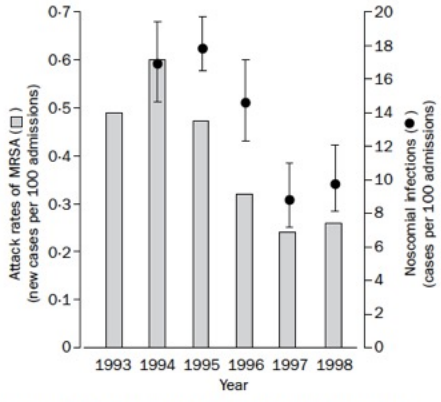

Figure 3: **Trends in prevalence of nosocomial infections and annual attack rate of MRSA, 1993–98, University of Geneva Hospitals**

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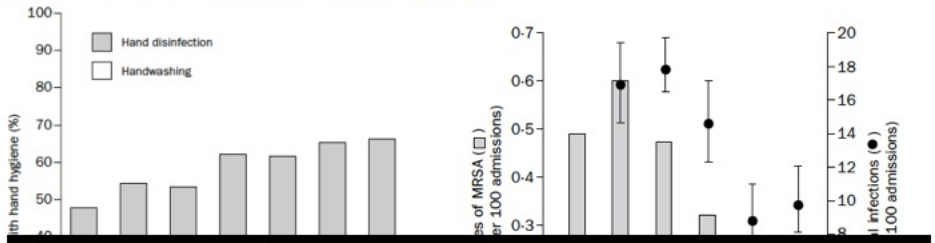
Effectiveness of a hospital-wide programme to improve compliance with hand hygiene

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



- More than 20 000 opportunities for HH observed
- Compliance improved progressively from 48% in 1994, to 66% in 1997 (p<0·001)
- MRSA transmission rates decreased from 2·16 to 0·93 episodes per 10 000 patient-days; p<0·001

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FIGHT ANTIBIOTIC RESISTANCE
IT'S IN YOUR HANDS

1. Burden of disease and antibiotic resistance
2. WHO Global Action Plan (GAP)
3. Core components of effective IPC programmes
4. Hand Hygiene as building block for IPC
5. 5 May 2017 global campaign
6. Turn Africa Orange

#HandHygiene
#AntibioticResistance

World Health Organization
5 May 2017 campaign


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IT'S IN YOUR HANDS
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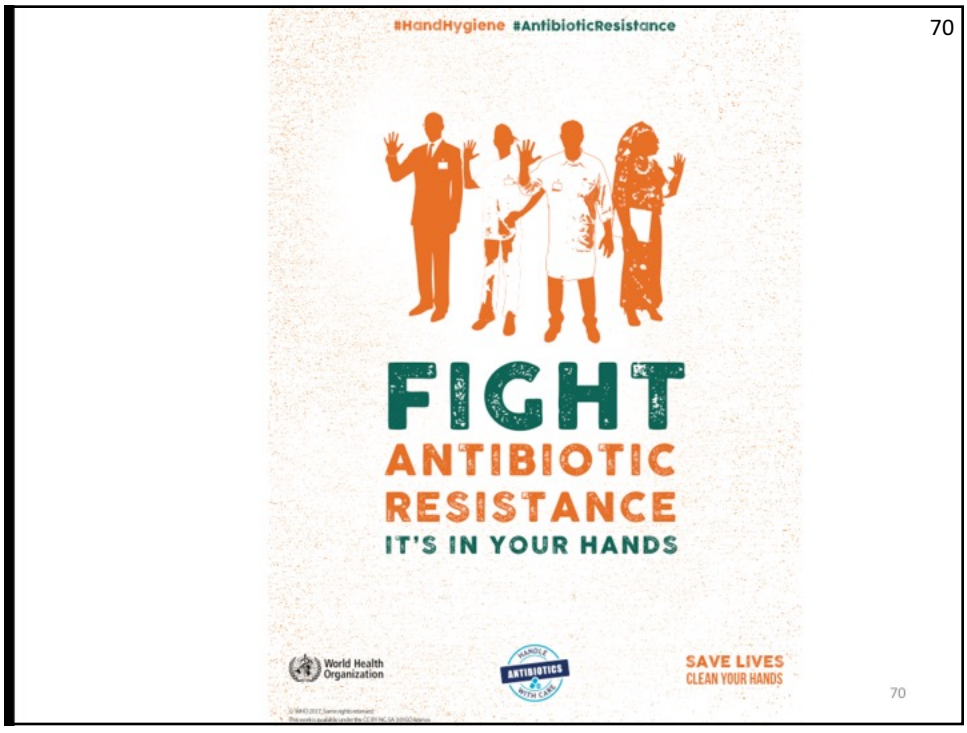
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RESISTANCE
IT'S IN YOUR HANDS
World Health Organization
ANTIBIOTICS
SAVE LIVES
CLEAN YOUR HANDS
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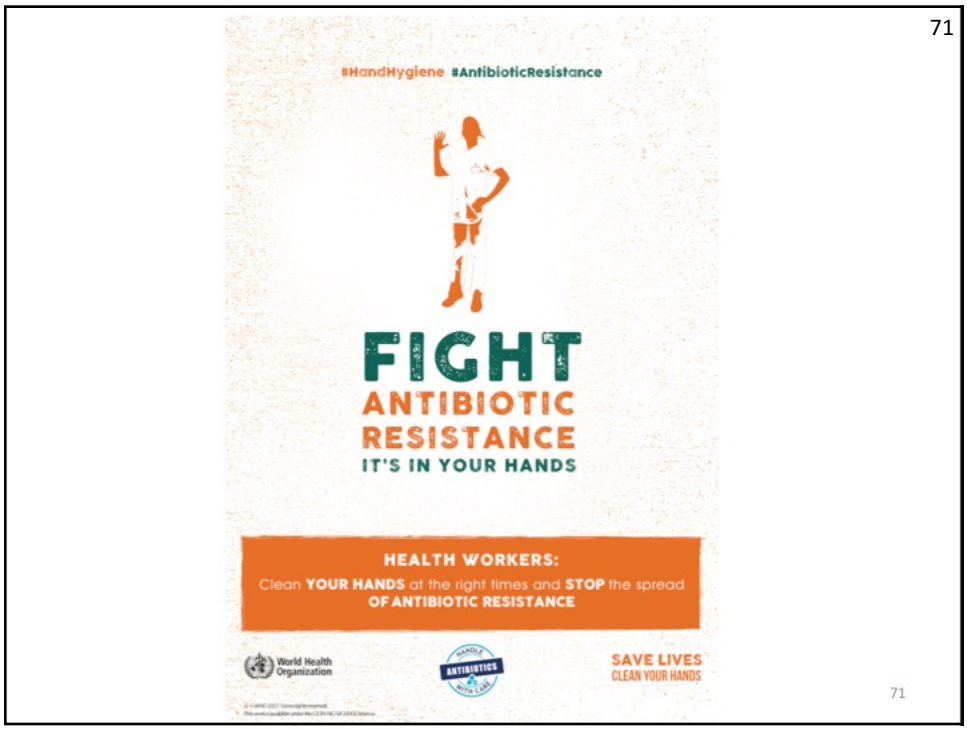
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#HandHygiene #AntibioticResistance
FIGHT
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RESISTANCE
IT'S IN YOUR HANDS
HEALTH WORKERS:
Clean YOUR HANDS at the right times and STOP the spread
OF ANTIBIOTIC RESISTANCE
World Health Organization
HANDLE ANTIBIOTICS WITH CARE
SAVE LIVES
CLEAN YOUR HANDS
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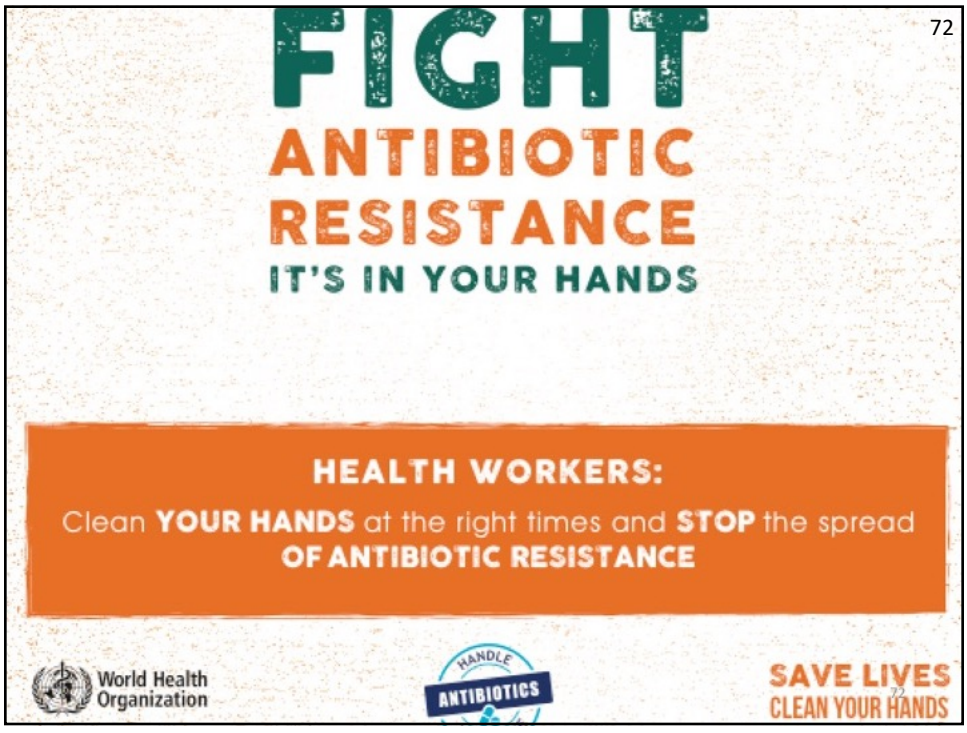
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ANTIBIOTIC
RESISTANCE
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HEALTH WORKERS:
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OF ANTIBIOTIC RESISTANCE
World Health Organization
HANDLE ANTIBIOTICS
SAVE LIVES
CLEAN YOUR HANDS
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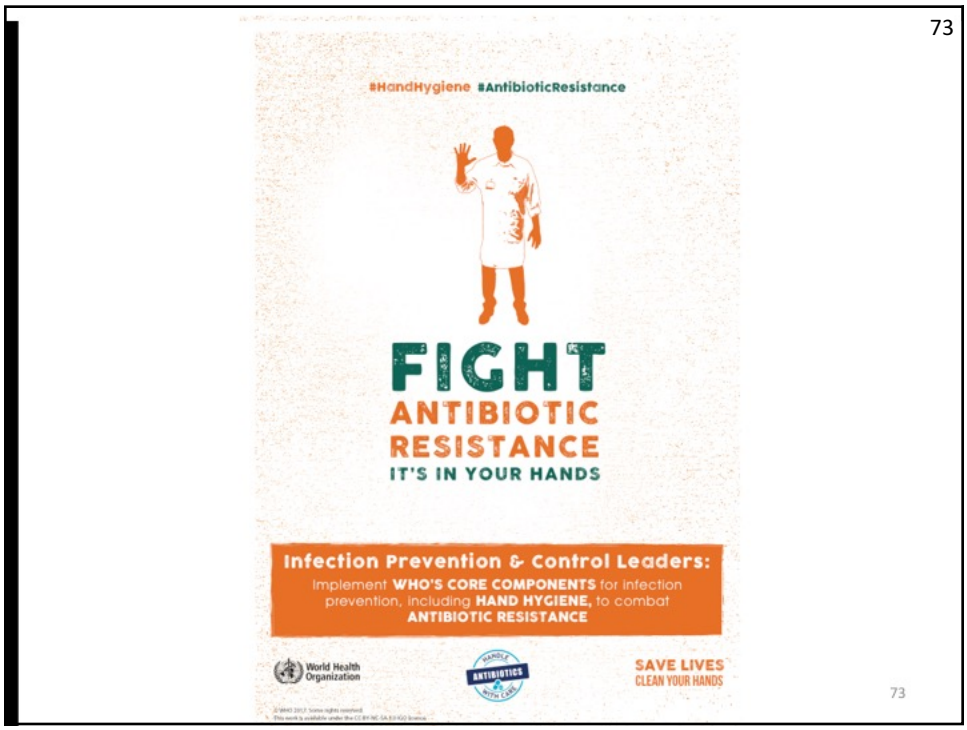
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#HandHygiene #AntibioticResistance
FIGHT
ANTIBIOTIC
RESISTANCE
IT'S IN YOUR HANDS
Infection Prevention & Control Leaders:
Implement WHO'S CORE COMPONENTS for infection prevention, including HAND HYGIENE, to combat ANTIBIOTIC RESISTANCE
World Health Organization
HANDLE ANTIBIOTICS WITH CARE
SAVE LIVES
CLEAN YOUR HANDS
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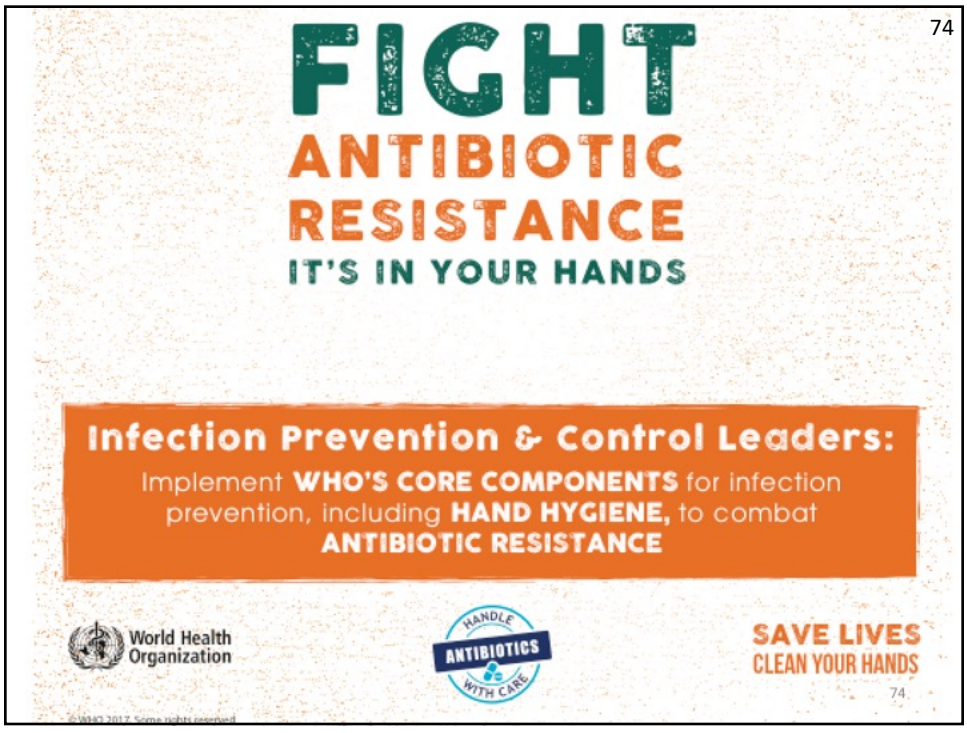
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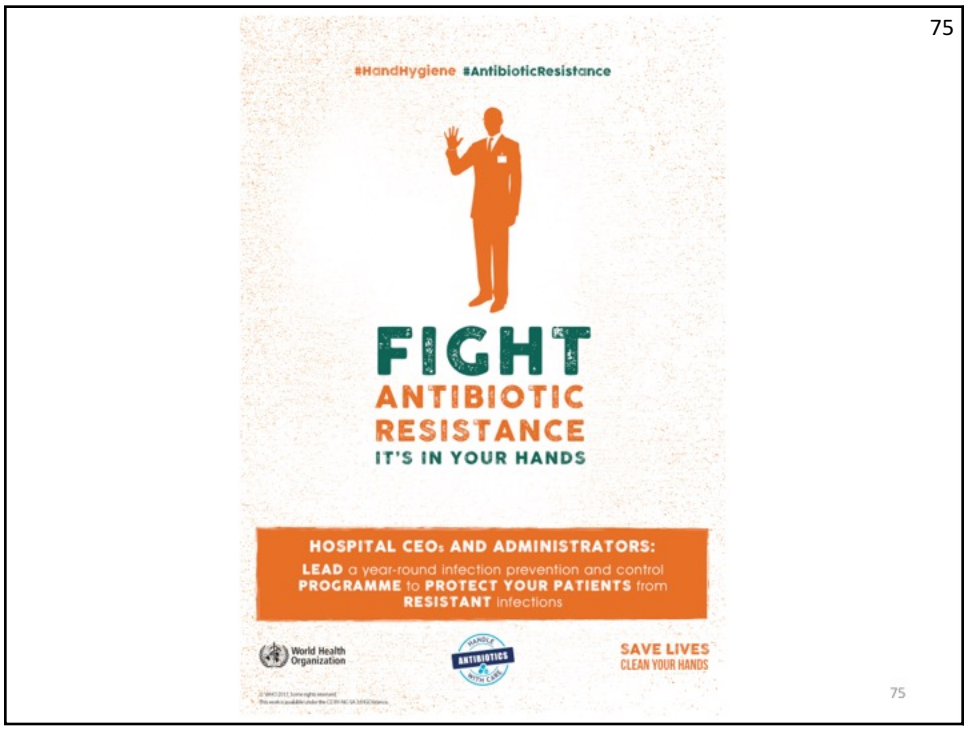
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#HandHygiene #AntibioticResistance
FIGHT
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RESISTANCE
IT'S IN YOUR HANDS
HOSPITAL CEOs AND ADMINISTRATORS:
LEAD a year-round infection prevention and control PROGRAMME to PROTECT YOUR PATIENTS from RESISTANT infections
World Health Organization
HANDLE ANTIBIOTICS WITH CARE
SAVE LIVES
CLEAN YOUR HANDS
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HANDLE ANTIBIOTICS
SAVE LIVES


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RESISTANCE
IT'S IN YOUR HANDS
POLICYMAKERS:
STOP antibiotic RESISTANCE SPREAD by making infection prevention and hand hygiene a NATIONAL POLICY priority
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SAVE LIVES
CLEAN YOUR HANDS
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#CleanHands
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JOIN US!
Info&Tools – 5 May – SAVE LIVES: Clean Your Hands
http://www.who.int/gpsc/5may/en/
POST YOUR PHOTOS/SELFIES at:
http://cleanhandssavelives.org
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www.CleanHandsSaveLives.org
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#CleanHands
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FIGHT
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RESISTANCE
IT'S IN YOUR HANDS
5 May 2017
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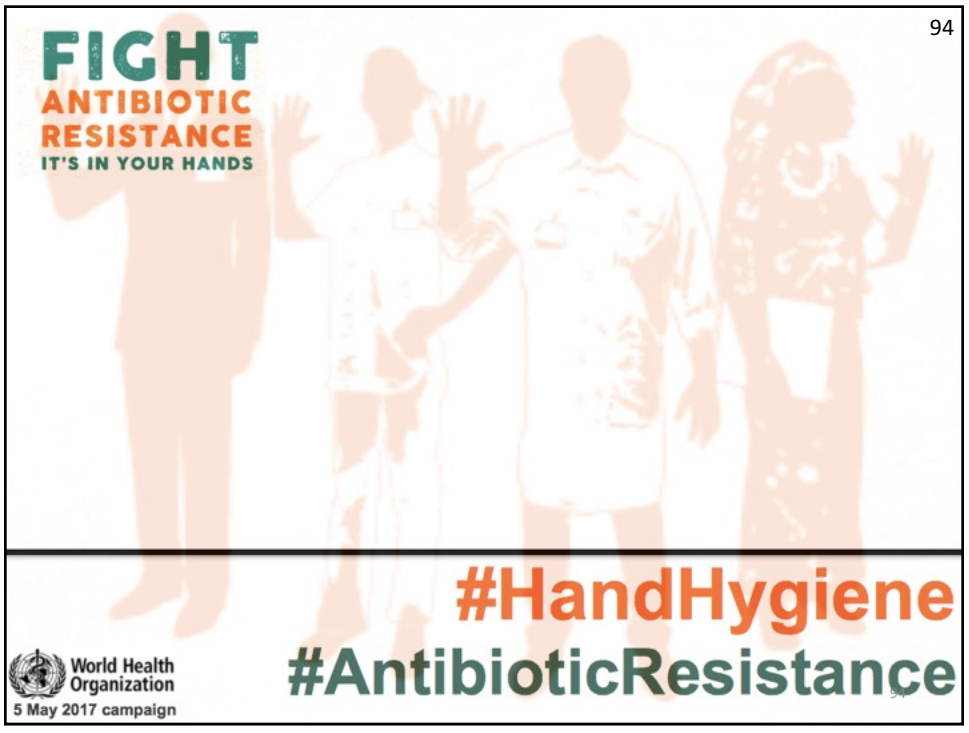
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FIGHT
ANTIBIOTIC
RESISTANCE
IT'S IN YOUR HANDS
#HandHygiene
#AntibioticResistance
World Health Organization
5 May 2017 campaign


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United we stand
#AntibioticResistance
#HandHygiene
5 May 2017
WHOs global day of action on hand hygiene and infection prevention and control
95


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On the occasion of World Hand Hygiene Day on 5 May 2017,
Scientific Journals in Infection Prevention and Control and
Infectious Diseases have united to dedicate special issues/editorials
to this year's campaign focus:
Fight Antibiotic Resistance: It's In Your Hands
SHEA
The Society for Healthcare Epidemiology of America
IDSA
Infectious Diseases Society of America
THE JOURNAL OF HOSPITAL INFECTION
ARIC Journal
Lancet Inf Diseases
CMI
CLINICAL MICROBIOLOGY AND INFECTION
AJIC
American Journal of Infection Control
FIGHT ANTIBIOTIC RESISTANCE
IT'S IN YOUR HANDS
World Health Organization
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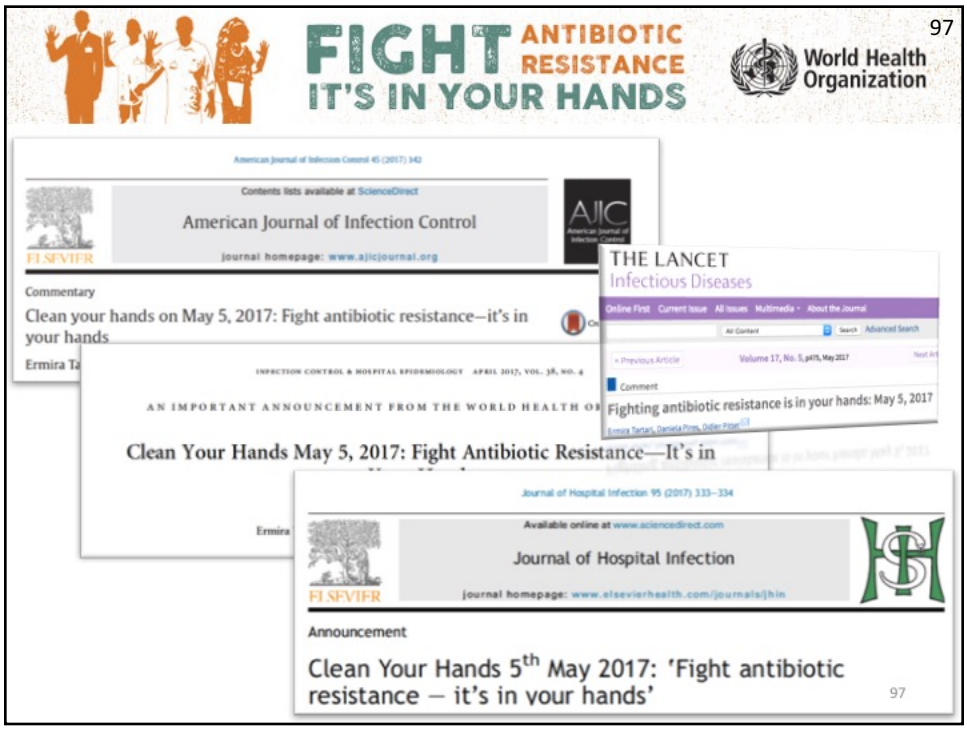
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FIGHT ANTIBIOTIC RESISTANCE
IT'S IN YOUR HANDS
World Health Organization
American Journal of Infection Control
Commentary
Clean your hands on May 5, 2017: Fight antibiotic resistance—it's in your hands
THE LANCET
Infectious Diseases
Fighting antibiotic resistance is in your hands: May 5, 2017
Clean Your Hands May 5, 2017: Fight Antibiotic Resistance—It's in
Journal of Hospital Infection
Announcement
Clean Your Hands 5th May 2017: 'Fight antibiotic resistance – it's in your hands'
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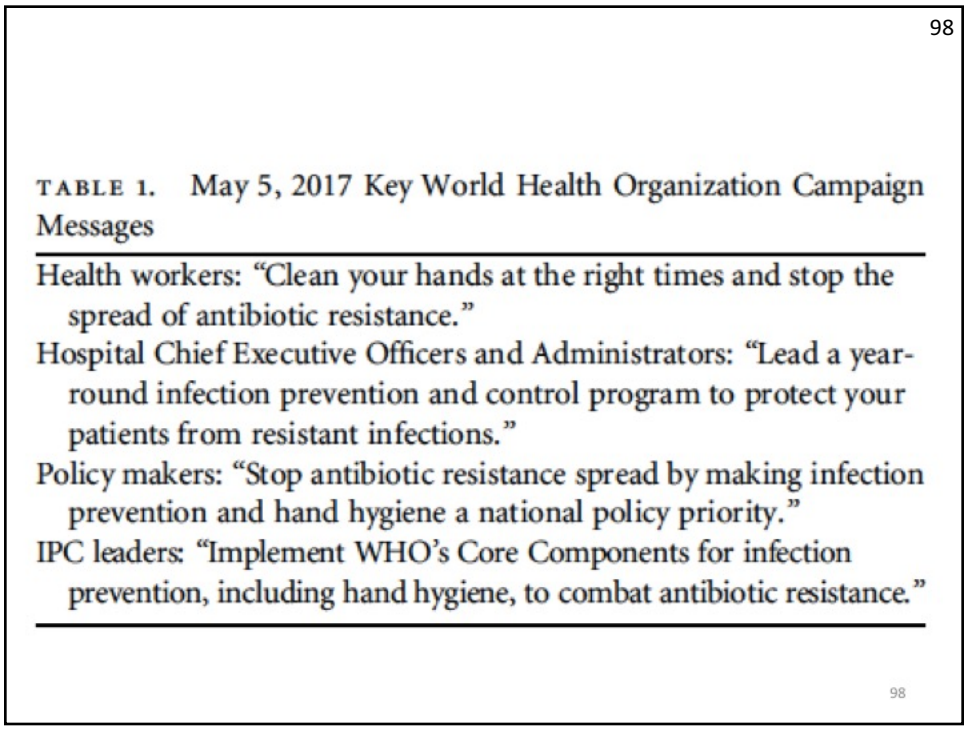
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TABLE 1. May 5, 2017 Key World Health Organization Campaign Messages
Health workers: "Clean your hands at the right times and stop the spread of antibiotic resistance."
Hospital Chief Executive Officers and Administrators: "Lead a year-round infection prevention and control program to protect your patients from resistant infections."
Policy makers: "Stop antibiotic resistance spread by making infection prevention and hand hygiene a national policy priority."
IPC leaders: "Implement WHO's Core Components for infection prevention, including hand hygiene, to combat antibiotic resistance."
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Private Organizations for Patient Safety

Hand Hygiene

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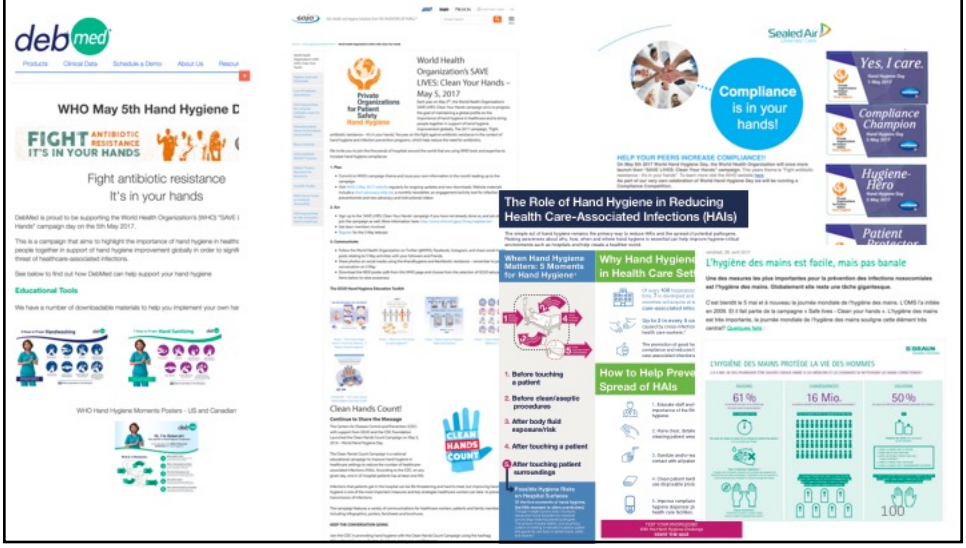
POPS supports 5 May with:

- Landing pages
- Educational materials
- Social media presence
- Press releases
- Blog
- Translations
- Competitions
- …



Fight Antibiotic Resistance: It's in Your Hands
Prof. Didier Pittet and Prof. Benedetta Allegranzi, World Health Organization
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Activity list for infection prevention and control leaders at the facility level
SAVE LIVES: Clean Your Hands
WHO's Global Annual Campaign
'Fight antibiotic resistance – it's in your hands'
World Health Organization
5 May 2017 Campaign
www.tinyrul.com/HandsMay17
www.CleanHandsSaveLives.org
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National policy-maker engagement brief
WHO SAVE LIVES: Clean Your Hands Global Campaign
5 May 2017
Fight antibiotic resistance - it's in your hands
Introduction
This brief contains sample text for use by WHO Representatives and designated WHO Country Office infection prevention and control (IPC) focal points in their engagement with policy-makers and key leaders with a mandate for IPC improvement within national ministries of health, including those tasked with developing national quality and safety policies and strategies.
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www.cleanhandssavelives.org/cleanhands/
Fight Antibiotic Resistance - Clean Hands
#CleanHands
FIGHT
ANTIBIOTIC
RESISTANCE
IT'S IN YOUR HANDS
SHOW YOUR COMMITMENT!
View #CleanHands pictures
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1 Team up with a colleague to show commitment to fight antibiotic resistance
2 Join SAVE LIVES: Clean YOUR Hands and take a photo with the campaign boards on or around 5 May
DOWNLOAD BOARD
3 Share your photo with other:
Tag your picture social medias
#HandHygiene, #CleanHands and/or #AntibioticResistance
Upload your picture
CHOOSE
My comment
My name
SEND YOUR PICTURE
Send your picture as attachment to
me@cleanhands.pics
SAVE LIVES
CLEAN YOUR HANDS
Follow us on
www.cleanhandssavelives.org/cleanhands/
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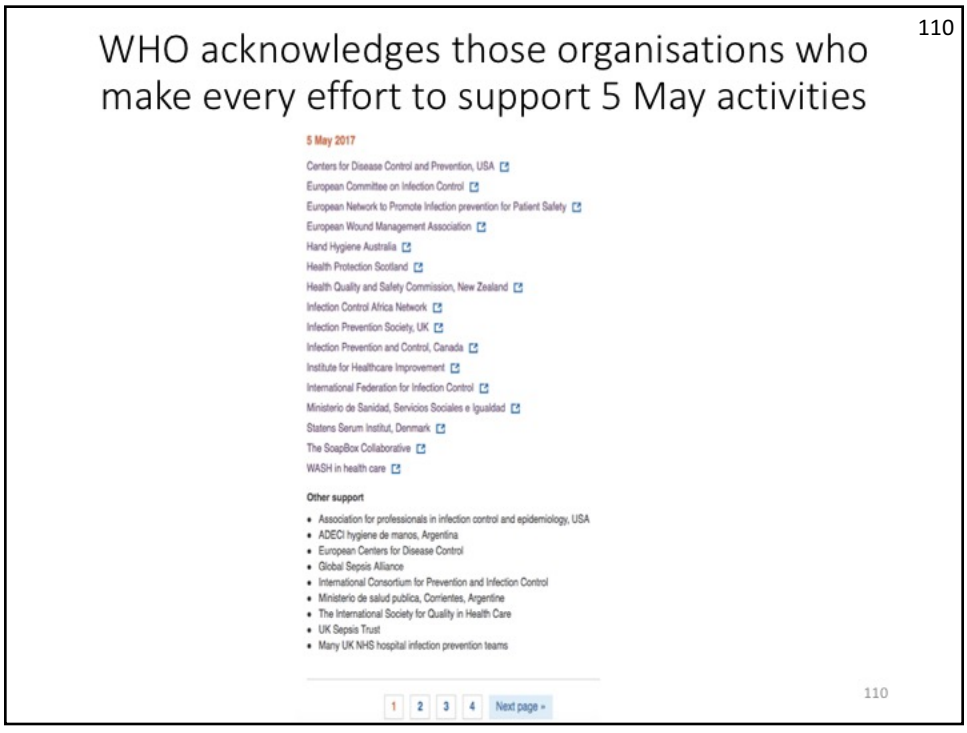
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WHO acknowledges those organisations who make every effort to support 5 May activities
5 May 2017
Centers for Disease Control and Prevention, USA
European Committee on Infection Control
European Network to Promote Infection prevention for Patient Safety
European Wound Management Association
Hand Hygiene Australia
Health Protection Scotland
Health Quality and Safety Commission, New Zealand
Infection Control Africa Network
Infection Prevention Society, UK
Infection Prevention and Control, Canada
Institute for Healthcare Improvement
International Federation for Infection Control
Ministerio de Sanidad, Servicios Sociales e Igualdad
Statens Serum Institut, Denmark
The SoapBox Collaborative
WASH in health care
Other support
Association for professionals in infection control and epidemiology, USA
ADECI hygiene de manos, Argentina
European Centers for Disease Control
Global Sepsis Alliance
International Consortium for Prevention and Infection Control
Ministerio de salud publica, Corrientes, Argentine
The International Society for Quality in Health Care
UK Sepsis Trust
Many UK NHS hospital infection prevention teams
1 2 3 4 Next page »
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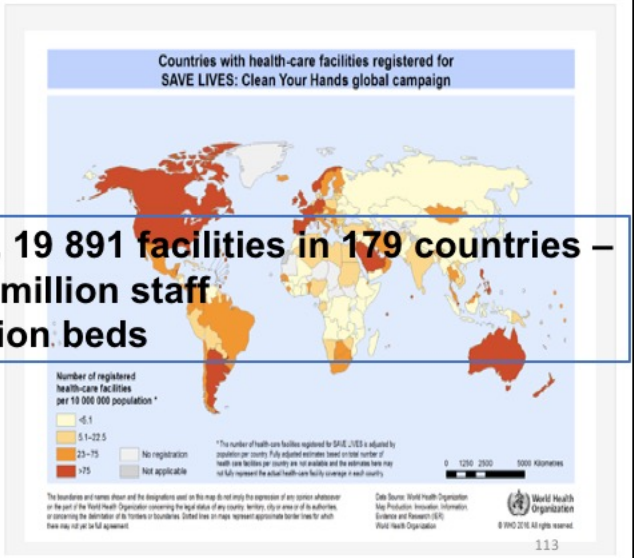
Two new territories for 2017 – Caymen Islands and Saint Lucia

Registration update - countries or areas



As at 3 May 2017, 19 891 facilities in 179 countries – covering over 12 million staff and almost 5 million beds

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http://www.who.int/infection-prevention/campaigns/clean-hands/2017/en/

5 mai 2017 WHO video message

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5 mai 2017 WHO video message

Sign up to the WHO 5 May
SAVE LIVES: Clean Your Hands
campaign here!

http://www.who.int/infection-prevention/campaigns/clean-hands/register/en/

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http://www.who.int/infection-prevention/campaigns/clean-hands/2017/en/

http://tinyurl.com/WHO5May2017

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http://tinyurl.com/WHO5May2017 117

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Committment of leaders

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Committment of leaders

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IT'S IN YOUR HANDS

1. Burden of disease and antibiotic resistance
2. WHO Global Action Plan (GAP)
3. Core components of effective IPC programmes
4. Hand Hygiene as building block for IPC
5. 5 May 2017 global campaign
6. Turn Africa Orange

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#AntibioticResistance

World Health Organization
5 May 2017 campaign

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Let's … Turn Africa Orange

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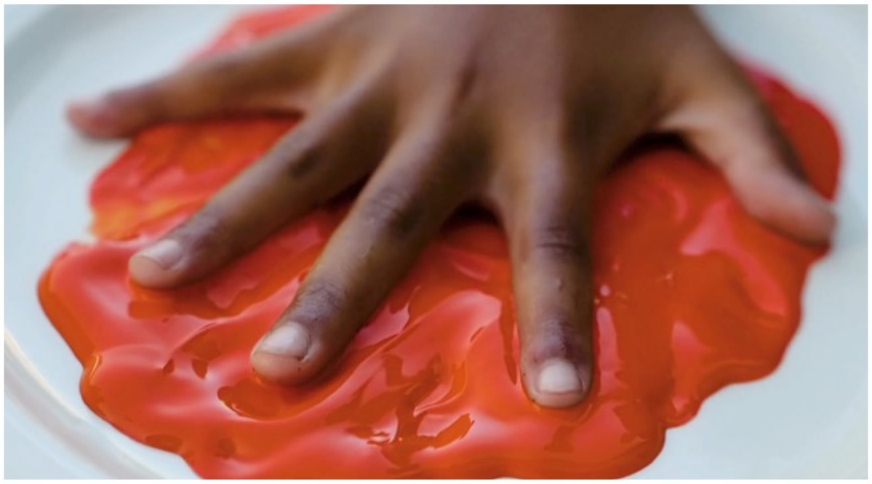

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Let's … Turn Africa Orange

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TEDxP
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ICPIC 2011
2013
2015
2017
International Conference on Prevention & Infection Control
29 June to 2 July 2011
Geneva, Switzerland
HUG
www.icpic2017.com
June 20 – 23, 2017
Geneva
Switzerland
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Welcome to ICPIC 2017
Semmelweis at ICPIC
@ICPIC_meeting
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ICPIC 2017
Preliminary Programme
International Conference on Prevention & Infection Control
29 June to 2 July 2011
Geneva, Switzerland
HUG
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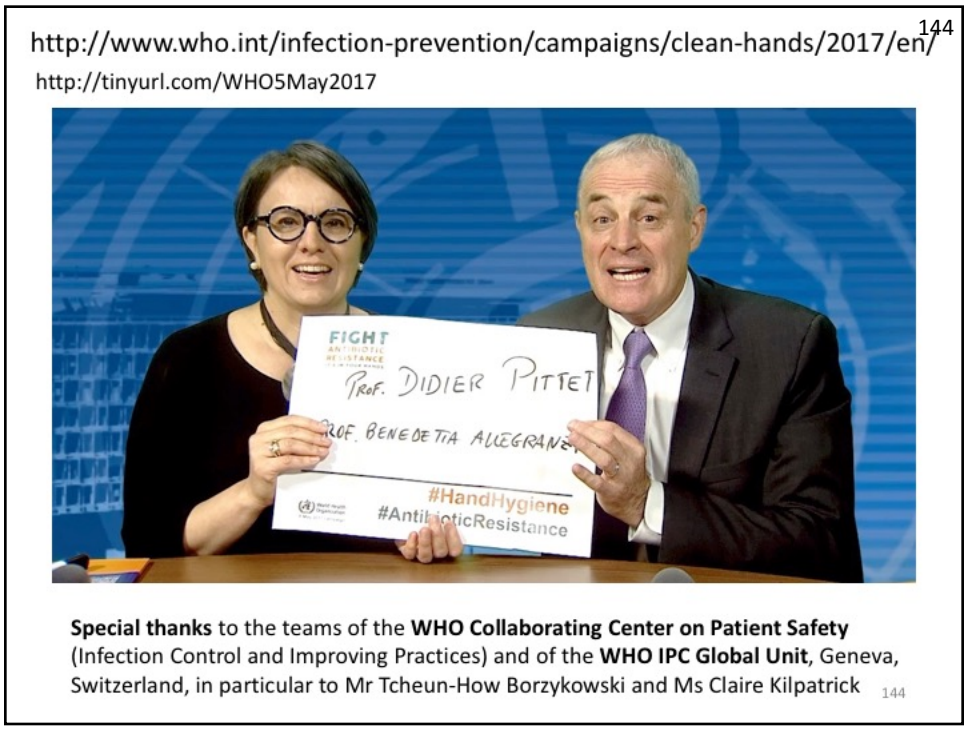
June 20 – 23, 2017
2017
Pre-ICPIC workshop
June 20, 14:00-17:00
Migrants & Refugees
WE ARE REFUGEES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http://www.who.int/infection-prevention/campaigns/clean-hands/2017/en/
http://tinyurl.com/WHO5May2017
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PROF. DIDIER PITTET
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