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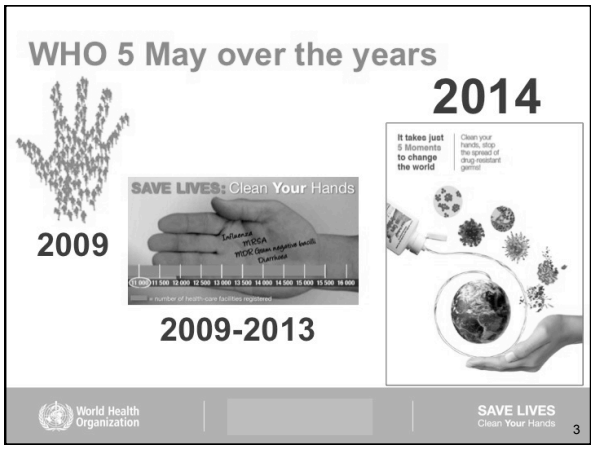

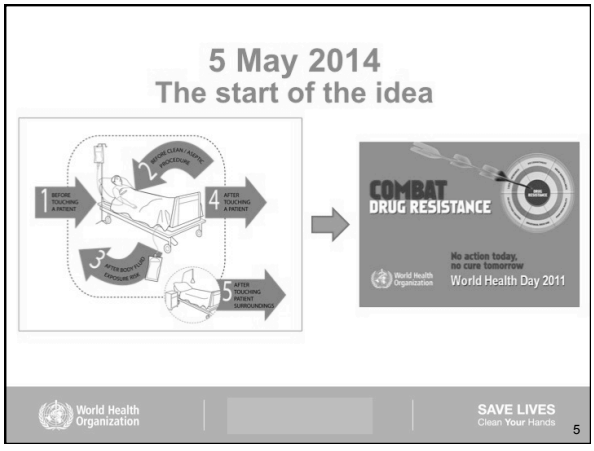

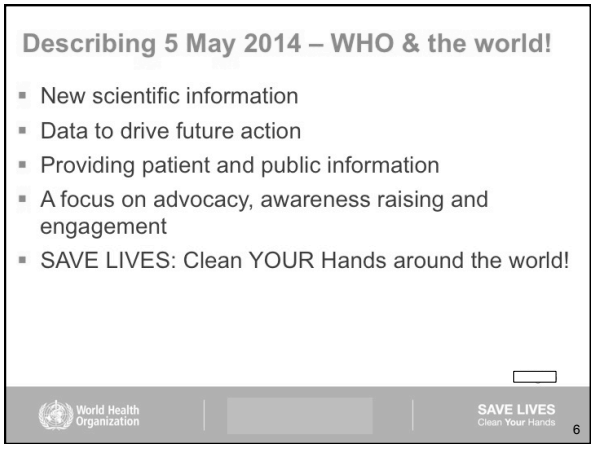

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Describing 5 May 2014 – WHO & the world!

- New scientific information
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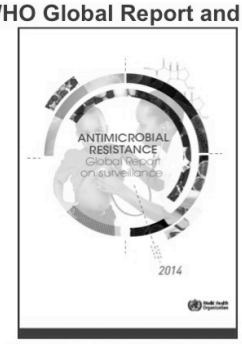
World Health Organization | SAVE LIVES Clean Your Hands | 7

WHO Global Report and Infographic on AMR



http://www.who.int/drugresistance/documents/surveillancereport/en/

World Health Organization | ***Newly issued on 30 April 2014*** | 8

AMR Global Report - Key messages

- Data for any of the selected 9 bacteria–antibacterial drug combinations of public health importance obtained from **114 Member States**
- **AMR is a serious and current threat to public health in every WHO region,** with the potential to affect anyone, of any age, in any country
- Systematic literature reviews on health and economic burden due to AMR in infections caused by resistant *E. coli, K. pneumoniae,* and MRSA
  - *Patients with infections caused by resistant bacteria generally have an increased risk of worse clinical outcomes and death, and consume more health-care resources*

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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

World Health Organization | SAVE LIVES Clean Your Hands | 10

Klebsiella pneumoniae: Resistance to third-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

World Health Organization | SAVE LIVES Clean Your Hands | 11

Klebsiella pneumoniae: 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

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

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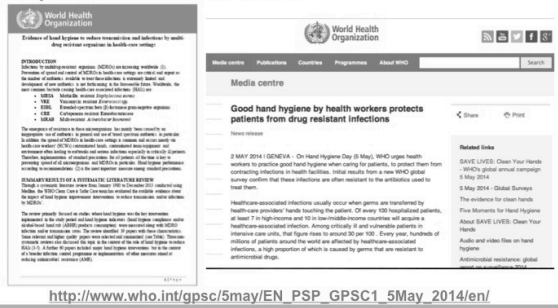
Staphylococcus aureus:
Resistance to beta-lactam antibacterials
(i.e. methicillin-resistant S. aureus, MRSA)

	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

World Health Organization | SAVE LIVES Clean Your Hands | 13

Impact of hand hygiene to reduce transmission and infections by MDROs in health-care settings
a systematic literature review



http://www.who.int/gpsc/5may/EN_PSP_GPSC1_5May_2014/en/

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Summary results

- From Jan. 1980 to Dec. 2013
- **39 studies** on hand hygiene as the key intervention implemented in the study period and including data about impact on MDROs' infection and/or transmission rates, as well as on hand hygiene indicators, were identified
- **Only 4/39** studies failed to demonstrate an impact of hand hygiene interventions or improvement in the MDRO's infection and/or colonization
  One of these studies *did not show any significant improvement of hand hygiene compliance* thus explaining the failure to reduce infections, while *another study* was a ***low/quality*** *retrospective study*
- **Additional 60 studies** investigated the impact of hand hygiene (HH) to reduce MDRO's infections as part of interventions including other infection control measures

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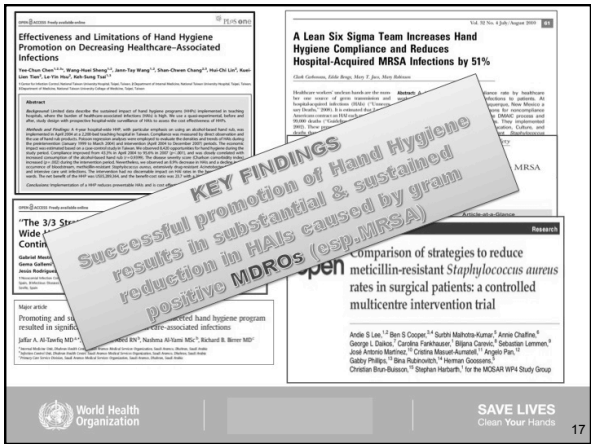

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Impact of hand hygiene on reduction of MDROs - *Gram negative bacteria*

- Clinical studies also supported data showing lower incidence rates of **resistant *E. coli*** and **carbapenem resistant *P.aeruginosa*** in wards achieving compliance levels higher than 70% and the greatest degree of compliance increase

  Trick WE et al. Infect Control Hosp Epidemiol. 2007 Jan;28(1):42-9

- Increased in HH Compliance from 43.3% to 95.6% resulted in 8.9% decrease in HAIs and a decline in the occurrence of bloodstream, MRSA and **extensively drug-resistant *Acinetobacter baumannii*** and intensive care unit infections

  Chen YC et al. PLoS One. 2011;6(11):e27163

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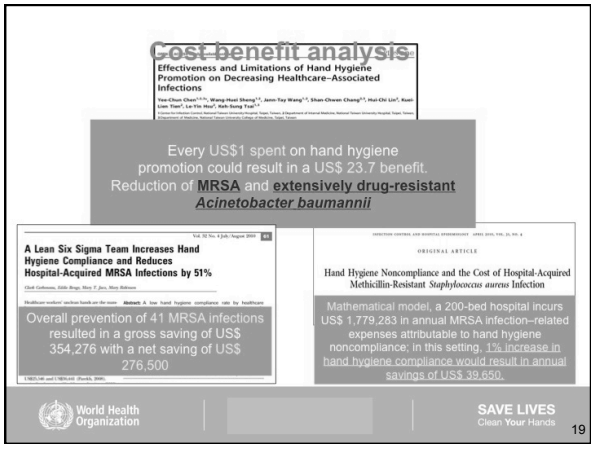

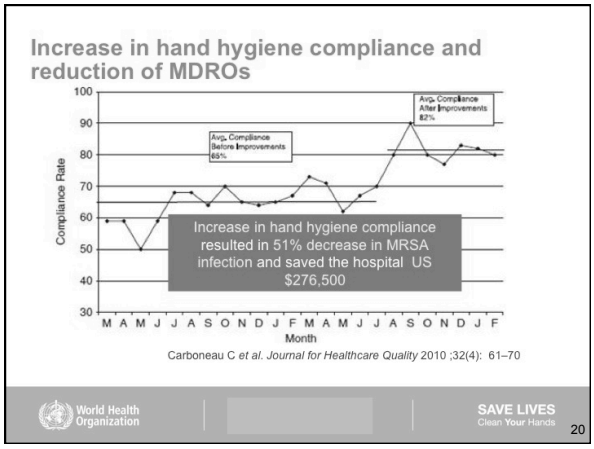

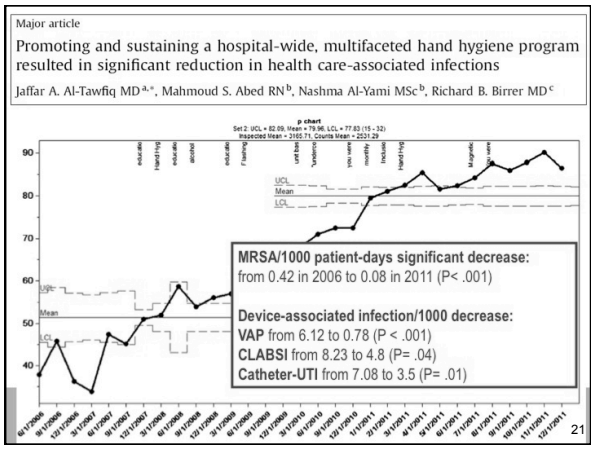

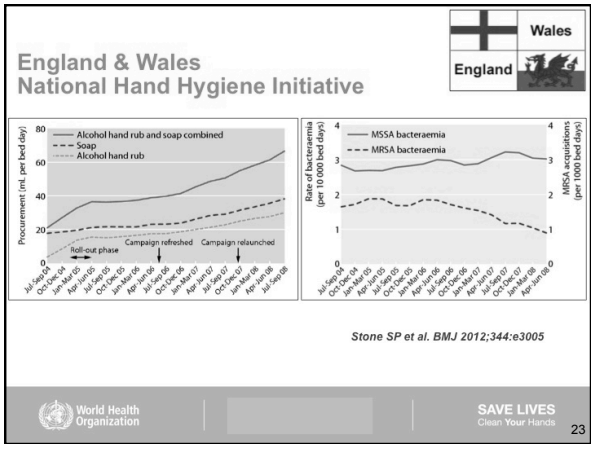

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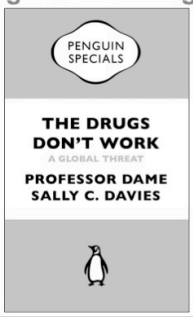
"An alarming and irreversible crisis on the same level as global warming"

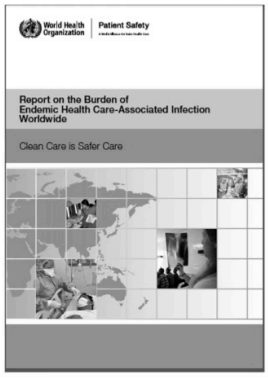


The science, Hunnet et al, 2013

- *'The annual societal cost-of-illness for AMR is considered to be roughly $55 billion for the US alone, maybe higher'*
- *'Suboptimal infection control is a factor in spread of resistant microorganisms'*
- *'The public must be aware of the scale of AMR threat, and must perceive antimicrobials as a non-renewable & endangered resource'*
- *'Infection control including hand hygiene is still performed sub-optimally contributing to spread AMR'*
- *'Tackling AMR requires action on multiple levels!'*

The call to action

- *Action: prohibit over-the-counter antimicrobials sales worldwide*
- *Action: prep of a detailed charter on antimicrobial conservation now; ratified and upheld by all ministries of health*
- *Action: develop coordinated, culturally sensitive campaigns for the public; give info on protecting antimicrobials 'a limited resource'*
- *Action: Support the improvement of sanitation systems to eliminate resistant microbes in waste water & include hand washing advice*
- *Action: establish standardized, universal methods & metrics for surveillance of antimicrobial use & resistance development*
- *Action: Medical & veterinary school curricula to ensure instruction on microbial resistance & use of antimicrobials*
- *Action: advance point-of-care rapid diagnostics to avoid the prescription of antibiotics for viral infections*



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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 – *interim analysis*

- **Aim**: to estimate the burden of MDROs isolated among inpatients in a wide range of health-care facilities worldwide
- **Design**: online survey (1st March-13 April 2014) based on the routine, ordinary collection of clinical blood and urine (MSU & CSU) culture specimens over one week
- **Participants**: health-care settings registered for the WHO SAVE LIVES: Clean Your Hands global campaign and other WHO-associated networks
- **Submissions: 334 laboratories**
- 54 countries
- All 6 WHO regions

We thank Dr. N. Damani and Mr S. Wallace (Southern Health & Social Services Trust, Portadown, Craigavon, N. Ireland, UK), for data management and analysis.

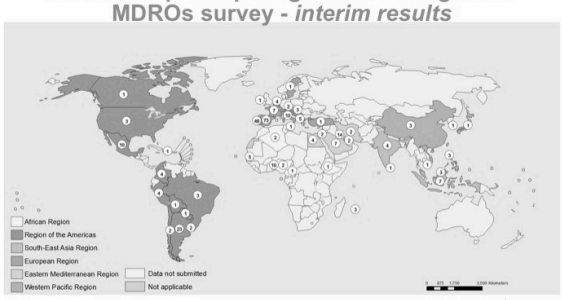
World Health Organization | *New for 2014* | SAVE LIVES Clean Your Hands

MDROs included in the survey: definitions

- **MRSA** *Staphyloccous aureus* resistant to methicillin/oxacillin/cefoxitin
- **VRE** *Enterococci* spp. resistant to glycopeptide antibiotics (i.e. vancomycin or teicoplanin)
- **ESBL** Gram-negative organisms that mediate resistance to extended-spectrum third generation cephalosporins, (e.g. ceftazidime, cefotaxime, and ceftriaxone) and monobactams (e.g. aztreonam) but do not affect cephamycins (e.g. cefoxitin and cefotetan) or carbapenems (e.g. meropenem or imipenem)
- **CRE** Enterobacteriaceae that produce any β-lactamase that hydrolyses carbapenems (any or all of ertapenem, doripenem, imipenem and meropenem) and are resistant to all of the following third-generation cephalosporins: ceftriaxone, cefotaxime, and ceftazidime.
- **MRAB** Multi-resistant *Acinetobacter* spp.: Isolate resistant to at least 3 classes of antimicrobial agents, i.e. all penicillins and cephalosporins (including inhibitor combinations), fluoroquinolones, and aminoglycosides.

World Health Organization | SAVE LIVES Clean Your Hands

Countries participating in the WHO global MDROs survey - *interim results*



Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization

World Health Organization

WHO GLOBAL SURVEY 2014
INTERIM RESULTS

S. aureus isolated from blood and urine samples and related resistance – *interim analysis**

WHO REGIONS	N° countries	N° labs.	*S. aureus* (N°isolates)	MRSA (N° isolates, % of MRSA)	*Enteroc.* spp (N° isolates)	VRE (N° isolates, % of VRE)
AFRICA**	6	15	25	10 (40%)	N/A	N/A
AMERICAS	12	55	75	33 (44%)	111	9 (8.1%)
EUROPE	20	200	386	145 (37.6%)	951	33 (3.4%)
EMR	6	32	N/A	N/A	61	7 (11.4%)
WPR	6	11	N/A	N/A	33	1 (3%)

EMR: Eastern Mediterranean Region; WPR: Western Pacific Region

*Based on at least 30 reported isolates
**Based on lower number of isolates following quality check

World Health Organization | *WHO GLOBAL SURVEY 2014 INTERIM RESULTS* | SAVE LIVES Clean Your Hands

E. coli isolated from blood and urine samples and related resistance – *interim analysis**

WHO REGIONS*	N° countries	N° labs.	*E. coli* (N°isolates)	ESBL prod. (N° isolates, % of ESBL)	CRE (N°isolates, % of CRE)
AFRICA	6	15	70	24 (34%)	1 (1.4%)
AMERICAS	12	55	713	134 (18.8%)	6 (0.8%)
EUROPE	20	200	3569	437 (12.2%)	28 (0.7%)
EMR	6	32	229	91 (39.7 %)	4 (1.7%)
SEAR	3	12	98	54 (55.1%)	10 (10.2%)
WPR	6	11	131	35 (26.7%)	2 (1.5%)

EMR: Eastern Mediterranean Region; SEAR: South-east Asian Region; WPR: Western Pacific Region

*Based on at least 30 reported isolates

World Health Organization | *WHO GLOBAL SURVEY 2014 INTERIM RESULTS* | SAVE LIVES Clean Your Hands

Klebsiella spp isolated from blood and urine samples and related resistance – *interim analysis*

WHO REGIONS*	N° countries	N° labs.	*Klebsiella* spp (N° isolates)	ESBL prod. (N° isolates, % of ESBL)	CRE (N° isolates, % of CRE)
AFRICA	6	15	34	16 (47%)	1(2.9%)
AMERICAS	12	55	128	41 (32%)	6 (4.6%)
EUROPE	20	200	753	270 (35.8%)	39 (5.1%)
EMR	6	32	105	51 (48.7%)	11 (10.4%)
SEAR	3	12	53	31 (58.4%)	20 (37.7%)

EMR: Eastern Mediterranean Region; SEAR: South-east Asian Region

*Based on at least 30 reported isolates

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Acinetobacter spp isolated from blood and urine samples and related resistance – *interim analysis*

WHO REGIONS*	N° countries	N° labs.	*Acinetobacter* spp (N° isolates)	MRAB (N° isolates, % of MRAB)
EUROPE	20	200	60	8 (13%)
EMR	6	32	50	13 (40%)

EMR: Eastern Mediterranean Region

*Based on at least 30 reported isolates

World Health Organization | WHO GLOBAL SURVEY 2014 INTERIM RESULTS | SAVE LIVES Clean Your Hands | 37

WHO Global Survey on Surgical Antibiotic Prophylaxis (SAP) in Health Care – *interim analysis*

- **Aim**: to present information on prevalence and duration of SAP prescribed in a wide range of health-care facilities worldwide
- **Design**: online survey (10 March-13 April 2014) with submission of data about SAP* related to all patients having had *surgery* over the *3 working days* before the survey day
- **Participants**: health-care facilities registered for the WHO SAVE LIVES: Clean Your Hands global campaign and other WHO-associated networks
- **Submissions: 357 health-care facilities**
- **8 199 patients**
- 50 countries, all 6 WHO regions

* **Defined as:** Administration of *systemic* antibiotics before a surgical procedure (within 60 min) with possible repetition during the operation, depending on its duration.

World Health Organization | New for 2014

We thank Dr. N. Damani and Mr S.Wallace (Southern Health & Social Services Trust, Portadown, Craigavon, N. Ireland, UK), for data management and analysis.

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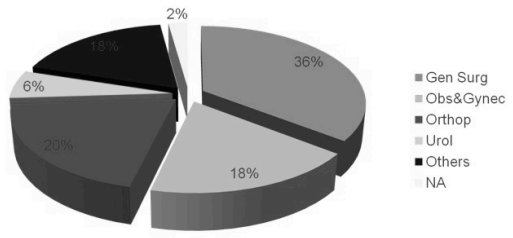
WHO REGIONS – *INTERIM RESULTS*	N° countries	N° health-care facilities	N° patients
AFRICA (Algeria, Benin, Cameroon, Democratic Rep. of Congo, Ethiopia, Nigeria, Senegal)	7	37	633
AMERICAS (Argentina, Bolivia, Brazil, Canada ,Chile ,Colombia, Dominican Rep., Mexico, Paraguay, Peru, USA, Uruguay)	12	51	840
SOUTH-EAST ASIA (India, Indonesia)	2	6	235
EUROPE (Belgium, Bosnia and Herzegovina, Croatia, Finland, France, Greece, Hungary, Italy, Malta, Portugal, Rep. of Montenegro, Rep. of Serbia, Romania, Spain, Switzerland, Turkey, UK)	17	222	5791
EASTERN MEDITERRANEAN (Bahrain, Egypt, Iran (Islamic Republic of), Kuwait, Lebanon, Saudi Arabia)	6	22	196
WESTERN PACIFIC (China, Japan, Malaysia, Philippines, Rep. of Korea, Viet Nam)	6	19	504
TOTAL	50	357	8,199

39

Type of surgical ward



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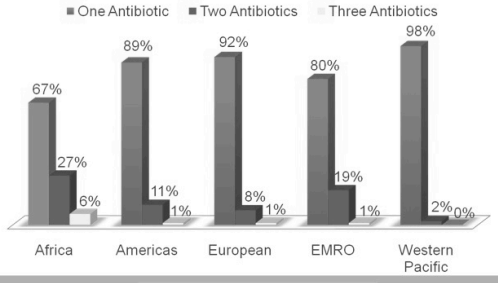
Number of antibiotics given for surgical prophylaxis



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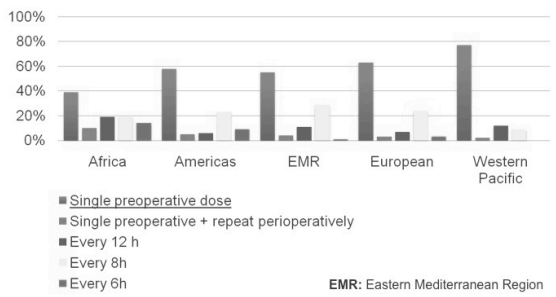
Frequency of administration by Region



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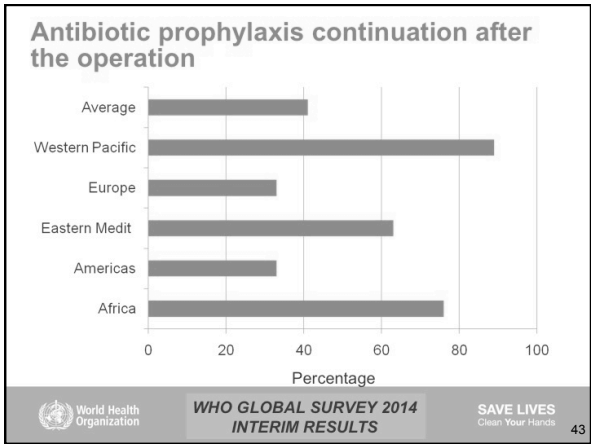

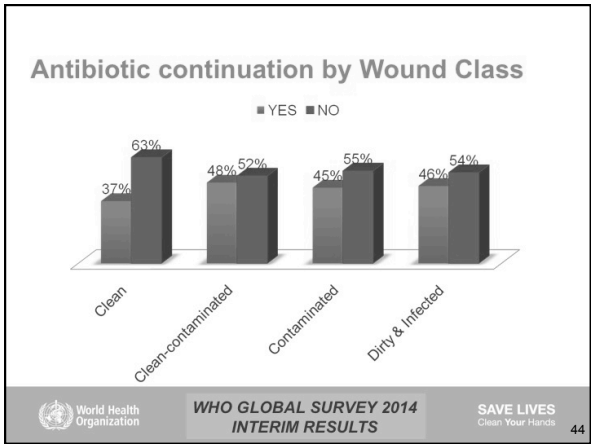

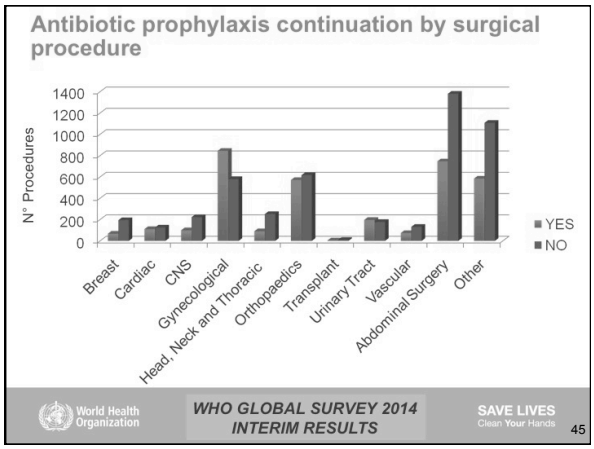

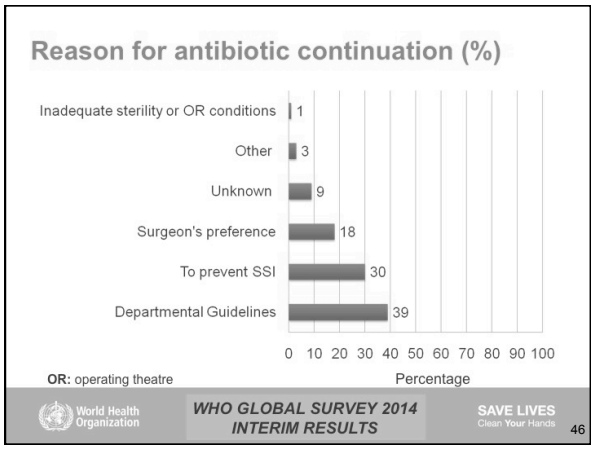

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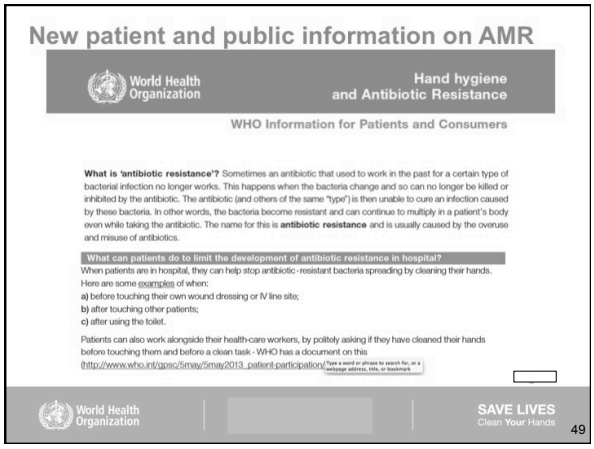

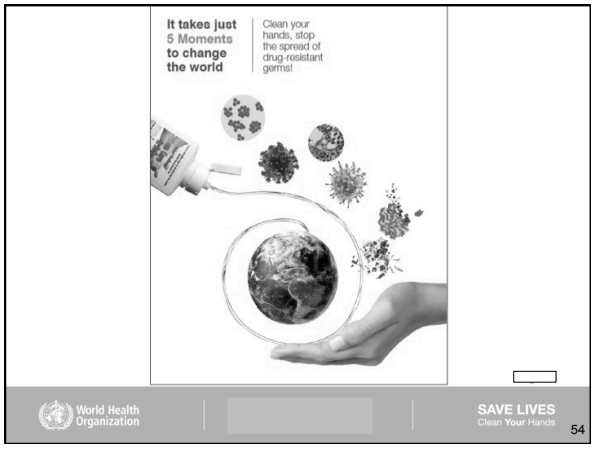

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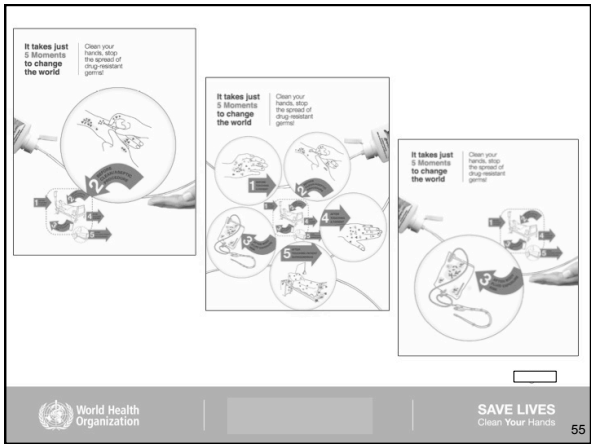

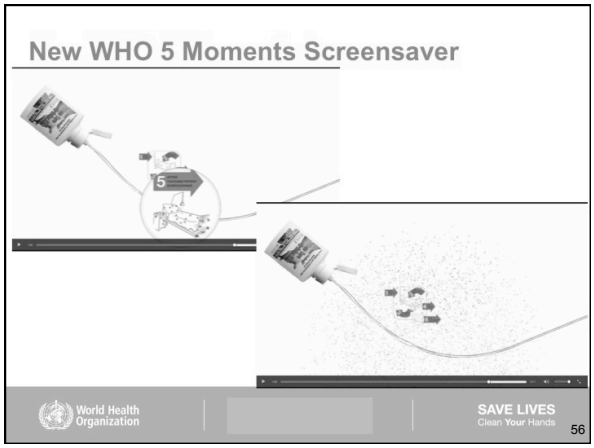

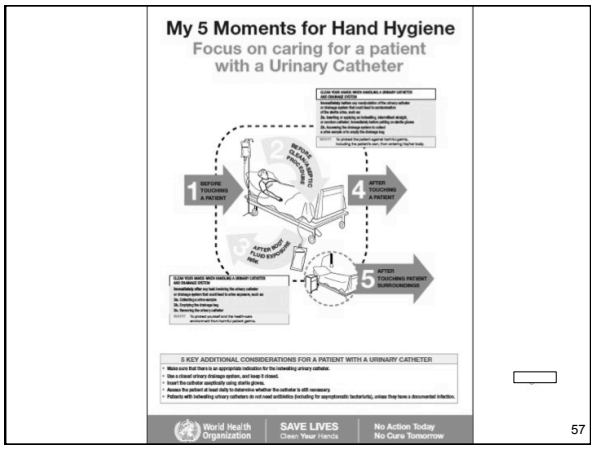

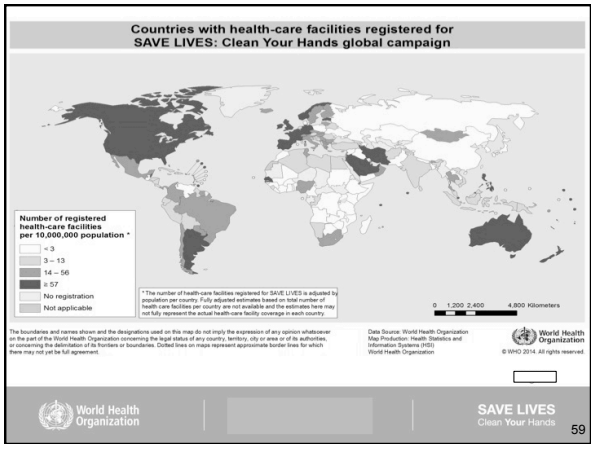

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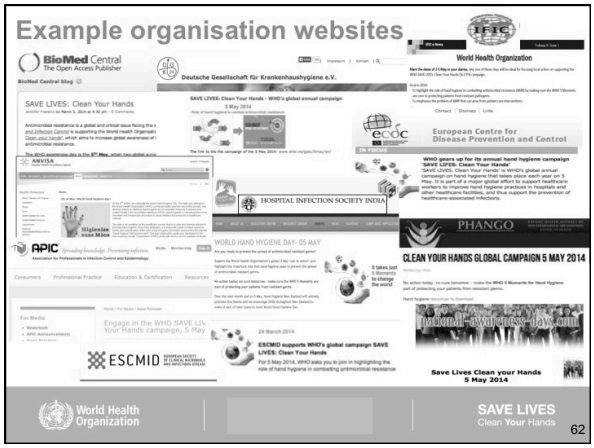

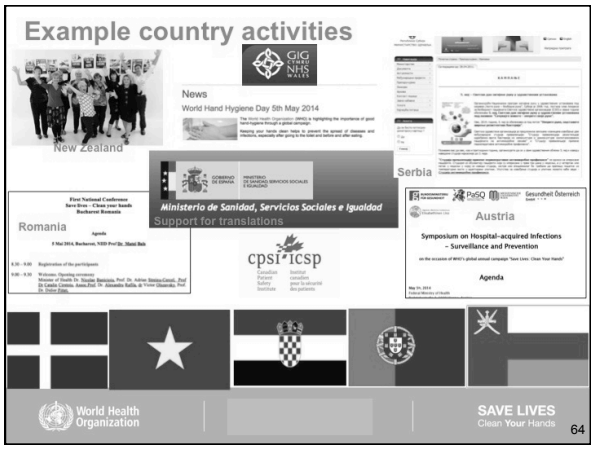

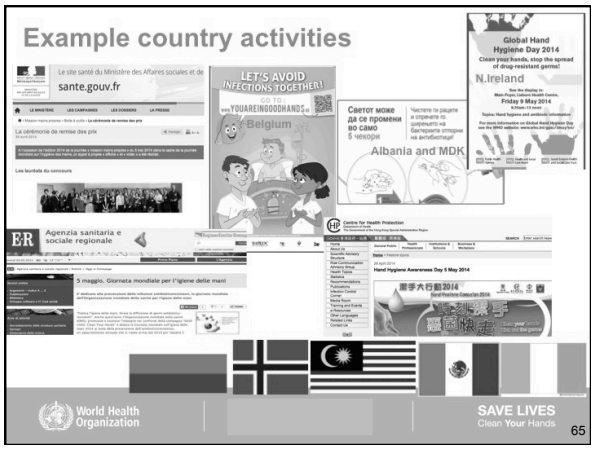

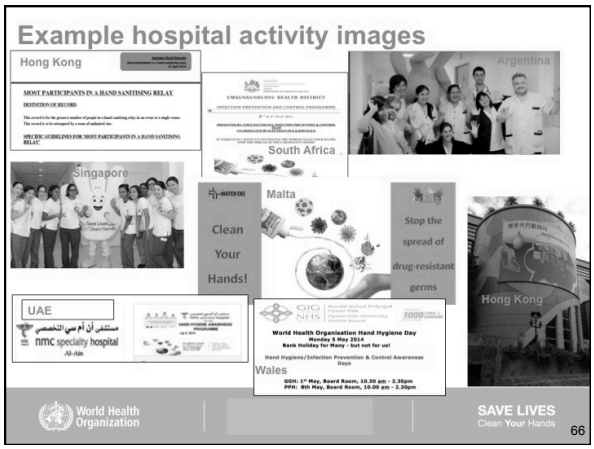

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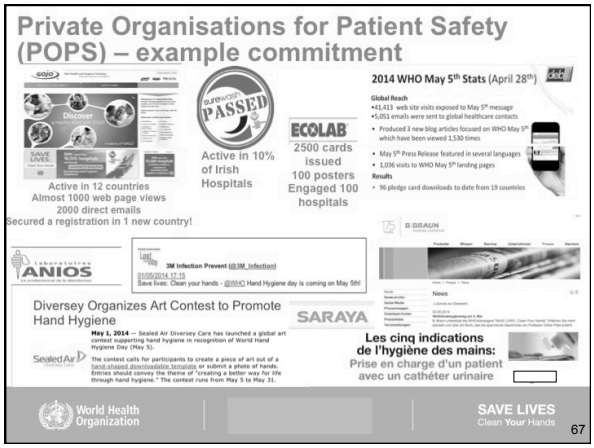

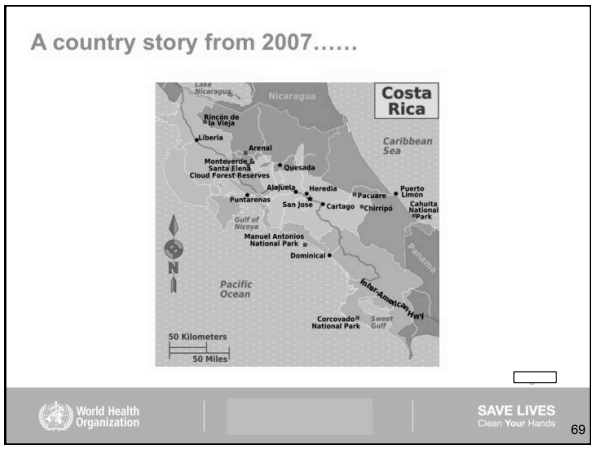

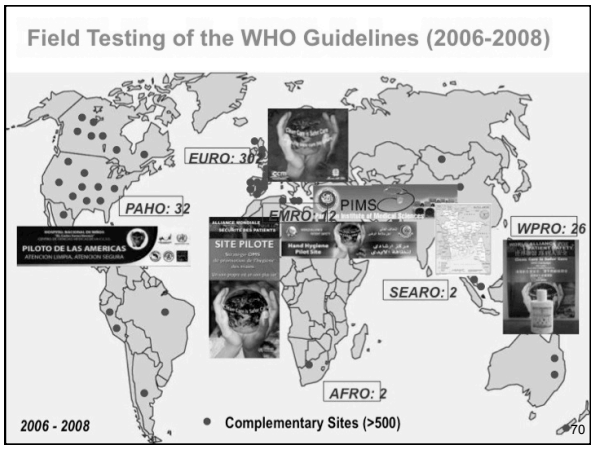

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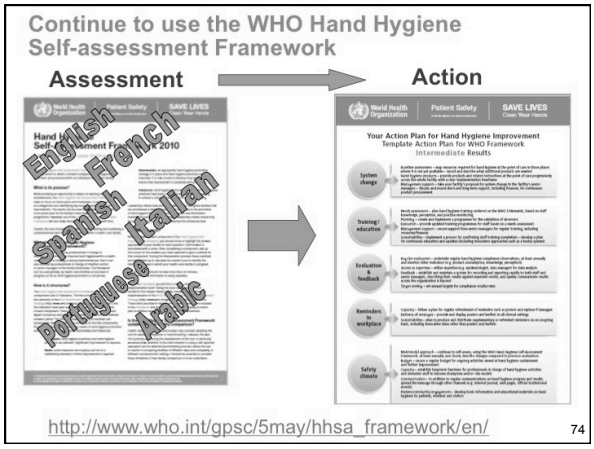

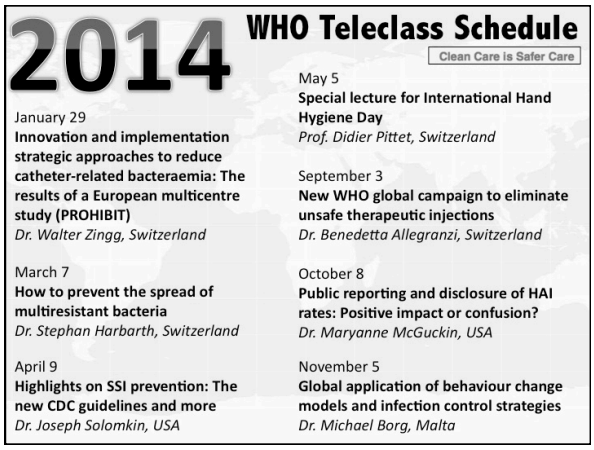

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