

# WHO laboratory-based global survey on multidrug-resistant organisms (MDROs) in health care – *interim analysis*

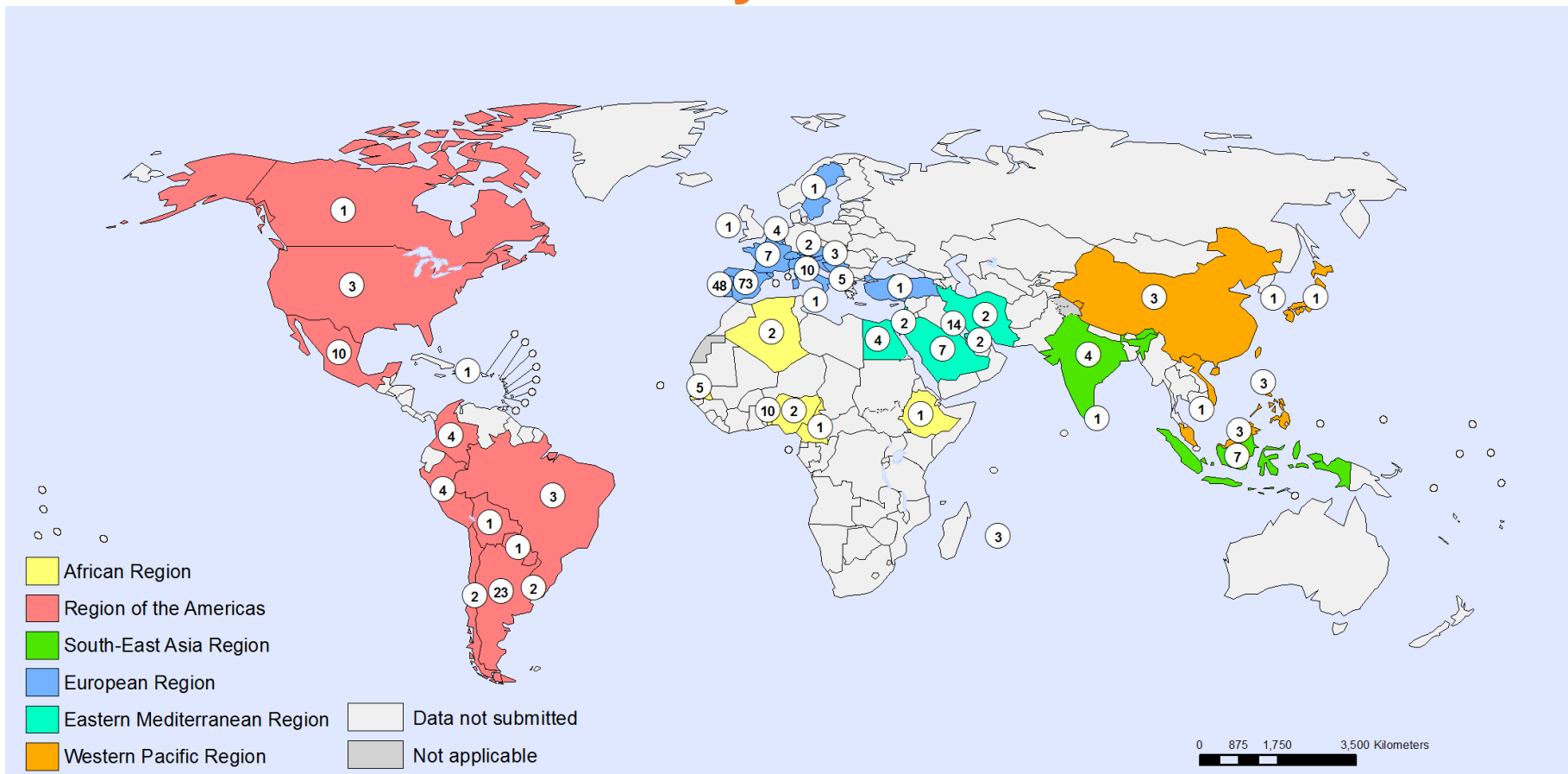
- **Aim:** to estimate the burden of MDROs isolated among inpatients in a wide range of health-care facilities worldwide
- **Design:** online survey (1<sup>st</sup> March-13 April 2014) based on the routine, ordinary collection of clinical blood and urine (MSU & CSU) culture specimens over one week
- **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

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# MDROs included in the survey: definitions

- **MRSA** *Staphylococcus 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  $\beta$ -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.

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



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



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**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.	<i>S. aureus</i> (N° isolates)	MRSA (N° isolates, % of MRSA)	<i>Enteroc. spp</i> (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

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

WHO REGIONS*	N° countries	N° labs.	<i>E. coli</i> (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

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

WHO REGIONS*	N° countries	N° labs.	<i>Klebsiella</i> 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

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

WHO REGIONS*	N° countries	N° labs.	<i>Acinetobacter</i> 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

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

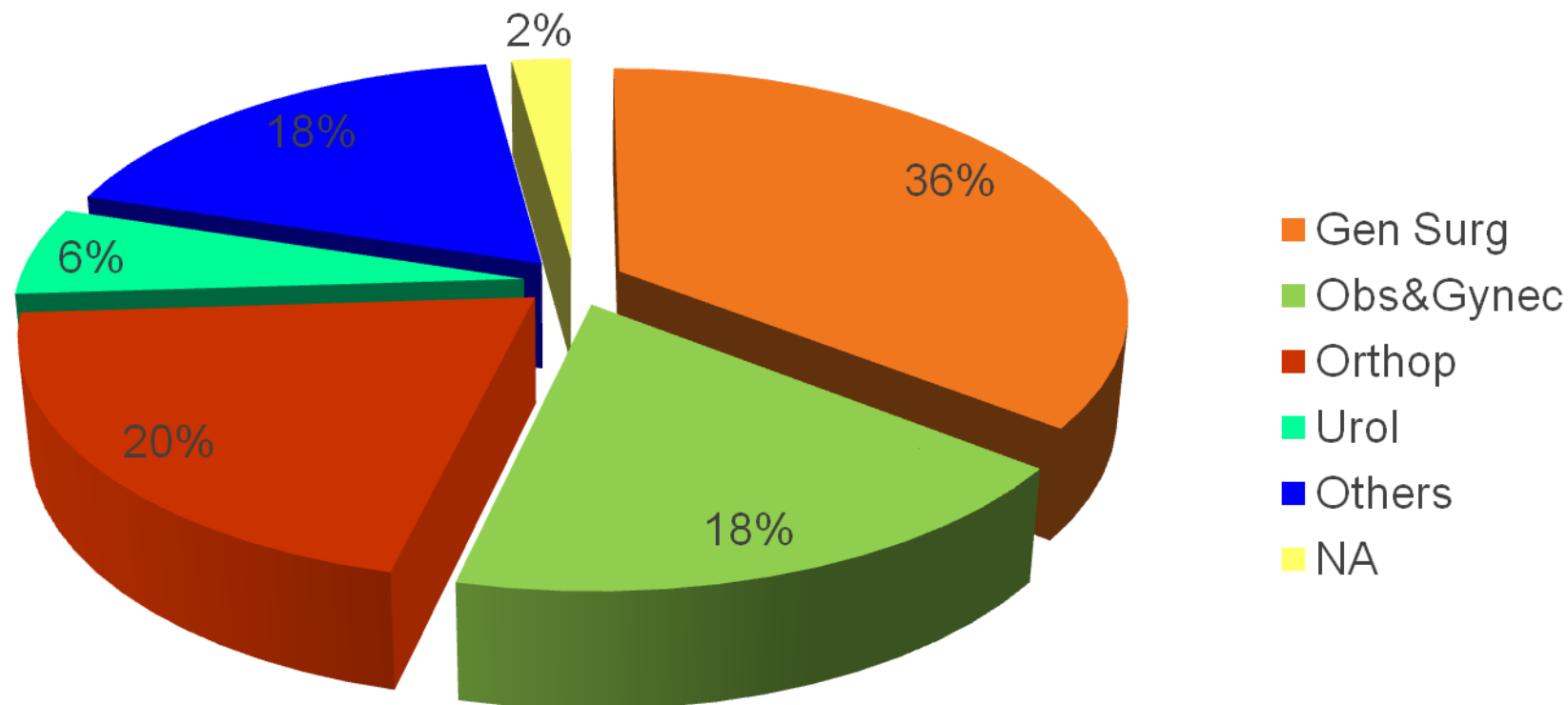
- **Aim:** to present information on prevalence and duration of SAP prescribed in a wide range of health-care facilities worldwide
- **Design:** online survey (10 March-13 April 2014) with submission of data about SAP\* related to all patients having had surgery over the 3 working days before the survey 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.

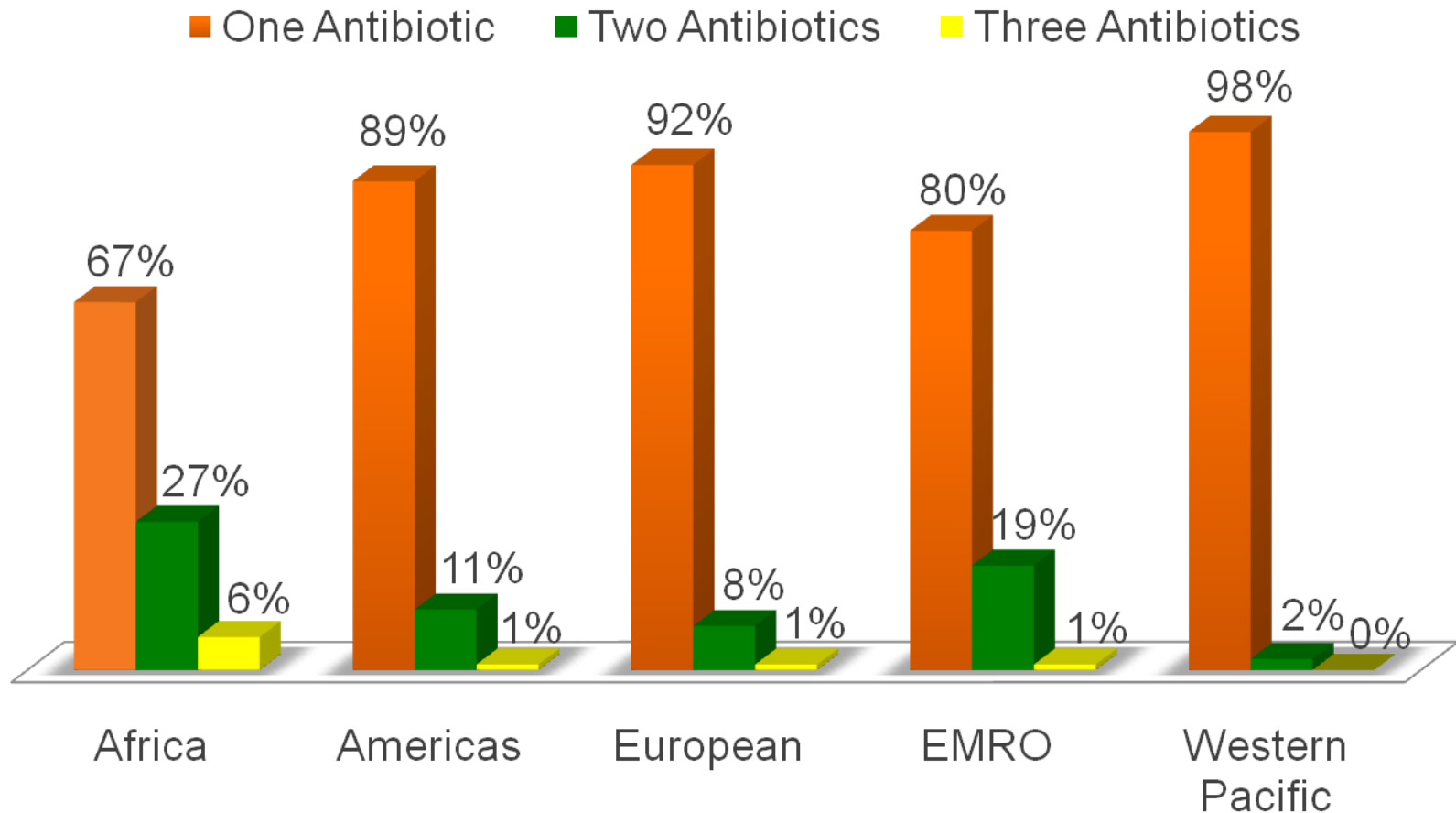


WHO REGIONS – <i>INTERIM RESULTS</i>	N° countries	N° health-care facilities	N° patients
<b>AFRICA</b> (Algeria, Benin, Cameroon, Democratic Rep. of Congo, Ethiopia, Nigeria, Senegal)	7	37	633
<b>AMERICAS</b> (Argentina, Bolivia, Brazil, Canada ,Chile ,Colombia, Dominican Rep., Mexico, Paraguay, Peru, USA, Uruguay)	12	51	840
<b>SOUTH-EAST ASIA</b> (India, Indonesia)	2	6	235
<b>EUROPE</b> (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
<b>EASTERN MEDITERRANEAN</b> (Bahrain, Egypt, Iran (Islamic Republic of), Kuwait, Lebanon, Saudi Arabia)	6	22	196
<b>WESTERN PACIFIC</b> (China, Japan, Malaysia, Philippines, Rep. of Korea, Viet Nam)	6	19	504
<b>TOTAL</b>	<b>50</b>	<b>357</b>	<b>8,199</b>

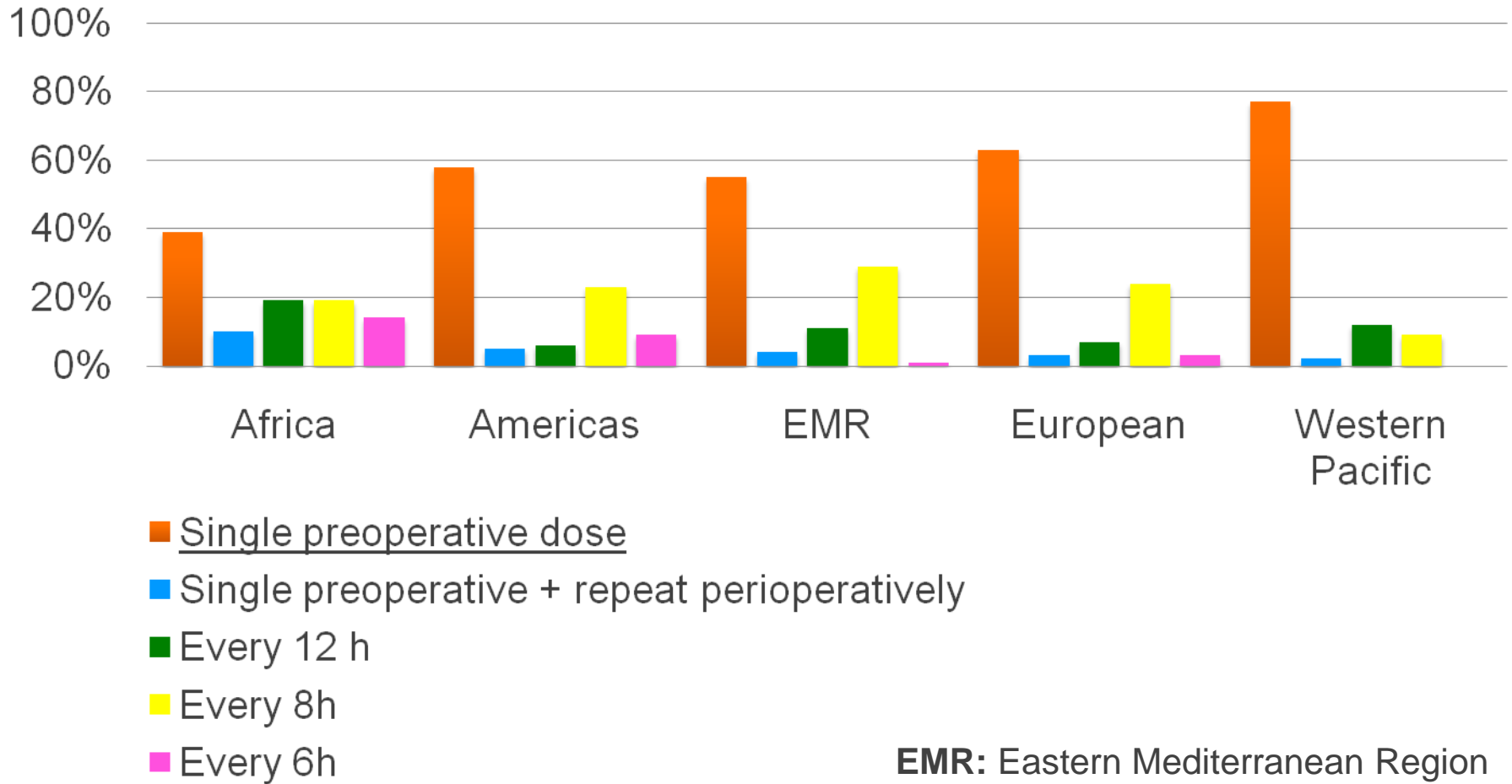
# Type of surgical ward



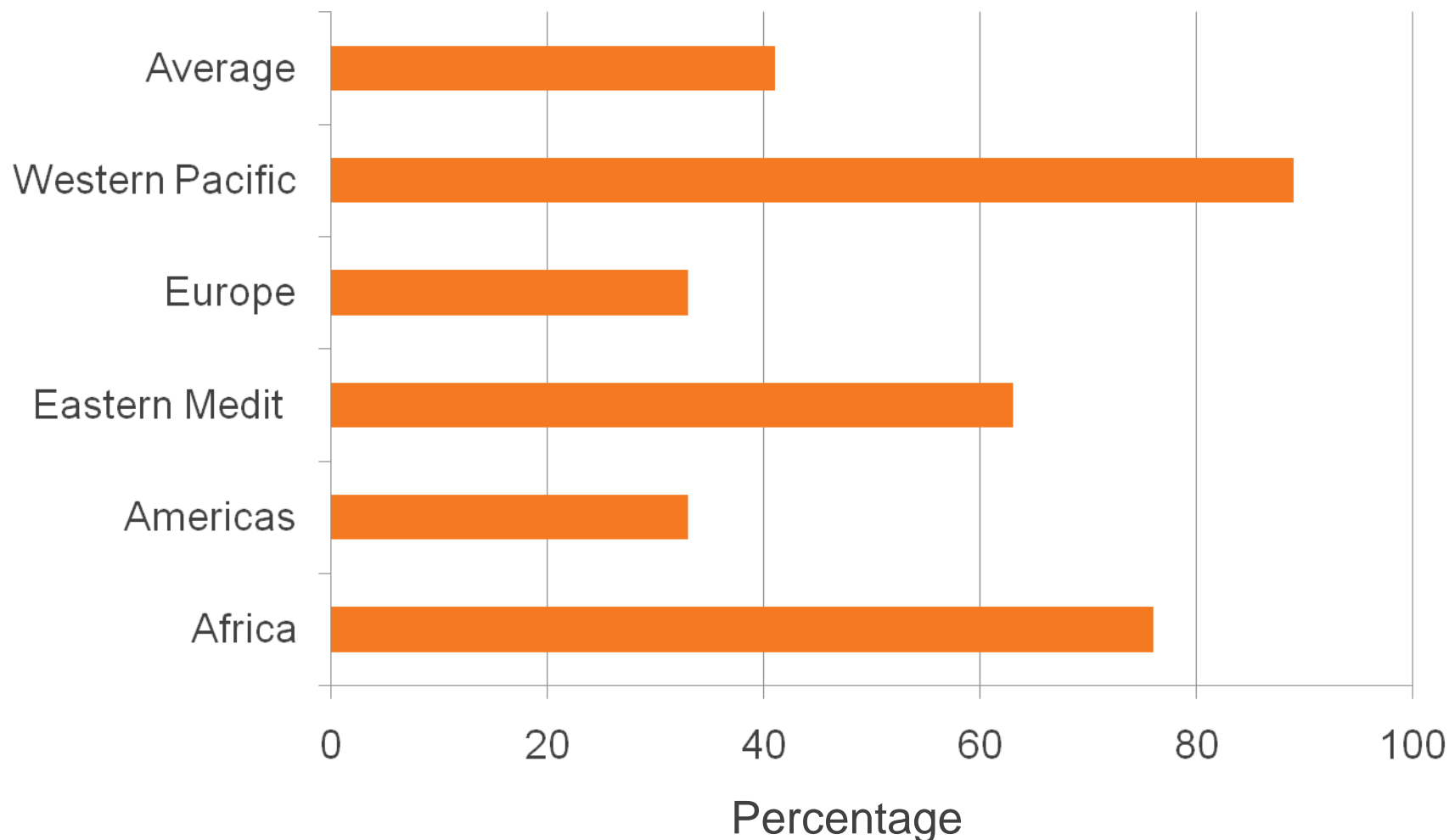
# Number of antibiotics given for surgical prophylaxis



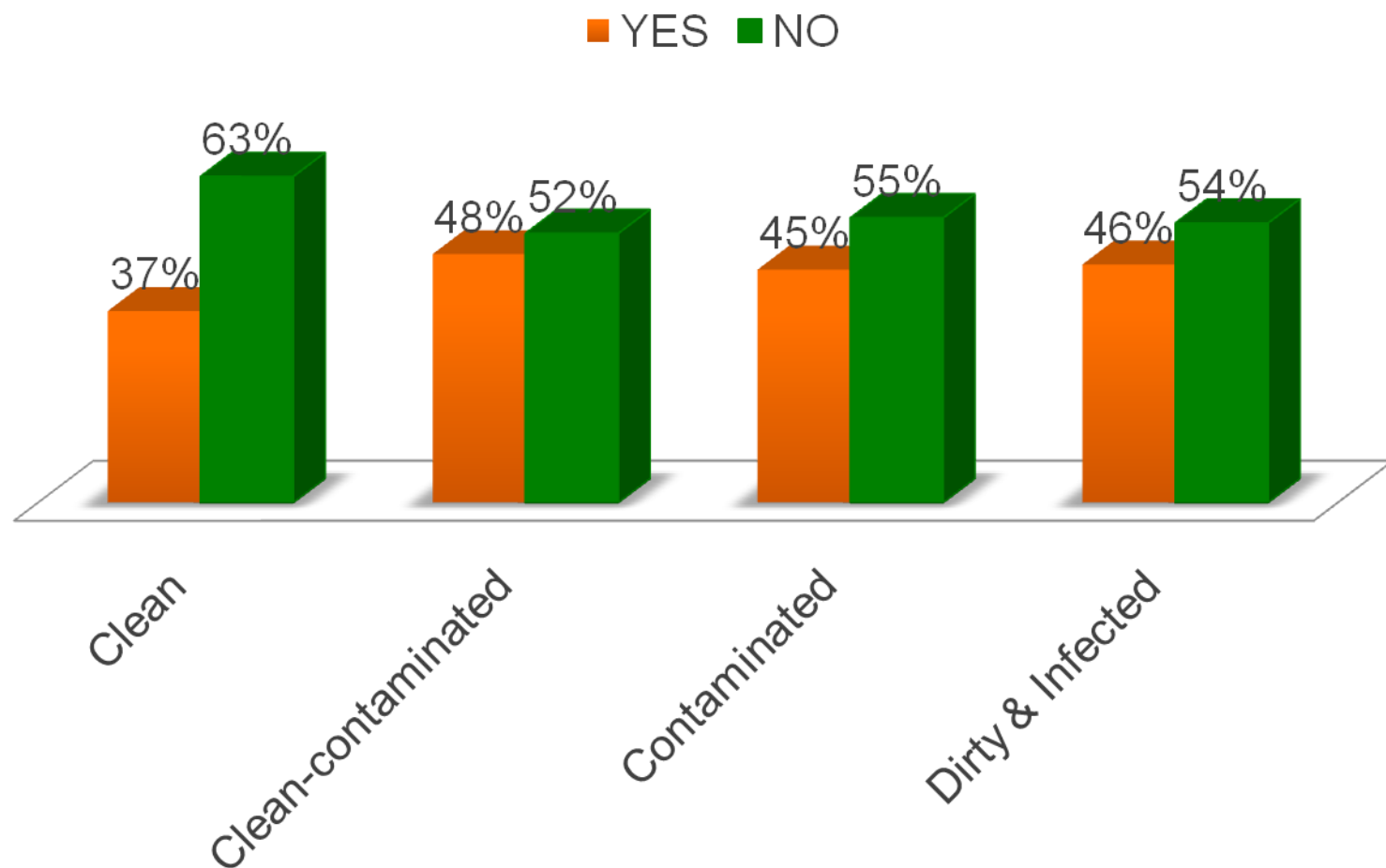
# Frequency of administration by Region



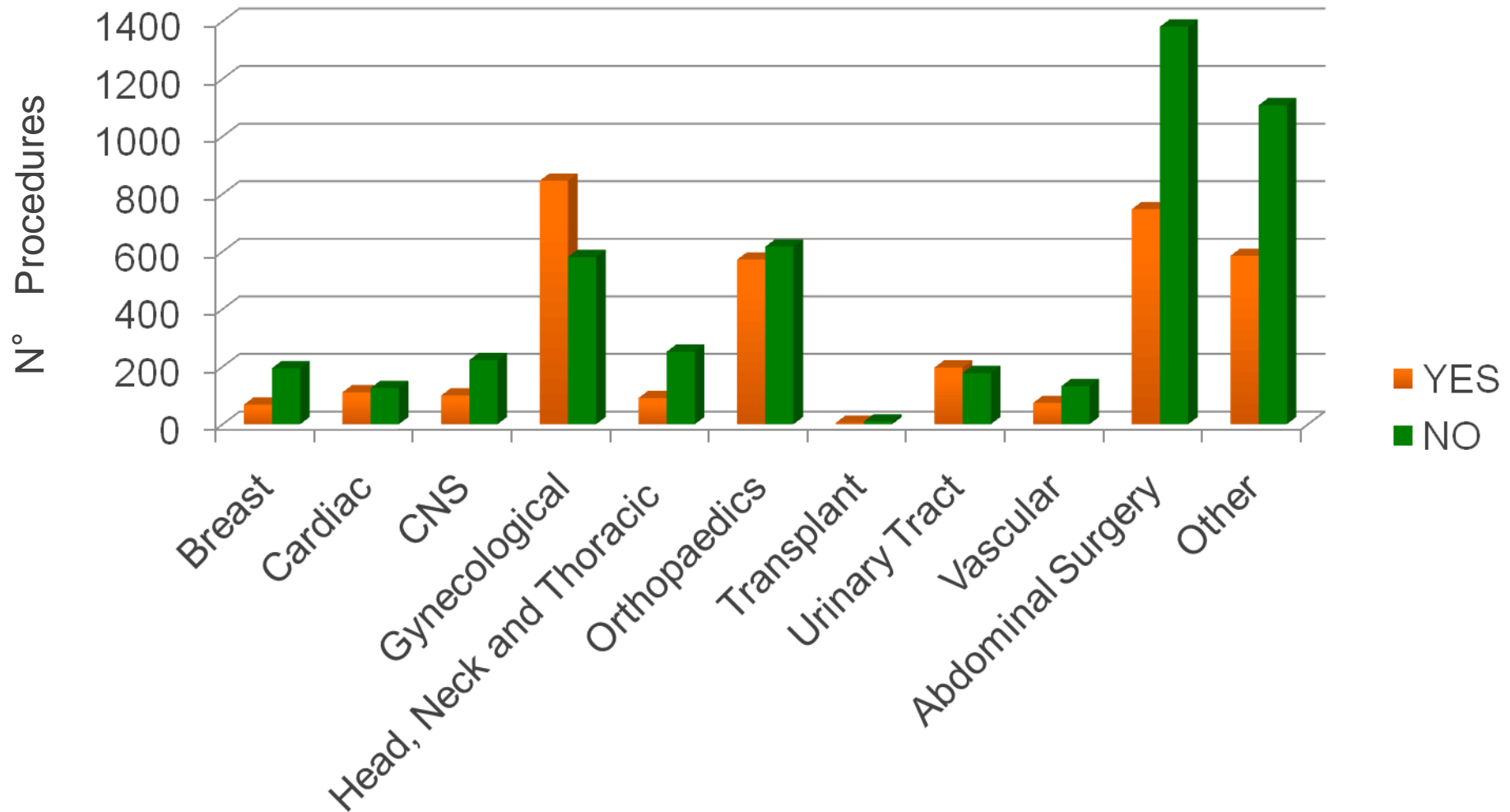
# Antibiotic prophylaxis continuation after the operation



# Antibiotic continuation by Wound Class



# Antibiotic prophylaxis continuation by surgical procedure



# Reason for antibiotic continuation (%)

