Global Point Prevalence Survey of Antimicrobial Consumption and Resistance

Antimicrobial use and HAI rates in Adult ICU's

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For the Global-PPS network

intensive.org
by "Promotion des Soins Intensifs"

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Supporting healthcare professionals in the fight against resistance

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Disclosures

Disclosures: “bioMérieux is the sole private sponsor of the GLOBAL Point Prevalence Survey. The funder has no role in study design, data collection, data analysis, data interpretation, or writing the report. Data are strictly confidential and stored anonymous at the coordinating centre of the University of Antwerp.”

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Aims Global-PPS

- Determine the variation in drug, dose and indications of antimicrobial prescribing in hospitalized adults, children and neonates locally and regionally across countries & continents.
- Identify targets to improve quality of antimicrobial prescribing → improve healthcare quality and promote prudent antimicrobial use.
- Assess effectiveness of interventions through repeated PPS.
- Increase public health capacity.
- Combat antimicrobial resistance.

www.global-pps.com/ourproject

Method of the Global-PPS

- Standardized simple protocol
- A **one-day cross sectional** PPS during which all wards admitting **inpatients** were audited once in 2015, 2017, 2018
- Detailed data were collected for each patient receiving at least one antimicrobial (details on antimicrobial agent, age and gender, indication for treatment, info on quality indicators).
- Denominators = total N patients present on the ward at 8 am and total N beds by ward.
- Drugs were classified according to the standardized WHO Anatomical Therapeutic Chemical (ATC) classification system.

Method of the Global-PPS

- All data are mandatory
- Global-PPS web-based application for data-entry, validation and reporting (see: www.global-pps.com)
- Data are completely anonymously entered onto the database and safeguarded at the server of the University of Antwerp, Belgium
- Participation on a voluntary basis
- Ethical approval
- Support: Helpdesk and FAQ-list

Method – data included for analyses

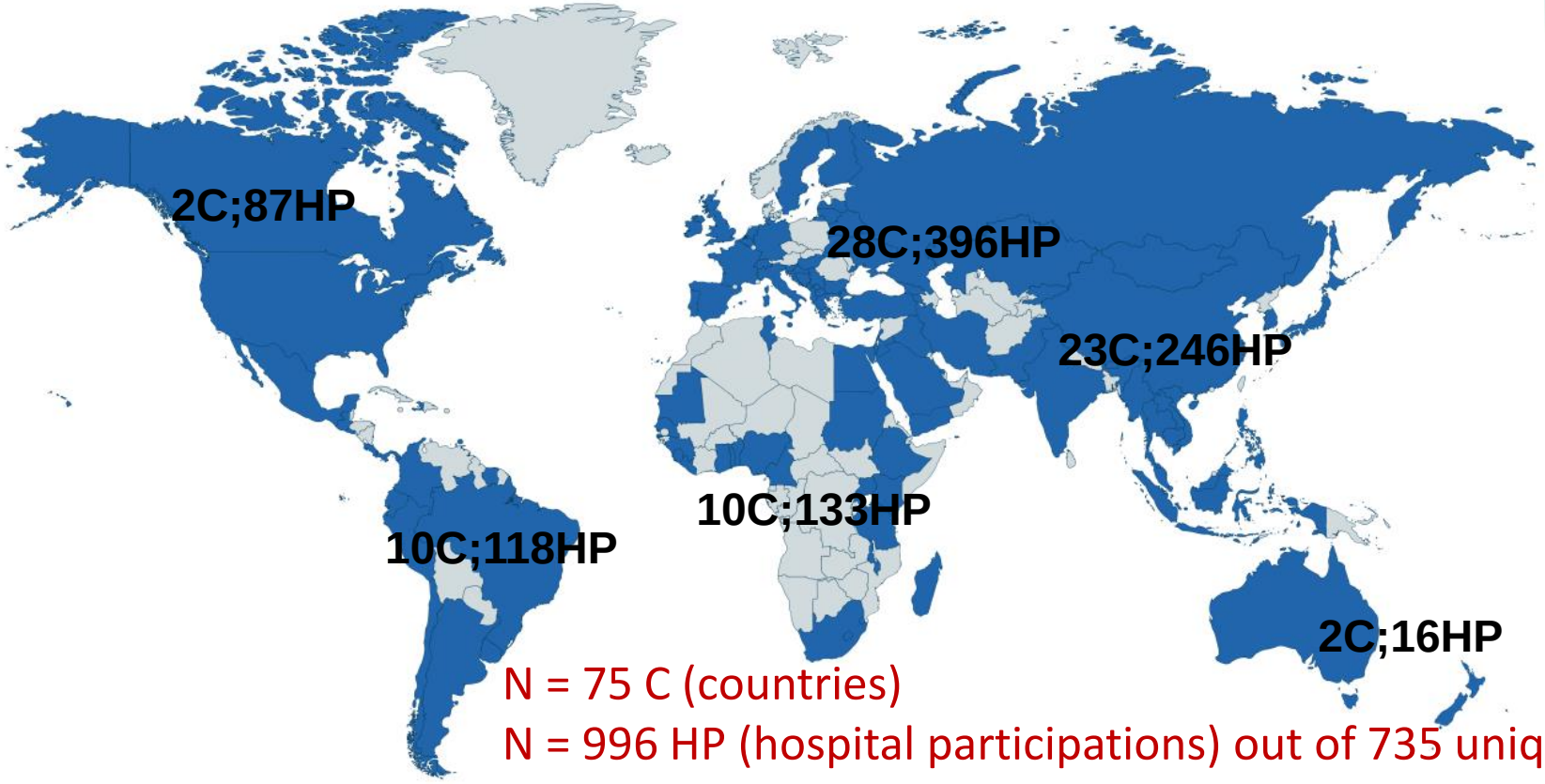
- Use of all validated Global-PPS data submitted for the years 2015-2017-2018
- Different hospitals worldwide with 29% of hospitals who participated at least twice (213/735 unique hospitals)
- Diagnostic codes = what the clinician aims at treating

Method - Definition of an HAI

CAI Community acquired infection	Symptoms started <48 hours from admission to hospital (or present on admission).
HAI Healthcare-Associated Infection ➢ Symptoms start **48 hours after admission** to hospital	**HAI1** Post-operative surgical site infection (within: 30 days of surgery OR; 1 year after implant surgery)
	HAI2 Intervention related infections including CR-BSI, VAP and C-UTI
	HAI3 *C. difficile* associated diarrhoea (CDAD) (>48 h post-admission or <30 days after discharge from previous admission episode.
	HAI4 Other hospital acquired infection (includes HAP, etc)
	HAI5 Infection present on admission from another hospital (patient with infection from another hospital)
	HAI6 Infection present on admission from long-term care facility (LTCF) or Nursing Home*.

See data collection templates available at http://www.global-pps.com/documents/

Degree of participation (data submitted in 2015,2017,2018)



N = 75 C (countries)

N = 996 HP (hospital participations) out of 735 unique hospitals who participated at least once in 2015, 2017, 2018

Year of survey	N beds	N admitted patients	N treated patients
2015	127,991	100,119	34,640
2017	116,381	88,621	34,517
2018	60,502	46,233	21,563
Total	**304,874**	**234,973**	**90,720**

Table includes validated data only

Available Global-PPS data by ward type

(2015, 2017, 2018 surveys)

- Overall number of patients and antimicrobials
- Number of ICU patients & antimicrobials

	N admitted patients (ALL)	N treated patients (ALL)	N antimicro-bials (ALL)	N admitted patients ICU	N treated patients ICU (prevalence; %)	N antimicro-bials (ICU)
Adult	201,654	76,773	119,180	14,570	8,704 (59.7%)	15,193
Child	23,153	10,814	18,295	2,037	1,229 (60.3%)	2,305
Neonate	10,166	3,133	5,977	5,313	2,290 (43.1%)	4,434
Total	**234,973**	**90,720**	**143,452**	**21,920**	**12,223 (55.8%)**	**21,932**

Global HAI prevalence in Adults wards versus Adult ICU

	All adult wards hospital-wide			All Adult ICU		
	N admitted patients	N patients with at least one HAI	Prevalence HAI (%) Adult wards	N admitted patients	N patients with at least one HAI	**Prevalence HAI (%) Adult ICU**
Africa	10,686	837	**7.8**	912	204	**22.4**
Austr./New Zealand	3,356	329	**9.8**	76	26	**34.2**
East Europe	12,703	508	**4.0**	566	138	**24.4**
South Europe	24,800	2,130	**8.6**	1,735	389	**22.4**
North Europe	9,165	900	**9.8**	440	121	**27.5**
West Europe	46,049	4,699	**10.2**	2,264	681	**30.1**
East/South Asia	46,809	4,908	**10.5**	2,896	648	**22.4**
West/Central Asia	9,405	818	**8.7**	1,223	247	**20.2**
North America	21,921	2,468	**11.3**	1,990	392	**19.7**
South America	16,760	2,457	**14.7**	2,468	809	**32.8**
Total	201,654	20,054	**9.9**	14,570	3,655	**25.1**

ECDC-HAI PPS (2011-2012 data): The prevalence of all patients with at least one HAI in acute care hospitals was 6.0% (country range 2.3%–10.8%) and 19.5% in ICU

https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/healthcare-associated-infections-antimicrobial-use-PPS.pdf

Global (HAI) prevalence of Pneumonia & Sepsis in Adult ICU

	Africa	Australia & New Zealand	East Europe	North Europe	South Europe	West Europe	East & South Asia	West & Central Asia	North America	South America	Total
N all treated pat	687	53	339	243	1122	1231	1882	704	1012	1431	8704
PNEU	237	30	136	102	247	617	529	213	371	524	3006
% with PNEU	34.5	56.6	40.1	42.0	22,0	50.1	28.1	30.3	36.7	36.6	34.5
HAI PNEU	116	14	90	64	155	346	297	103	199	327	1711
% HAI PNEU	48.9	46.7	**66.2**	**62.7**	**62.8**	**56.1**	**56,1**	48.4	**53,6**	**62,4**	**56,9**
SEPSIS	56	4	4	12	50	93	142	61	78	110	610
% with SEPSIS	8.2	7.5	1.2	4.9	4.5	7.6	7.5	8.7	7.7	7.7	7.0
HAI SEPSIS	30	2	1	8	37	53	71	32	36	85	355
% HAI SEPSIS	**53.6**	50.0	25.0	**66.7**	**74.0**	**57.0**	50.0	**52.5**	46.2	**77.3**	**58.2**

*Following the United nations list of countries by region (https://cies2018.org/wp-content/uploads/List-of-Countries-by-Region-UN-Annex-II.pdf)

Top 5 antibiotic classes (J01) for CAI on Adult ICUs

	Africa	Aus-NZ	East EU	North EU	South EU	West EU	E-S Asia	W-C Asia	North AM	South AM	Grand Total
3rd-gen. cephalosporins	**25.7**	17.3	**36.8**	4.9	**21.0**	10.9	19.2	**21.1**	18.0	**27.5**	20.1
Comb. penicillins, incl.β-lactamase inh.	10.5	**23.1**	5.7	**27.5**	14.7	**39.1**	20.1	13.6	**20.9**	12.4	20.1
Carbapenems	8.9	7.7	**18.4**	5.6	9.2	6.1	**13.6**	**20.8**	9.2	9.8	10.7
Fluoroquinolones	17.2	5.8	11.5	7.7	13.5	8.1	7.1	9.7	11.2	7.0	9.8
Glycopeptide antibacterials	3.6	3.8	2.9	7.0	**9.2**	3.5	6.9	**8.3**	**12.3**	7.3	6.9

Top 5 antibiotic classes (J01) for HAI on Adult ICUs

	Africa	Aus NZ	East EU	North EU	South EU	West EU	E-S Asia	W-C Asia	North AM	South AM	Grand Total
Carbapenems	**21.4**	5.0	19.5	18.1	16.7	16.3	**26.4**	**22.6**	16.7	**25.9**	21.5
Comb. penicillins, incl.β-lactamase inh.	9.9	**27.5**	11.2	**30.2**	13.6	**27.1**	16.8	12.1	22.6	11.9	16.7
Glycopeptide antibacterials	6.1	**22.5**	9.3	14.1	13.1	10.4	12.2	13.1	**19.0**	**21.4**	14.7
3rd-gen. cephalosporins	9.1	12.5	18.1	3.4	5.8	10.5	8.3	5.6	9.5	5.5	7.9
Fluoroquinolones	14.2	12.5	10.7	5.4	10.2	8.7	6.8	5.9	10.1	3.2	7.5

*Following the United nations list of countries by region (https://cies2018.org/wp-content/uploads/List-of-Countries-by-Region-UN-Annex-II.pdf)

Antibiotic (J01) Quality Indicators in ICUs

INDICATOR	Global mean %
Targeted prescribing	23.6
Reason written in notes	74.6
Post-prescription review	37.6
No guidelines	18.1
Guideline compliance	78.9

Key message: Identify areas in your hospital for antibiotic quality improvement

What we observed for ICUs:

- ✓ High rates of HAI worldwide
- ✓ Impact of HAI on broad-spectrum prescribing
- ✓ Lack of attention to simple antibiotic quality indicators

Opportunities to improve antibiotic prescribing:

- ➢ The Global web-based PPS tool provides a simple method to **identify areas for quality improvement** of antibiotic use, to set benchmarks and to **monitor interventions** in hospitalized patients
- ➢ Creation of **reference database** for scientific research and hypothesis formulation at local, national and international level
- ➢ Opportunity to stimulate **local networking**

Ongoing work for the Global-PPS

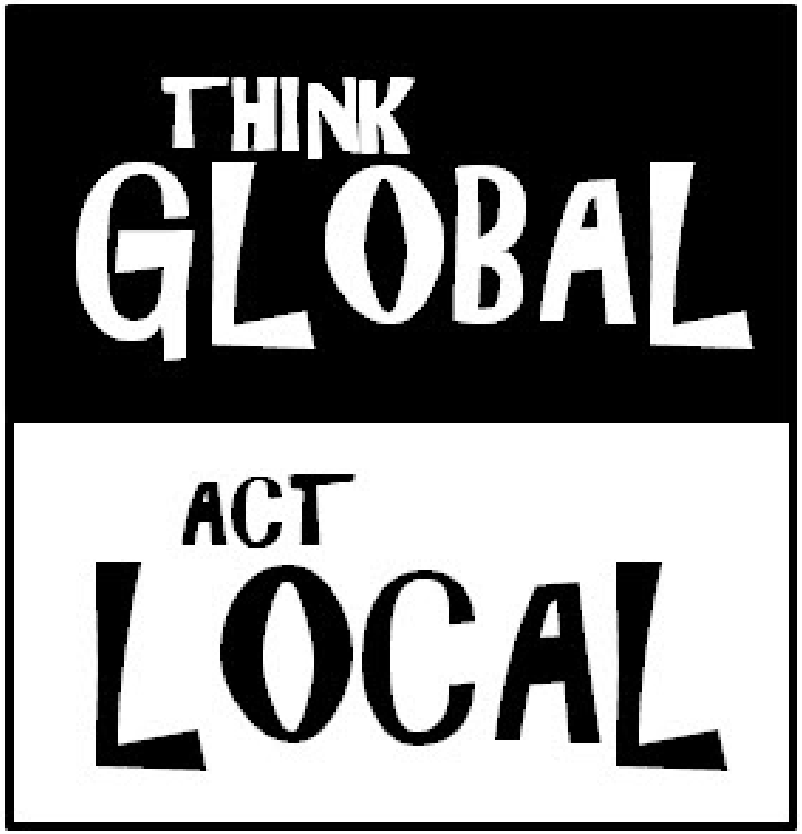
Three surveys are available each year to allow investigating seasonal variation (Jan-April, May-August, Sept-Dec)

Survey on the role of the Global-PPS in supporting antimicrobial stewardship (AMS) activities in hospitals worldwide

Development of a simple optional HAI module for the Global-PPS (available mid 2019)

Contact

global-PPS@uantwerpen.be



GLOBAL-PPS
Antimicrobial Consumption and Resistance

Any hospital can participate

www.global-pps.com

Ref : Versporten A, Zarb P, Caniaux I, et al. Antimicrobial consumption and resistance in adult hospital inpatients in 53 countries: results of an internet-based global point prevalence survey. *Lancet Glob Health* 2018.