The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance in 335 Hospitals Worldwide

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For the Global-PPS network

Disclosures

bioMérieux is the sole sponsor of the GLOBAL-PPS.

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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➢ Degree of participation

➢ Antimicrobial prevalence rates worldwide

➢ Antibiotic therapeutic prescribing (%)

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➢ Targeted treatment against resistant organisms

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Global-PPS Aims

- Monitor rates of antimicrobial prescribing in hospitalized adults, children and neonates.
- Determine the variation in drug, dose and indications of antimicrobial prescribing across continents.
- Identify targets to improve quality of antimicrobial prescribing.
- Help designing hospital interventions to promote prudent antimicrobial use.
- Increase public health capacity.

Methods

- Any hospital welcome to join the Global-PPS network.

- Data-collection : February-June 2015

- All wards of the hospital were included "once"

- Denominator collected at ward level
  - ✓N patients admitted
  - ✓N available beds

Essential data to collect: numerator

For each patient receiving an antimicrobial:
➢ age, gender and weight

For each antimicrobial prescription:
➢ Antimicrobial agent/s (substance level) with dose per administration - N doses/day - route of administration
➢ Reasons for treatment: what the clinician tends to treat
➢ Indication for therapy (CAI, HAI; Medical/Surgical Prophylaxis)
➢ Extra quality indicators:
  ✓ Reason of prescription written in notes
  ✓ Stop or review date written in notes
  ✓ Prescription compliant with local guidelines
➢ Treatment based on biomarker and which one
➢ Microbiology data (if targeted treatment)

RESULTS

Degree of participation

2C;22H

24C;213H

16C;57H

5C;12H

4C;22H

2C;9H

N = 53 C (countries)
N = 335 H (hospitals)

Collected and recorded data

100,166 admitted inpatients
34,726 patients treated with at least one antimicrobial

48,565 antimicrobial prescriptions

- 43,513 (**89.6%**) antibacterials for systemic use (ATC J01)

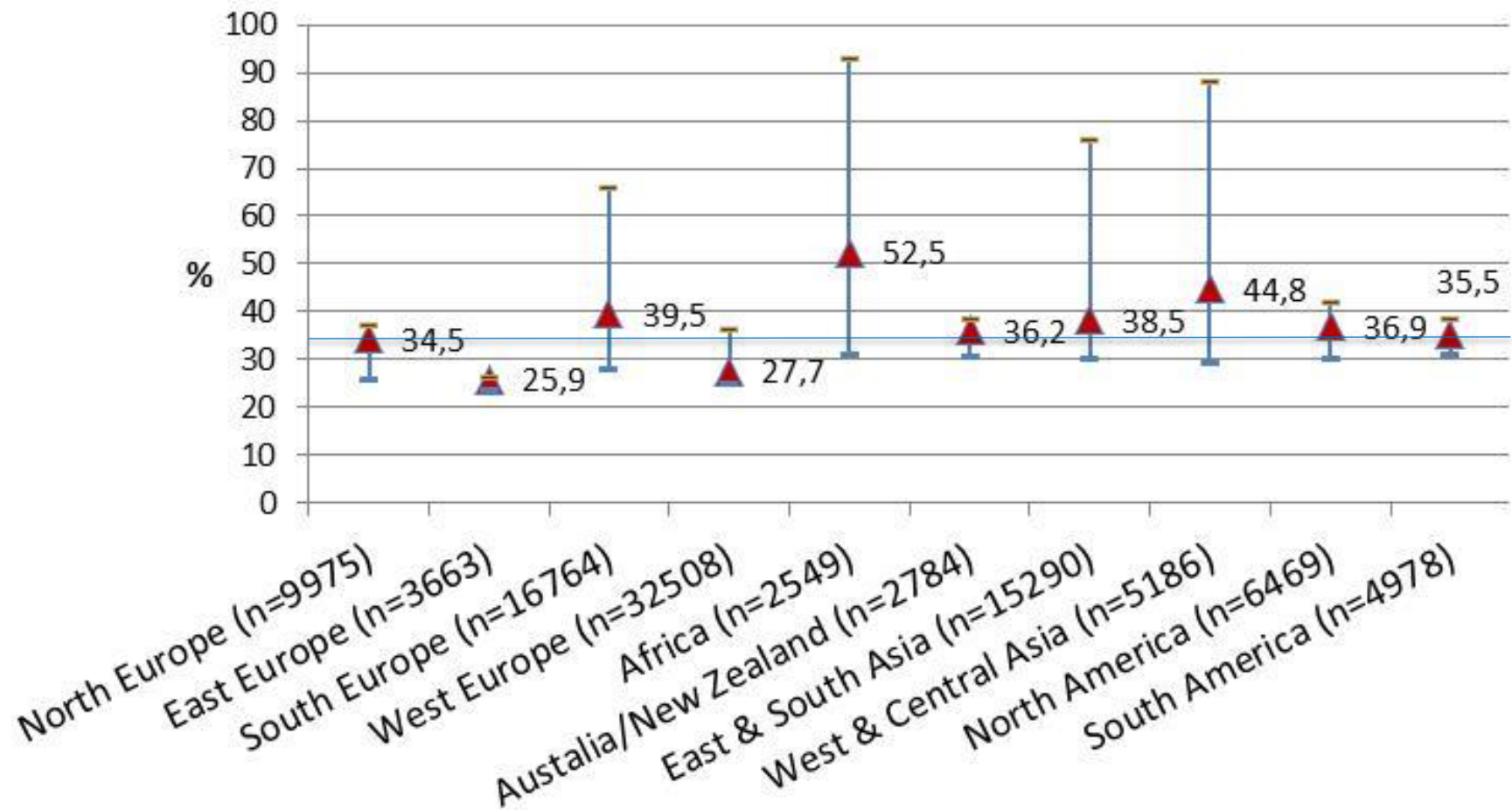- 2,062 (**4.3%**) antimycotics for systemic use (ATC J02)

- 1,137 (**2.3%**) drugs to treat tuberculose (ATC J04)

- 932 (**1.9%**) nitroïmidazole derivatives (ATC code P01AB)

- 781 (**1.6%**) intestinal anti-infectives (ATC code A07)

- 126 (**0.3%**) neuraminidase inhibitors (ATC code J05AH)

Mean antimicrobial prevalence rates (%) by UN-region (country-ranges)

Worldwide mean AM prevalence rate= 34.7%

Top 10 most prescribed antibiotics (ATC J01) for therapeutic use, by UN region

Antimicrobial name N antibiotics (ATC J01)	North Europe % (n=3441)	East Europe % (n=651)	South Europe % (n=4909)	West Europe % (n=8074)	Africa % (n=1366)	Austalia & New Zealand % (n=1021)	East & South Asia % (n=4785)	West & Central Asia % (n=2088)	North America % (n=2392)	South America % (n=1964)	All Regions % (n=30691)
Amoxicillin/enzyme inhibitor	**13.4**	**8.6**	**6.3**	**27.5**	**7.2**	**8.3**	**9.7**	3.0	1.8	0.6	12.4
Ceftriaxone	3.4	**24.9**	**17.4**	**5.9**	**16.1**	**10.2**	**9.3**	**18.3**	**13.6**	**14.4**	11.0
Piperacillin/enzyme inhibitor	**15.4**	0.5	**7.6**	**9.9**	0.2	**9.1**	**9.6**	**6.4**	**12.9**	**5.9**	9.2
Ciprofloxacin	3.7	**9.1**	**9.7**	**7.3**	**7.8**	3.7	4.2	**5.7**	**6.1**	**5.4**	6.4
Vancomycin	1.8	2.8	4.5	3.4	1.6	3.6	**6.4**	**5.7**	**12.0**	**11.1**	5.1
Meropenem	4.9	**5.1**	4.0	4.1	2.9	3.1	**7.8**	**5.9**	**5.8**	**5.9**	5.1
Metronidazole	**5.6**	2.3	4.5	2.5	**12.4**	**8.3**	3.0	**6.2**	**5.4**	**8.0**	4.7
Levofloxacin	0.9	2.0	4.0	3.1	1.8	/	**7.4**	0.7	**11.7**	1.3	3.9
Amoxicillin	**9.5**	1.8	2.5	3.9	**5.3**	**5.1**	1.0	4.3	1.7	1.1	3.6
Cefuroxime	2.9	0.6	1.8	4.2	**7.8**	**5.1**	2.4	4.5	0.5	0.3	3.0

Bold=proportional use >5%
Overview of antibiotic prescribing rates for prophylactic use are provided in poster n° P1222

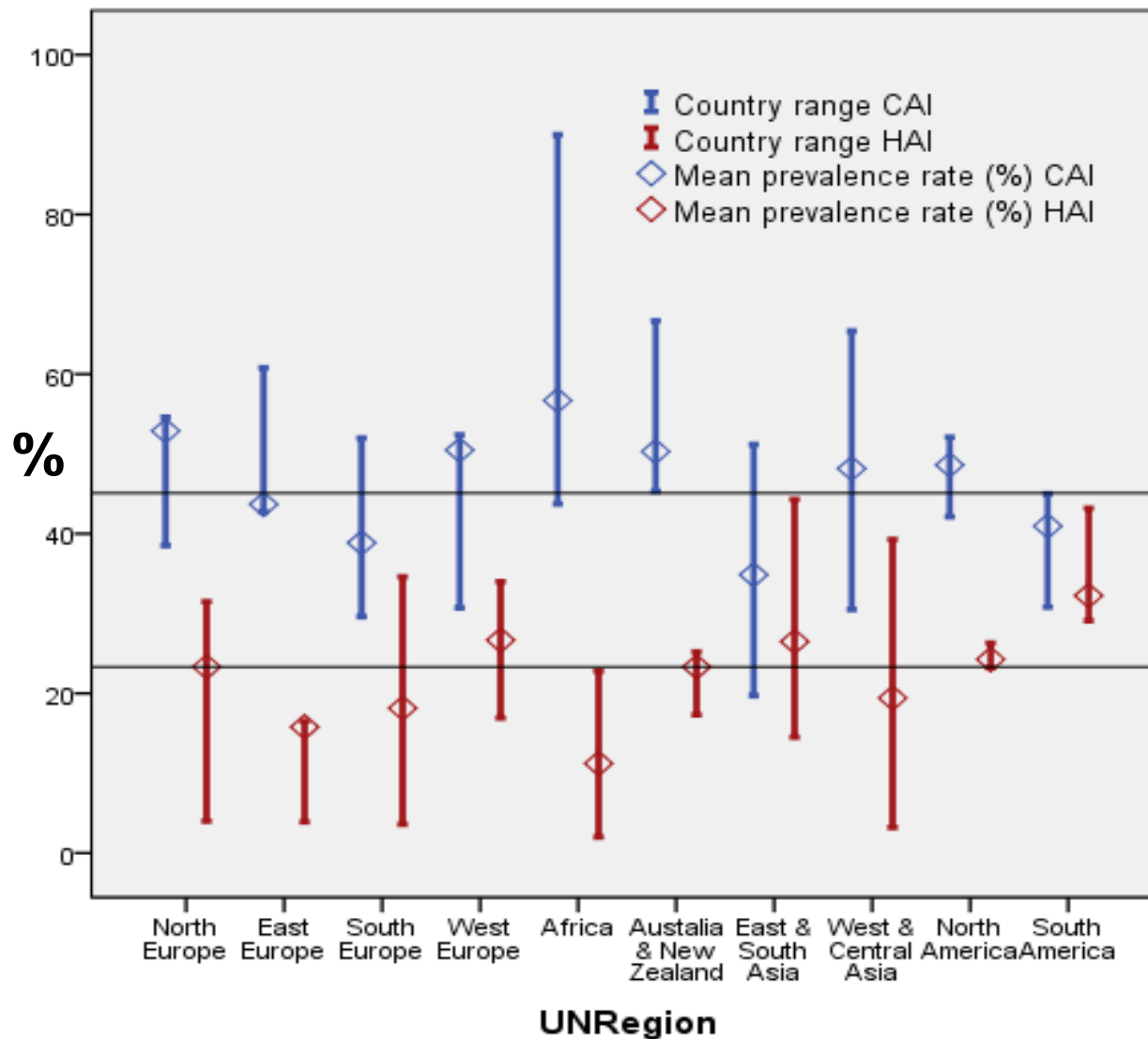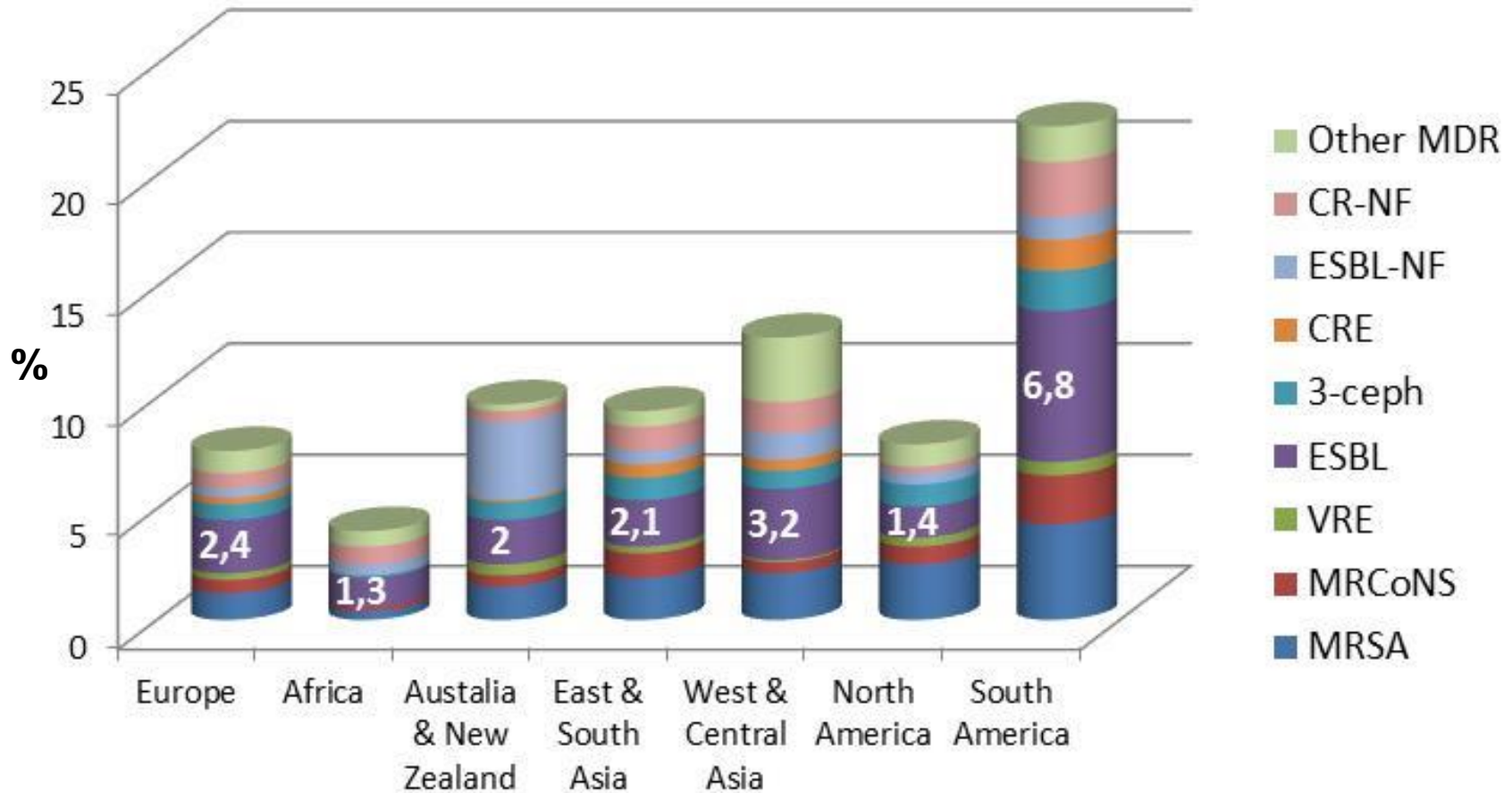# Antibiotic (ATC J01) quality indicators for therapeutic use
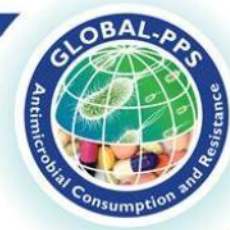
Antibiotic quality indicators (N antibiotics for CAI and HAI)	No guidelines %	guideline compliant %	Reason in notes %	Stop / review date documented %	Parenteral RoA %	Targeted treatment %
North Europe (n=3441)	7.1	83.9	89.5	52.7	68.0	15.9
East Europe (n=651)	1.1	90.0	77.0	38.6	85.1	15.7
South Europe (n=4909)	25.1	77.3	75.9	30.2	82.3	25.8
West Europe (n=8074)	10.1	80.4	86.4	37.2	67.0	32.1
Africa (n=1366)	22.0	71.3	74.2	30.2	78.5	16.8
Austalia & New Zealand (n=1021)	19.0	74.5	94.5	26.9	65.9	27.0
East & South Asia (n=4785)	18.2	84.9	89.8	49.3	80.2	25.9
West & Central Asia (n=2088)	43.3	69.2	79.3	19.7	83.8	17.7
North America (n=2392)	17.2	87.2	93.2	34.2	79.3	25.0
South America (n=1964)	22.2	70.4	91.2	42.4	87.8	31.0
All Regions (n=30691)	17.7	80.3	85.5	38.0	75.9	25.5

Overview of quality indicators of antibiotic prescribing for prophylactic use are provided in poster n° P1222

Antibiotic prevalence rates (%) for a CAI versus HAI by UN region

Mean CAI = 46.6%

Mean HAI = 22.1%

Includes only systemic antibiotics for therapeutic use
Numerator=N patients with CAI/HAI
Denominator=All treated patients

Antibiotic treatment based on microbiology data

% = 100*(N patients reported to have received a targeted treatment against at least one microorganism / Total N patients receiving a therapeutic treatment (CAI-HAI) with at least one antibacterial for systemic use (J01)

Discussion

Obtain meaningful comparisons

- ✓ Uniformity of data collection: **common simple methodology** and web-based tool for data entry and validation = feasible & achievable surveillance
- ✓ Quality assurance approach
- ✓ Enables **in-depth interpretation** of antimicrobial consumption data at different levels
- ✓ Creation of **reference database** for scientific research and hypothesis formulation at national and international level (data are safeguarded at the University of Antwerp, Belgium, Europe).

Features of the Global-PPS

- Identification of targets for quality improvement at local and national level
- **Tool for assessing interventions** to improve antibiotic prescribing in hospitals when PPS repeated
- Improve antibiotic use for **better patient health**
- **Combat antibiotic resistance**

"sustained awareness"

Acknowledgements

- Hundreds of healthcare professionals who were voluntarily collecting and submitting data globally

<p style="color:red; text-align:center">Thank you !!</p>

- The Global-**PPS** development group

- People who voluntary helped us with translation of protocol and data-collection templates

- So many other people to thank

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