

The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS): a Worldwide Antimicrobial Web-based Point Prevalence Survey

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INTRODUCTION

Point Prevalence Surveys (PPS) are well established surveillance methods for monitoring antimicrobial prescribing in hospitals. The Global-PPS aimed to expand this method to monitor antimicrobial prescribing and resistance rates worldwide.

METHODS

This survey invited hospitals worldwide admitting adults, children and neonates, to volunteer to participate. Data collected included age, gender, weight, antimicrobial agents, doses, reasons and indications for treatment, microbiological data, compliance to guidelines, documentation of reasons and stop/review date of prescription. Denominators included the total number of inpatients. A web-based application is used for data-entry, validation and reporting. Time frame of data collection is from February until September 2015.



Figure 1. Geographical spread of the number of hospital sites who agreed participation to the study

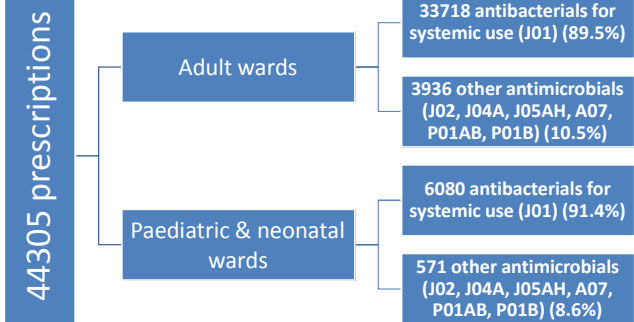


Figure 2. Number of recorded prescriptions (14 sept 2015)

RESULTS

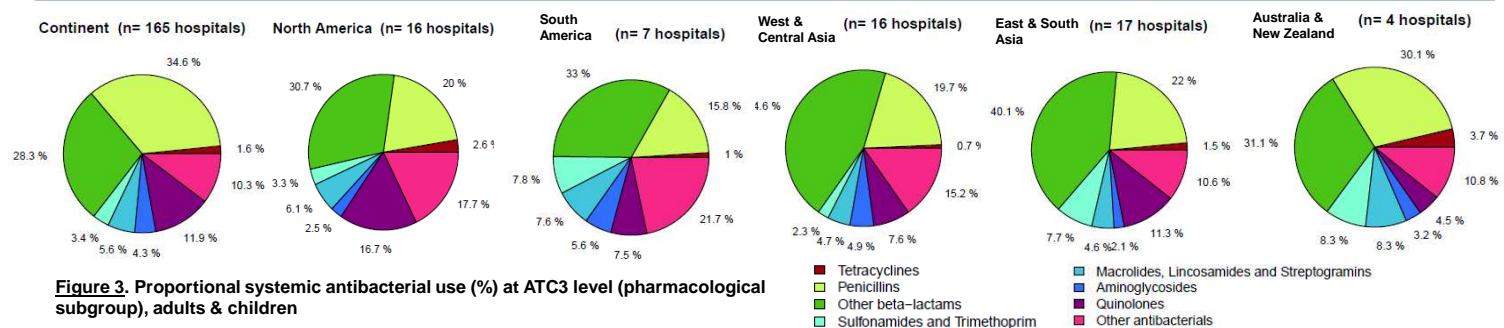
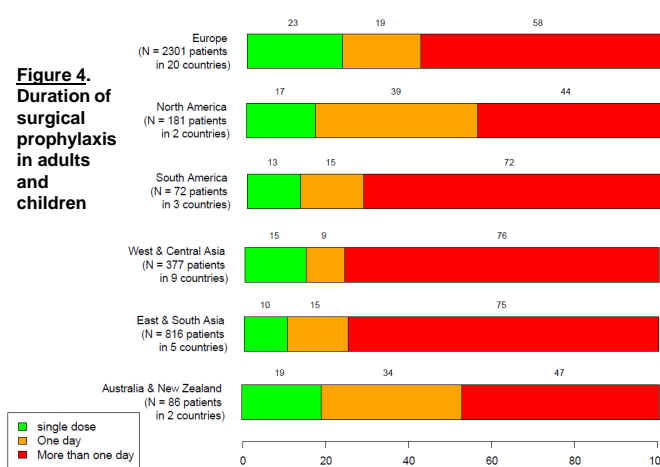


Figure 3. Proportional systemic antibacterial use (%) at ATC3 level (pharmacological subgroup), adults & children

Figure 1 provides an overview of the number of hospital sites who agreed to participate to the study. So far, 335 hospitals (H) in 53 countries (C) entered data in the Global-PPS program including Africa (5C, 12H), Asia (16C, 58H), Europe (24C, 210H), North-America (3C, 25H), South-America (3C, 21H) and Oceania (2C, 9H). Out of in total 44305 recorded prescriptions, 89.8% were antibacterials for systemic use (ATC code J01), followed by antimycotics for systemic use (J02, 4.0%), drugs to treat tuberculosis (J04A, 2.3%), nitroimidazole derivatives (P01AB, 1.8%), intestinal anti-infectives (A07, 1.5%), neuraminidase inhibitors (J05AH, 0.3%) and antimalarials (P01B, 0.1%) (**Figure 2**). Considering validated data only at the date of September 14th 2015, highest overall antimicrobial prevalence rates (AMP) were observed for West & Central Asia (42.1%), followed by South America (39.5%), Australia and New Zealand (38.5%), North America (35.2%), East & South Asia (33.3%) and Europe (31.5%). Proportional systemic antibacterial use (%) at ATC3 level (pharmacological subgroup) varied considerably by continent (**Figure 3**). Prolonged surgical prophylaxis was most prevalent in West & Central Asia and lowest in North America (**Figure 4**). **Table 1** gives an overview of antibiotic quality indicators split up for the specialities medicine, surgery and intensive care at continental level.



CONCLUSION

This ongoing Global-PPS demonstrated that worldwide surveillance can be accomplished with voluntary participation. It provides quantifiable outcome measures that is fed back to each centre comparing antimicrobial prescribing rates between participating centres, nations and continents. The Global-PPS allows for targeted quality improvements, the development of local prescribing guidelines, education and practice changes, and for measuring the impact of these interventions through repeated PPS.

Table 1. Summary of quality indicators for antibiotic use (%) by specialty and continent

QUALITY INDICATORS (%)	Europe	North America	South America	West & Central Asia	East & South Asia	Australia & New Zealand
Medical						
Reason in notes	78.5	90.2	86.0	8.7	81.4	84.2
Guidelines missing	12.7	4.5	6.2	37.1	17.8	8.4
Guideline compliant	79.3	86.2	77.8	75.0	84.6	76.3
stop/review date	37.1	61.7	30.5	17.3	48.3	24.2
Surgical						
Reason in notes	62.7	70.7	64.2	70.8	73.7	84.6
Guidelines missing	15.5	4.0	6.2	29.2	20.4	7.7
Guideline compliant	67.7	80.9	67.8	60.1	81.0	74.9
stop/review date	45.0	65.1	31.9	16.0	47.1	29.8
ICU						
Reason in notes	72.3	89.2	83.8	85.8	82.6	90.6
Guidelines missing	18.3	9.8	2.5	40.0	22.4	0.0
Guideline compliant	80.8	92.5	84.4	82.4	83.5	92.1
stop/review date	36.6	53.9	17.7	18.4	51.6	15.1