Poster No 88

The Global Point Prevalence Survey of Antimicrobial Consumption and Antimicrobial Resistance (Global-PPS). Experience of Low and Medium Income countries. Use of biomarkers of infection.

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INTRODUCTION AND PURPOSE

Point Prevalence Surveys (PPS) are well established surveillance methods for monitoring antimicrobial prescribing in hospitals. The Global-PPS expanded this method to include resistance rates and to spread out across continents to monitor antimicrobial prescribing and resistance rates worldwide. bioMérieux provided unrestricted funding support for the survey.

METHODS

Data were collected in February-September 2015 from 335 hospitals (H) in 53 countries (C), including Europe (24C;214H); Africa (5C;12H), Asia (16C;57H), South-America (3C;19H), North-America (3C;24H), and Oceania (2C;9H) using a standardized and validated method (***Figure 1***). Detailed data was collected for all inpatients receiving an antimicrobial on the day of the survey. Biomarker data included C-reactive protein (CRP) and Procalcitonin (PCT) measured at patient level. Denominator included all admitted inpatients; or treated patients to analyse biomarker data. A web-based application designed by the University of Antwerp (www.global-pps.com) was used for data-entry, validation and reporting.

RESULTS

Figure 1. 2015 Global-PPS - participating countries and hospitals

In total, 100,166 patients admitted to 5,824 wards were surveyed from **335 hospitals in 53 countries** worldwide (***Figure 1***). Antimicrobial prevalence was 34.5%, which varied between continents (range: 31.8% in Europe to 48.7% in Africa) and hospital type (range: 27.3% in primary care hospitals to 45.8% in specialized hospitals).

Also **low and medium income countries** (LMIC) from Africa, Asia and South America participated. In these regions, often cephalosporins (other beta lactams) were proportionally more prescribed (***Figure 2***). Of these, third generation cephalosporins were overall most frequently used, certainly also in Africa, West and Central Asia and South America (***Figure 3).***

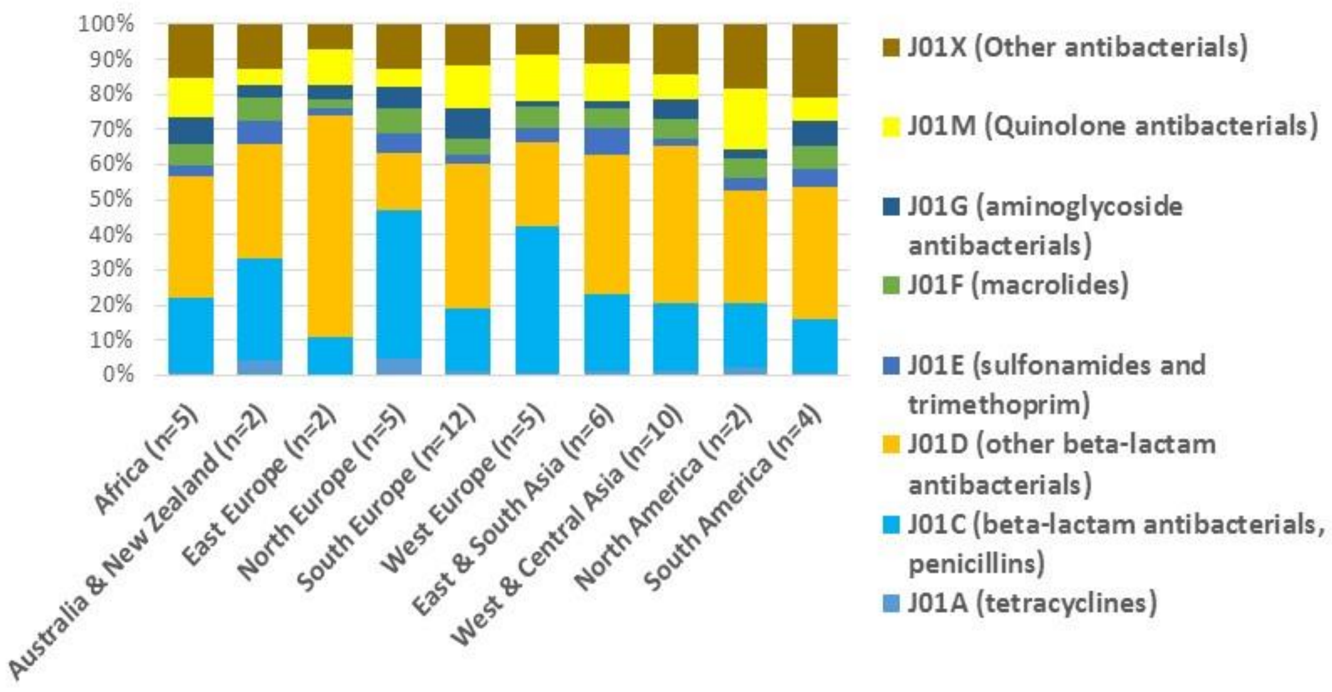

Figure 2. Subclasses of antibacterials (J01) used by geographical regions (n=number of countries participated)

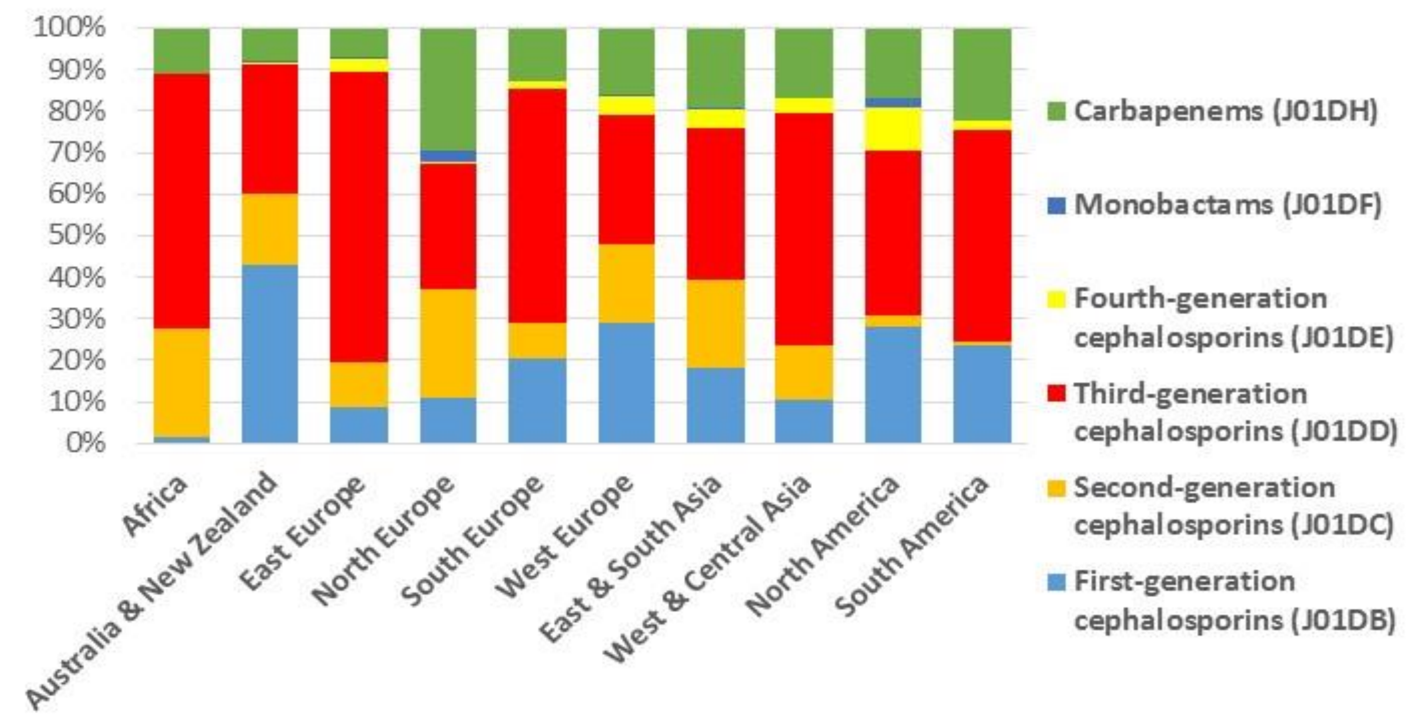

Figure 3. Proportional use of beta-lactam antibacterials (other than penicillins and penicillins + inhibitors) by geographical regions

Out of 34.731 patients treated with at least one antimicrobial, treatment was also based on **biomarker results** in 34.9% of patients (range 6.9% in Africa to 44.7% in North-Europe) (***Figure 4***). CRP was the most common used biomarker (29.3% of treated patients: range 4.0% of patients in North-America to 41.3% in West-Europe). PCT was less commonly used, with highest use for South-America and East-South Asia (4% of treated patients) and not used in Africa and Australia-New Zealand (***Figure 4***). ***Figure 5*** gives the prevalence of use of biomarker data in "the decision to treat an infection" by ward type and ***Figure 6*** by infection type (data selection = community or hospital acquired infection only).

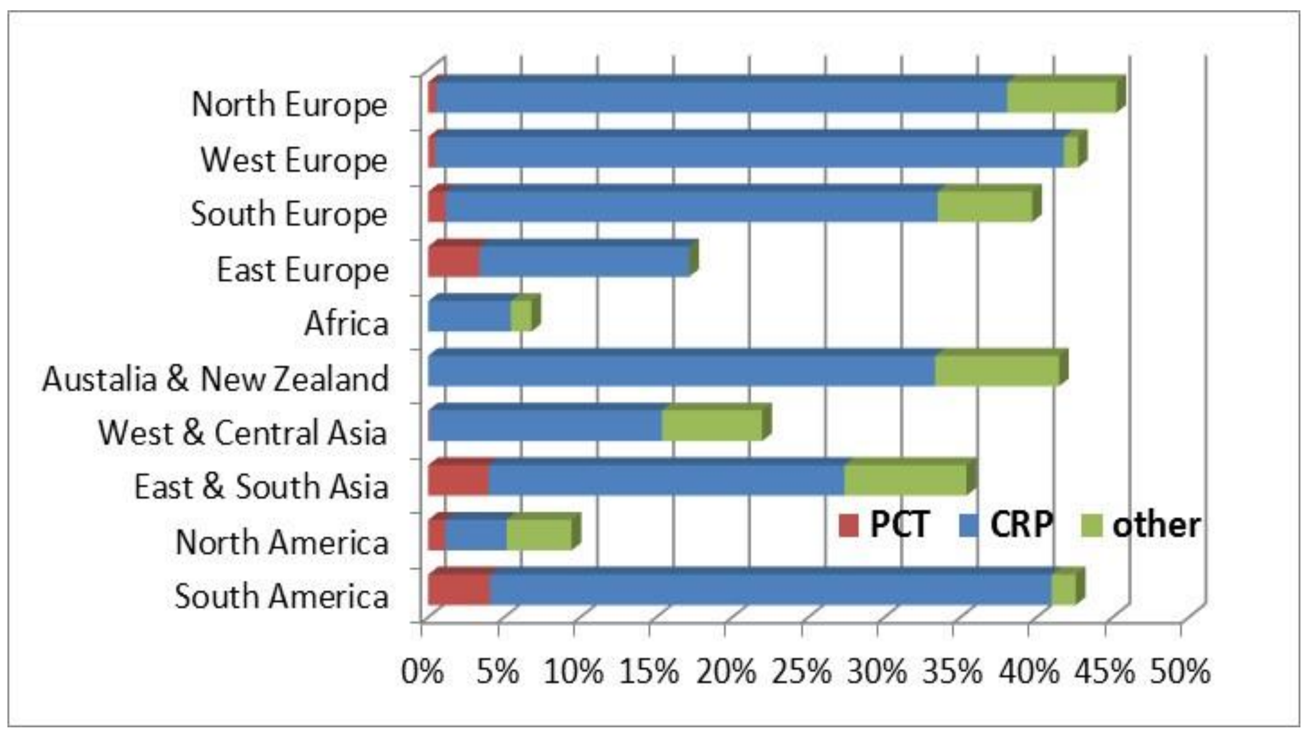

Figure 4. Prevalence of biomarker use in the decision to treat infections by geographical regions

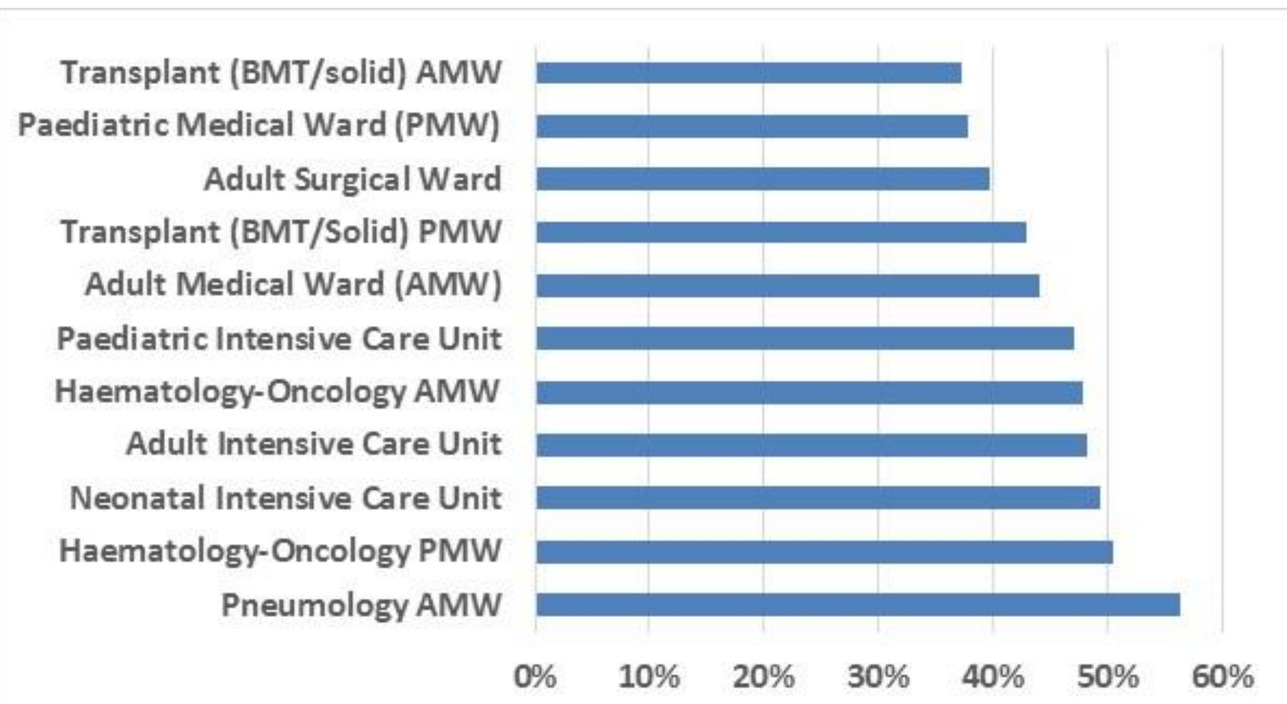

Figure 5. Prevalence of biomarker use by ward type (selection on community or hospital acquired infections)

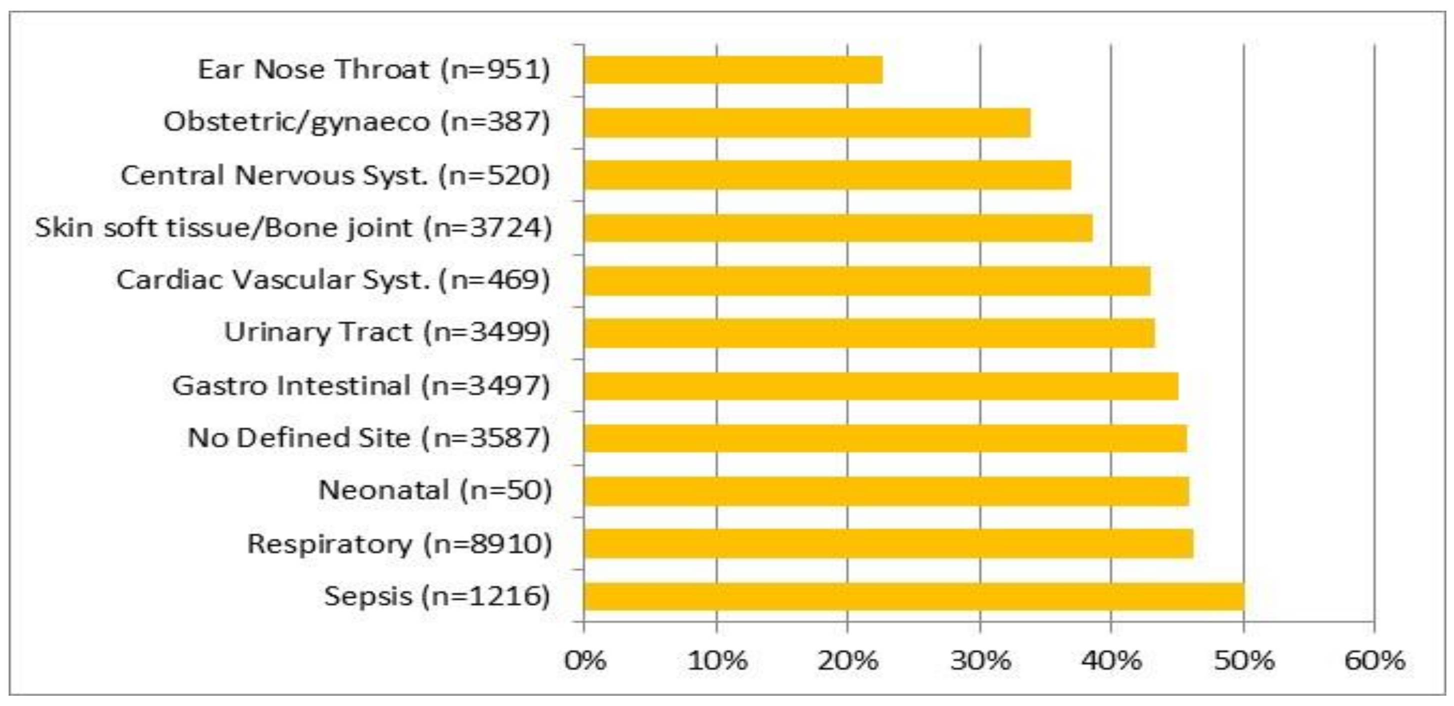

Figure 6. Prevalence of biomarker use by treated infection (community or hospital acquired infection) (n=number of patients)

DISCUSSION

This Global-PPS proved its usefulness worldwide, whatever the type of country and healthcare organization; including low and medium income countries where antibiotic prescription often was assessed for the very first time. We observed wide variations in antibiotic use patterns.

Two routinely available biomarkers, CRP and PCT were evaluated if they contributed to the decision to treat an infection. Besides the wide use of CRP, also PCT was used in some regions. Globally the prevalence of biomarker use to guide treatment was quite low, moreover, its use was similar according to the infection type, which is surprising as these biomarkers are not validated for all kinds of infections. Hence, from these data we could not assess its use in optimizing antibiotic therapy such as the initiation, the duration or the discontinuing of antibiotics (limitation of a PPS method).

CONCLUSION

This Global-PPS proved to be a feasible and useful method to assess antibiotic prescribing worldwide, independent the country and hospital settings. These data serve to identify targets for quality improvement of antibiotic prescribing and for measuring the impact of interventions through repeated PPS.

FUTURE – WELCOME JOINING OUR NEXT GLOBAL-PPS IN 2017 !

The Global-PPS will again be conducted worldwide in January and June 2017. In close collaboration with BSAC, an educational tool will be offered to teach hospitals about the usefulness of conducting a PPS on antimicrobial use and resistance.

Disclosures: "**bioMérieux** is the sole 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."