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First result from the outpatient Global-PPS identifies key action points for antimicrobial stewardship among ten health facilities in Lagos, Nigeria

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BACKGROUND & OBJECTIVES

Most antibiotics are prescribed in primary healthcare settings and many of them are used inappropriately. We aimed to audit outpatient antimicrobial prescribing practices in ten healthcare facilities (HCF) in Lagos.

METHODS

The outpatient module of the Global-PPS was conducted among **six primary healthcare centres** (PHC), **three general hospitals** (GH) and **one tertiary care hospital** (TCH) in Lagos. The survey included all outpatients seen on the day of PPS. Data collected included details on the antimicrobial agents, reasons and indications for treatment and a set of quality indicators. A web-based application was used for data entry and validation as designed by the University of Antwerp (www.global-pps.com).

RESULTS

Antimicrobial information

Patient characteristics

616 patients | 357 female (58%) | 241 child (40.3%)

The **prevalence of antimicrobial use was 31.3%** which varied by age group and HCF (**Table 1**). A total of **275 antimicrobials** were prescribed including 155 (56.4%) antibacterials for systemic use, 116 (42.2%) antimalarials and 4 (1.5%) antifungals. Among the antimicrobials prescribed, 247 (90.2%) were for community acquired infections, 5 (1.8%) for medical prophylaxis and 22 (8%) for unknown indications.

Table 1: Antimicrobial Prevalence rates by age group and type of healthcare facility

	PHC (N=142)	GH (N=270)	THC (N=204)	Total (N=616)
Age group				
Adult	41 (60.3%)	19 (13.2%)	13 (8.3%)	73 (19.8%)
Children	64 (90.1%)	48 (39.3%)	6 (12.5%)	118 (49%)
Neonate	2 (66.7%)	0	0	2 (28.6%)
Total	107 (75.4%)	67 (24.8%)	19 (9.3%)	193 (31.3%)

Top 3 reported symptoms in patients on antimicrobials

- Sub-febrile temperature (35%)
- Cough (30%)
- Headache (19%)

The top three antibiotics used were amoxicillin clavulanate (28.6%), cefuroxime (17.7%) and amoxicillin (13.6%) (**Figure 1**).The main reasons for therapeutic prescribing were sepsis (28.1%), upper respiratory tract infection (URTI) (21.9%), and gastrointestinal infections (14.1%) in PHC; URTI (22.6%), dental infection (22.6%) and Ear Nose Throat infections (9.4%) in GH; unknown indication (25%), URTI (16.7%) and Skin & Soft Tissue Infections (16.7%) in TCH. **Table 2** shows the quality indicators.

Table 2: Quality indicators for antimicrobial prescribing

	PHC	GH	TCH	Total
Route of administration*	**N=164**	**N=91**	**N=20**	**N=275**
Oral	130 (78.7%)	88 (95.6%)	20 (100%)	238 (85.8%)
Documented duration*	161 (98.2%)	64 (70.3%)	18 (90%)	243 (88.4%)
Duration of therapy (days)				
Mean (SD)	3.9 (1.7)	5.2 (2.4)	9.3 (13.0)	4.6 (4.2)
Median (IQR)	3 (3-5)	5 (3-7)	7 (5-7)	5 (3-5)
Treatment based on...**	**N=107**	**N=67**	**N=19**	**N=193**
Biomarker (WBC)	6 (5.6%)	1 (1.5%)	3 (15%)	10 (5.2%)
RDT (malaria antigen test)	45 (42.1%)	0	3 (15.8%)	48 (24.9%)

PHC = Primary Healthcare Centre **GH** = General hospital **TCH** = Tertiary care hospital
WBC = White blood cell count SD = Standard deviation IQR = Interquartile range
* Among all antimicrobial prescriptions ** Among all patients receiving an antimicrobial

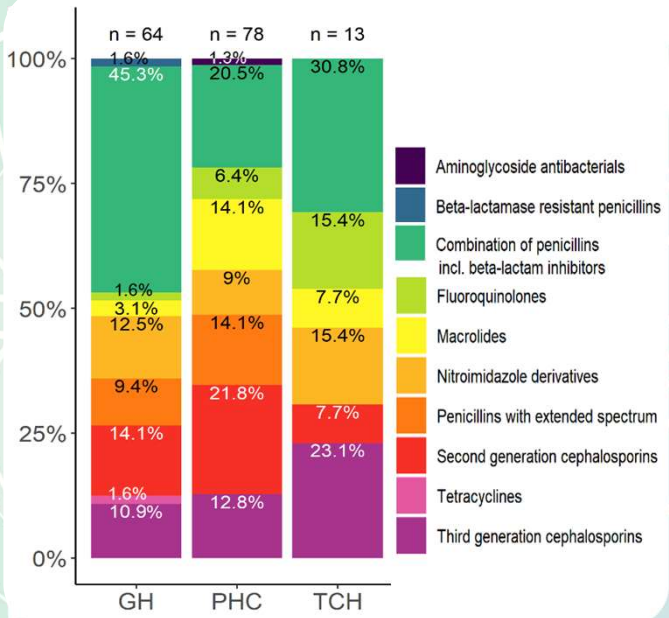

Figure 1: Proportion of prescribed antibiotics for systemic use (ATC J01) and nitroimidazole derivatives (ATC P01AB) among outpatients, by HCF.
GH = General hospital; PHC = Primary healthcare centre; TCH = Tertiary care hospital

CONCLUSION

There was very high antimicrobial prescribing in PHCs especially among children. Most antibiotics were prescribed for URTI and unknown indications in TCH. The rate of use of biomarkers and RDTs were low. A quality improvement project to enhance antimicrobial stewardship interventions has been started to optimise antimicrobial use and improve patient outcomes.

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bioMérieux is the sole industrial partner of the Global-PPS. The company has no role in study design, data collection, data analysis, data interpretation, or writing the report.
Data are strictly confidential and stored anonymously at the coordinating centre of the University of Antwerp, Belgium.