Nigeria

GLOBAL-PPS
Antimicrobial Consumption and Resistance

The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS): First Results of antimicrobial prescribing in Nigerian Hospitals

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INTRODUCTION AND PURPOSE

Antibiotic stewardship has been shown to improve patient outcomes and decrease healthcare costs while reducing the burden of antibiotic resistance. This intervention is vital in developing countries like Nigeria but will require knowledge of current antibiotic prescribing practice which is currently lacking. To obtain baseline information for antibiotic stewardship, a uniform and standardized method for surveillance of antibiotic use in hospitals was used to assess the antimicrobial prescribing practices in the North Central, North West and South West regions of Nigeria.

METHODS

A Point Prevalence Survey (PPS) was conducted in April 2015, in four Nigerian tertiary hospitals. The survey included all inpatients receiving an antibiotic on the day of PPS. Data collected included age, gender, weight, antibiotics, doses and indication for treatment, microbiological data, compliance to guidelines, and stop/review date of prescription. Denominators included the total number of inpatients. A web-based application was used for data-entry, validation and reporting as designed by the University of Antwerp (www.global-pps.com).

RESULTS

The survey included 828 patients admitted on a total of 77 wards of which 577 (69.7%) received at least one antimicrobial on the day of the PPS. Highest antimicrbial prevalence rates were in adult intensive care units (ICU) (88.9%) followed by paediatric medical wards (84.6%) and neonatal ICU (76.7%). **Figure 1** *shows the d*istribution of antimicrobial use by wards. Out of 1023 administered doses of antimicrobials, those for systemic use accounted for 85.6% of prescriptions, followed by nitroimidazole derivatives (7.5%) and drugs to treat tuberculosis (2.4%). **Table 1** shows the top 10 antibiotics prescribed for therapeutic and prophylactic use.

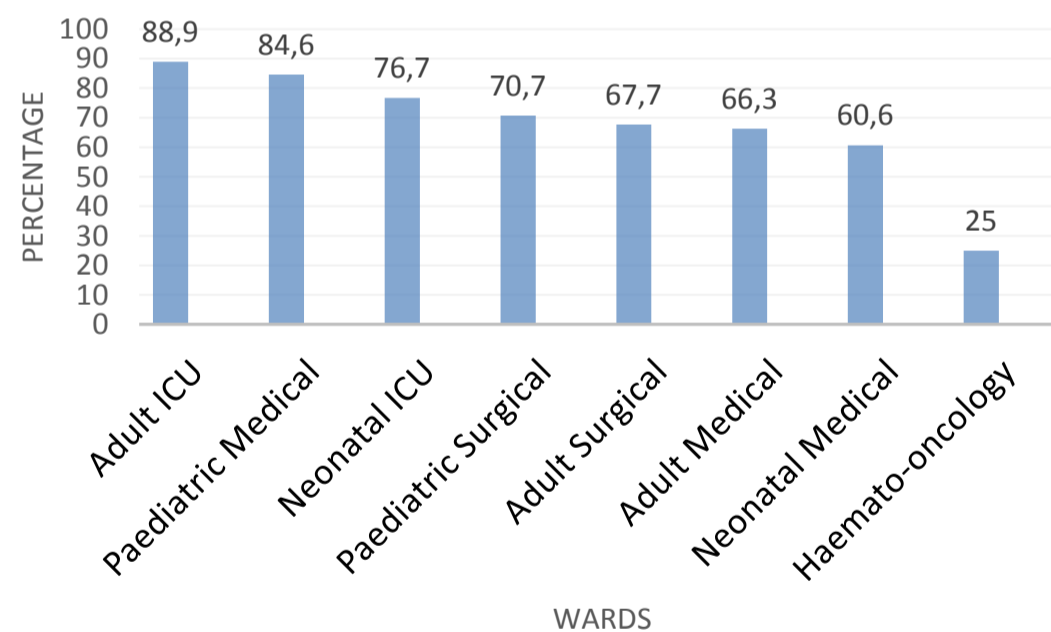**Figure 1. Antimicrobial use prevalence rates (%) by wards**

Table 1. Top 10 prescribed antibiotics for therapeutic and propylactic use

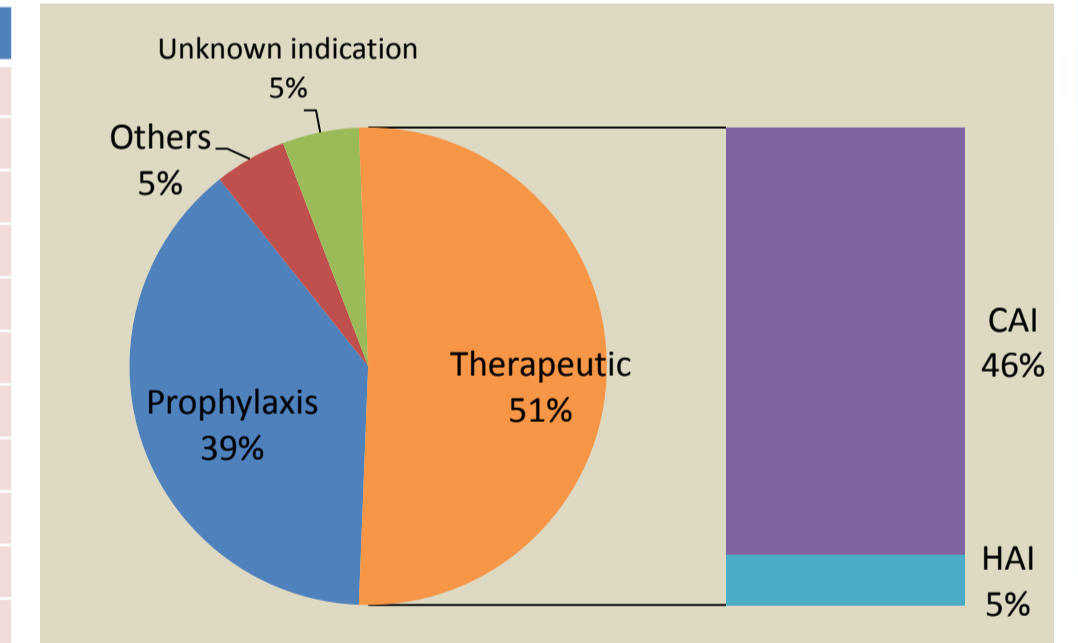| Therapeutic		Medical Prophylaxis		Surgical prophylaxis	
Antibiotic	**Total (%)**	**Antibiotics**	**Total (%)**	**Antibiotics**	**Total (%)**
Ceftriaxone	18.9	Metronidazole	15.0	Metronidazole	31.0
Metronidazole	18.0	Fluconazole	10.8	Ceftriaxone	23.8
Ciprofloxacin	9.9	Ceftriaxone	10.0	Cefuroxime	13.7
Cefuroxime	7.3	Amikacin	7.5	Ciprofloxacin	11.2
Gentamicin	4.6	Cefotaxime	5.8	Levofloxacin	4.0
Clindamycin	4.4	Co-trimoxazole	5.8	Co-amoxiclav	2.9
Levofloxacin	4.2	Gentamicin	5.8	Amoxicillin	2.2
Cefotaxime	2.5	Ciprofloxacin	5.0	Amoxicillin & enzyme inhibitor	1.8
Co-amoxiclav	2.5	Ampiclox	4.2	Clindamycin	1.8
Amoxicillin	2.1	Benzathine benzylpenicillin	4.2	Gentamicin	1.4

Figure 2. Indications for antibiotic prescriptions

Most often prescribed systemic antimicrobials were third-generation cephalosporins (26.6%, mainly ceftriaxone [18.7%]), followed by metronidazole (17.1%) and quinolones (15.9%; mainly ciprofloxacin [9.6%]). Most prescriptions for surgical prophylaxis were given for more than one day (95.0%). Parenteral antibiotic use was common (74.8%). Indication for antibiotic prescription was documented in 61.8% of cases and a stop or review date was documented for 27.8%. Antibiotic guidelines were missing in 30.7% of medical and in 39.2% of surgical prescriptions. Compliance to local antibiotic guidelines was 7.1% for medical and 4.1% for surgical indications. Details on antibiotic quality indicators are shown in **Table 2.** Biomarker data were used in the decision to prescribe 0.5% of all antibiotics. CRP was used in 80% of those cases.

Table 2. Quality indicators of antibiotic prescribing

	Medical %	Surgical %	Intensive care %
Reason in notes	32.2	27.2	2.4
Guidelines compliant	7.1	4.1	0.3
Guidelines missing	30.7	39.2	5.9
Stop/review date	12.2	15.1	0.5
Targeted therapy	14.9	11.3	4.5
Parenteral use	68.1	57.4	92.5
Biomarkers	0.6	0.4	0

CONCLUSION

For the first time, antimicrobial prescribing practices have been evaluated in Nigerian hospitals. Very high antimicrobial prevalence rates were observed, especially in child and neonatal wards. We disclosed areas to improve antibiotic prescribing: absence of guidelines and antibiotic prescribing according to guidelines, low reporting of a stop/review date and prolonged surgical prophylaxis. We need to create awareness at the national level for targeted prescribing of antimicrobials and use of evidence based antibiotic guidelines.