

**05. New antibacterial agents, PK/PD & Stewardship**

5d. Antimicrobial stewardship and improved prescribing (incl interventions, decision-support / prediction tools, behavioural aspects)

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**Background** Antibiotic use without prescription is an important driver of the development of antibiotic resistance at the community level. This study compared non-prescription antibiotic use in central and southern communities in Ghana to inform interventions to increase the appropriate use of antibiotics.

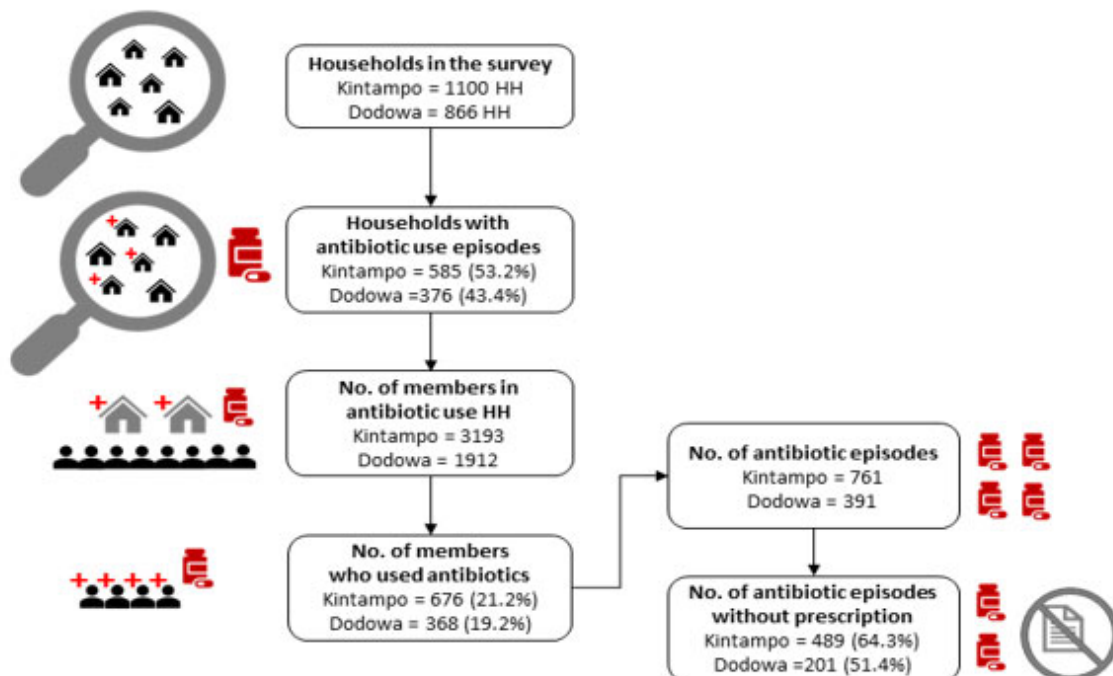
**Methods** An observational study was conducted between January 2016 and July 2018 to examine antibiotic use among community members in Ghana. The survey involved 1,100 and 866 households that were contacted at two time points (six months apart) over one year in Kintampo and Dodowa respectively. The survey focused on antibiotic use in the past month. Descriptive statistics were computed for sociodemographic characteristic of antibiotic users and use of WHO Access and

Watch antibiotics. A mixed-effects multilevel logistic regression analysis was used to determine the association between sociodemographic, healthcare characteristics of antibiotic users and antibiotic use without prescription.

**Results** In Kintampo, in 585/1100 (53.2%) households, antibiotics were used in the past month versus 376/886 (42.3%) in Dodowa. Non-prescription antibiotics were used in 489/761 (64.3%) of illness episodes in Kintampo, and in Dodowa this was 201/391 (51.4%) (Figure 1). Amoxicillin was the most commonly used antibiotic in both Kintampo (56.0%) and Dodowa (66.2%). Gastrointestinal conditions were the main indication for antibiotic use in Kintampo (60.3%) and Dodowa (27.9%) (Tables 1 and 2). Most antibiotics were WHO Access antibiotics (Kintampo (65.3%) and Dodowa (98.5%)), and were mainly obtained from over-the-counter medicine sellers (OTCMS). WHO Watch antibiotics were more often obtained from OTCMS in Kintampo (34.7%) than in Dodowa (1.5%). Obtaining antibiotics from OTCMS was significantly associated with antibiotic use without prescription in both Kintampo (OR 0.2; 95% CI 0.1– 0.4; P<0.001) and Dodowa (OR: 0.2, 95% CI: 0.1– 0.3, p-value: 0.00 OR 0.2; 95%CI 0.1-0.3; P<0.01).

**Conclusions** Non-prescription antibiotic use in central and southern Ghana was influenced by obtaining antibiotics from OTCMS. WHO Access and Watch antibiotics were obtained from OTCMS without prescription. Our data highlight the clear need for the expansion of approved health facilities to rural areas in Ghana to improve appropriate antibiotic use.

#### Household survey and antibiotic use



**Figure 1: Household survey and antibiotic use in Kintampo and Dodowa, Ghana**

#### Types of antibiotics used

**Table 1: Types of antibiotics used in Kintampo and Dodowa, Ghana**

Name of antibiotics	Kintampo, n (%)			Dodowa, n (%)		
	Access	Watch	Class	Access	Watch	Class
Amoxicillin	419 (55.1)	-	Penicillin	256 (65.5)	-	Penicillin
Ampicillin	7 (0.9)	-	Penicillin	3 (0.8)	-	-
Penicillin	-	-	Penicillin	16 (4.1)	-	Penicillin
Cloxacillin	2 (0.3)	-	Penicillin	-	-	-
Flucloxacillin	54 (7.1)	-	Penicillin	13 (3.3)	-	Penicillin
Chloramphenicol	15 (2.0)	-	Amphenicols	14 (3.6)	-	Amphenicols
Metronidazole	11 (1.5)	-	Imidazoles	10 (2.6)	-	Imidazoles
Tetracycline	-	-	Tetracycline	10 (2.6)	-	Tetracycline
Oxytetracycline	-	223 (29.3)	Tetracycline	-	3 (0.8)	Tetracycline
Doxycycline	4 (0.5)	-	Tetracycline	2 (0.5)	-	Tetracycline
Ciprofloxacin	-	6 (0.8)	Fluoroquinolones	-	6 (1.5)	Fluoroquinolones
Clindamycin	-	-	Lincosamides	3 (0.8)	-	Lincosamides
Cefuroxime	-	2 (0.3)	2 <sup>nd</sup> generation cephalosporins	-	2 (0.5)	2 <sup>nd</sup> generation cephalosporins
Azithromycin	-	-	Macrolide	-	1 (0.3)	Macrolide
Erythromycin	-	-	Macrolide	-	1 (0.3)	Macrolide
clarithromycin	-	-	Macrolide	-	1 (0.3)	Macrolide
Cotrimoxazole	1 (0.1)	-	Trimethoprim - sulfonamide combinations	5 (1.3)	-	Trimethoprim - sulfonamide combinations
Amoxicillin/clavulanic Acid	-	-	Beta lactam - beta lactamase inhibitor	19 (4.9)	-	Beta lactam - beta lactamase inhibitor
Not known	17 (2.2)	-	-	25 (6.4)	-	-
<b>Total</b>	<b>761 (100)</b>	-	-	<b>391 (100)</b>	-	-

Indications for antibiotic use

**Table 2. Indications for antibiotic use in Kintampo and Dodowa, Ghana**

Indications for antibiotic use		Kintampo n (%)	Dodowa n (%)
Sore throat	Yes	3 (0.4)	7 (1.8)
Cough	Yes	24 (3.2)	22 (5.5)
Flu	Yes	8 (1.1)	8 (2.0)
Headache	Yes	16 (2.1)	16 (4.0)
Pain	Yes	82 (10.8)	51 (13.0)
Wound	Yes	32 (4.2)	38 (9.7)
Fever	Yes	4 (0.5)	14 (3.6)
Boil	Yes	21 (2.8)	7 (1.8)
Gastrointestinal	Yes	459 (60.3)	109 (27.9)
Chest pain	Yes	45 (5.9)	11(2.8)
Skin and soft tissues	Yes	17( 2.2)	5 (1.3)
Surgery related	Yes	8 (1.0)	6 (1.5)
Other	Yes	55 (7.2)	20 (5.1)

**Keyword 1**

Antibiotics

**Keyword 2**

Non-prescription antibiotics use

**Keyword 3**

Ghana

**Conflicts of interest**

**Do you have any conflicts of interest to declare?**

I have no potential conflict of interest to report

