Use of the "Drug Bag Method" to assess household antibiotic use in The Gambia

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1. Background

- Antimicrobial resistance is a global problem, accelerated by inappropriate antibiotic use.
- The Gambia is a Low-income country in Western Sub-Saharan Africa.
- There is limited surveillance of antibiotic use in The Gambia.
- The drug bag method is used to assess prior antibiotic use in the community.[1] It improves recall sensitivity compared to simple recall.

AWaRe Classification[2]	Meaning
Access	Antibiotics with low chance of resistance, they should be easily accessible
Watch	Increased risk of resistance, should be reserved for more serious illnesses.
Reserve	Should only be used for infections caused by multi-resistant bacteria.
Not recommended	Antibiotics with no evidence base supporting them.

2. Aims

1. Estimate point prevalence of antibiotic use in coastal Gambia.
2. To classify the antibiotics in the drug bag using the AWaRe classification.
3. Identify predictors for recognition of *Watch* antibiotics.

3. Methods

Ethics

Approval by The Gambia Government / Medical Research Council joint ethics committee (Ref: 29933).

Household selection

200 households were randomly identified across Kombo South and Central, using Google Earth. Households were visited between March and May 2024.

Image 1: Households selected in Kombo South in proximity to randomly generated coordinates

Drug bag formation

Samples of every antibiotic type and formulation available in any pharmacy across the study site were purchased.

Images 2: Antibiotics purchased at a pharmacy.

Questionnaire

- A validated WHO Community Medication survey[3] was used to collect information on demographics and antibiotic recognition.
- This was facilitated by Drug bag method.

Image 3: Oral suspensions and topical creams being shown to a household as part of the drug bag pile sorting task.

4. Results

Antibiotics available in The Gambia:

197 antibiotics were bought for the drug bag. 118 were *access*, 68 were *watch* and 11 were *not recommended* (including ampicillin/cloxacillin combinations). See figure 1.

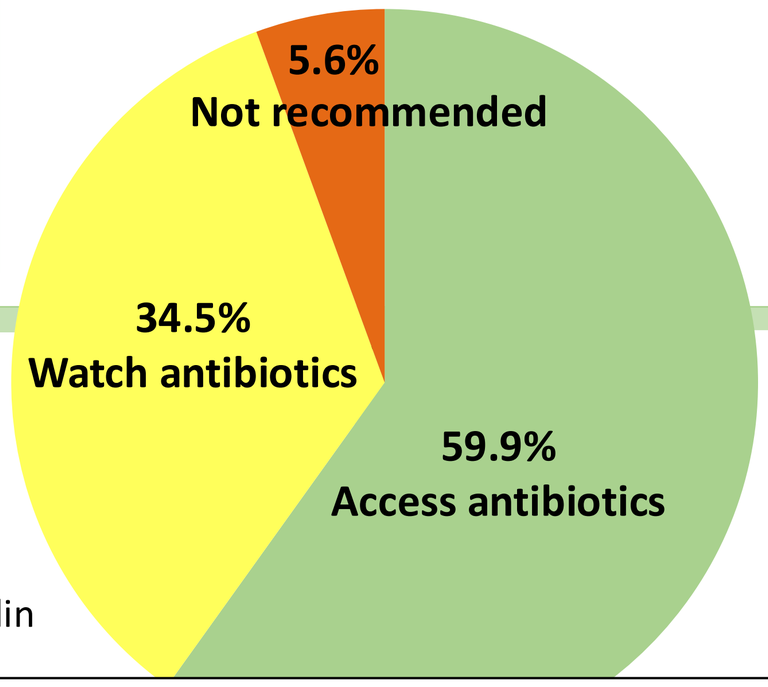

Figure 1: A pie chart showing the proportion of antibiotics in the drug bag in each category of the WHO AWaRe classification.

Point prevalence estimation:

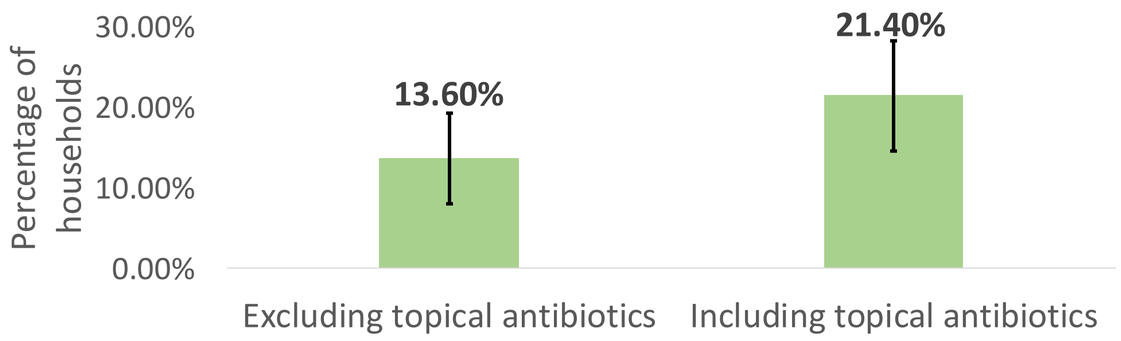

Figure 2: A graph showing the point prevalence of antibiotic use by households, with 95% confidence intervals.

Associations with the recognition of watch antibiotics:

Over 70% of households recognised at least one 'watch' antibiotic.

Predictor	Univariate odd ratio (confidence interval)
Living in Kombo South (ref Kombo Central)	1.55 (0.73-3.28)
Mandinka tribe (ref non-Mandinka)	0.86 (0.36-1.86)
Education level	0.97 (0.71-1.33)
Distance from health facility	1.22 (0.77-1.923)
Household size above national average (ref below average)	**2.52 (1.05-6.04)**
Children in house (ref no children)	**2.90 (1.20-7.04)**
Socioeconomic status	1.04 (0.78-1.38)

Figure 3: Predictors for recognition of watch antibiotics – completed using binary logistic regression. Bold findings are significant results.

5. Discussion

Point prevalence estimation:

- 13.6% is consistent with previous studies.[4]
- Previous studies were completed during rainy season.
- Rainfall increases infectious disease and thus antibiotic use.

Not recommended antibiotics:

- Resistance to ampicillin is documented in The Gambia.[5]
- Reduction in distribution of ampicillin/cloxacillin combinations.

Significant predictors:

- Globally children use more antibiotics and 'watch' antibiotics. This will increase participant recognition to them.
- Potentially, due to increased viral illnesses and reduced investigations in The Gambia

Future work:

- Research is needed to assess the temporal effect of antibiotic use and determine whether the use of 'Watch' antibiotics is appropriate.

References

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5. Chaw PS, Schlinkmann KM, Raupach-Rosin H, Karch A, Pletz MW, Huebner J, et al. Antibiotic use on paediatric inpatients in a teaching hospital in the Gambia, a retrospective study. Antimicrob Resist Infect Control. 2018 Jul 16;7(1)