High erythromycin-resistant *Campylobacter jejuni* and *C. coli* among humans and chickens in Africa

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Introduction

• Human *Campylobacter* enteritis is a common bacterial

foodborne illness globally. C. jejuni and C. coli are

frequently implicated and are commensals in chickens.

Result

Table 1: Antibiotic profile of C. jejuni and C. coli

Antimicrobial used (NoPooled antimicrobial resistance rate (95% CI) among C. jejuniof article)and C. coli

 Human being acquires *Campylobacter* mainly through consumption or processing poultry meat as well as direct

contact with chicken.

• The burden of antimicrobial resistant *Campylobacter* is increasing worldwide. However, there are limited data on

the frequency of these resistant strains in Africa.

Objective

Estimate the pooled magnitude of erythromycin resistance in *Campylobacter jejuni* and *C. coli*.

	Campylobacter jejuni, % (CI)	Campylobacter coli, % (CI)
ampicillin	39.7% (28.9%-50.6%)	57.2% (38.1%-48.9%)
ciprofloxacin	21.2% (16.1%-26.4%)	18.3% (13.3%-23.4%)
erythromycin	51.0% (28.0%-74.0%)	54.0% (32.0%-75.0%)
gentamicin	41.1% (6.0%-76.1%)	18.3% (13.3%-23.4%)
tetracycline	39.2% (9.6%-68.8%)	41.5% (16.7%-66.4%)
amoxicillin-clavulanic acid	61.8% (33.5%-90.2%)	67.9% (54.6%-81.1%)
ceftriaxone	62.6% (67.0%-81.5%)	28.3% (16.9%-39.7%)
trimethoprim-sulfamethoxazole	80.4% (67.9%-92.8%)	78.2% (63.6%-92.9%)
norfloxacin	27.8% (22.1%-33.5%)	29.2% (-13.3%-72.2%)
nalidixic acid	47.8% (42.0%-53.5%)	28.0% (17.6%-38.4%)
chloramphenicol	65.6% (18.3%-112.9%)	71.6% (59.7%-83.5%)
azithromycin	78.8% (56.4%-101.2%)	82.7% (70.9%-94.5%)
clindamycin	_	_

Methods

- A systematic review and meta-analysis.
- PubMed, Google Scholar, Hinnari, and Google were

used to accesses relevant articles in Africa.

- PRISMA checklist was followed.
- All data were extracted using data extraction format
- The quality of the articles was assessed.

Study				%
ID			ES (95% CI)	Weight
Bester (2008)		-	0.48 (0.37, 0.59)	9.11
Ewunetu (2010)			0.19 (-0.00, 0.38)	8.76
Ewunetu (2010)			0.15 (0.09, 0.21)	9.25
Salihu (2012)			0.10 (0.04, 0.17)	9.24
Komba (2015)			0.84 (0.78, 0.91)	9.23
Shobo (2016)			0.31 (0.19, 0.44)	9.07
Hafez (2018)		•	0.75 (0.56, 0.94)	8.77
Chukwu (2019)			0.14 (0.07, 0.20)	9.24
Kouglenou (2020)			0.95 (0.90, 1.01)	9.26
Pillay (2020)			0.80 (0.68, 0.92)	9.09
Zachariah (2021)			0.89 (0.74, 1.03)	8.98
Karikari (2017)			(Excluded)	0.00
Gharbi (2018)			(Excluded)	0.00
Overall (I-squared = 98.8%, p = 0.000)	\langle		0.51 (0.28, 0.74)	100.00
NOTE: Weights are from random effects analysis				
-1.03	0	1.0	3	

Fig 1: The magnitude of erythromycin resistance C. jejuni

Study			%
ID		ES (95% CI)	Wei
Salihu (2012)		0.08 (-0.03, 0.19)	11.84
Komba (2015)		- 0.86 (0.71, 1.01)	11.5
Shobo (2016)		0.39 (0.16, 0.61)	10.7
Karikari (2017)		— 0.92 (0.78, 1.07)	11.58
Hafez (2018)		0.73 (0.46, 0.99)	10.3
Chukwu (2019)	_ 	0.36 (0.23, 0.48)	11.70
gbor (2019)		0.25 (-0.05, 0.55)	9.85
uglenou (2020)		0.63 (0.39, 0.86)	10.6
llay (2020)		0.60 (0.48, 0.72)	11.7
Ewunetu (2010)		(Excluded)	0.00
vunetu (2010)		(Excluded)	0.00
Gharbi (2018)		(Excluded)	0.00
Overall (I-squared = 93.6%, p = 0.000)		0.54 (0.32, 0.75)	100.
NOTE: Weights are from random effects analysis			

Fig 2: The magnitude of erythromycin resistance C. coli

Conclusion and recommendation

- We found a high pooled magnitude of erythromycin resistant *C. jejuni* and *C. coli* among isolates from both humans and chickens in Africa.
- More One Health research is needed to give a clear picture on the drivers of antimicrobial resistance selection and

transmission dynamics of *Campylobacter* spp. in Africa, in humans, poultry and the environment.

