African Helicobacter & Microbiota Study Group

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Nationawide serological survey of *Helicobacter pylori* infection and gastric atrophy in Zambia

TROPGAN

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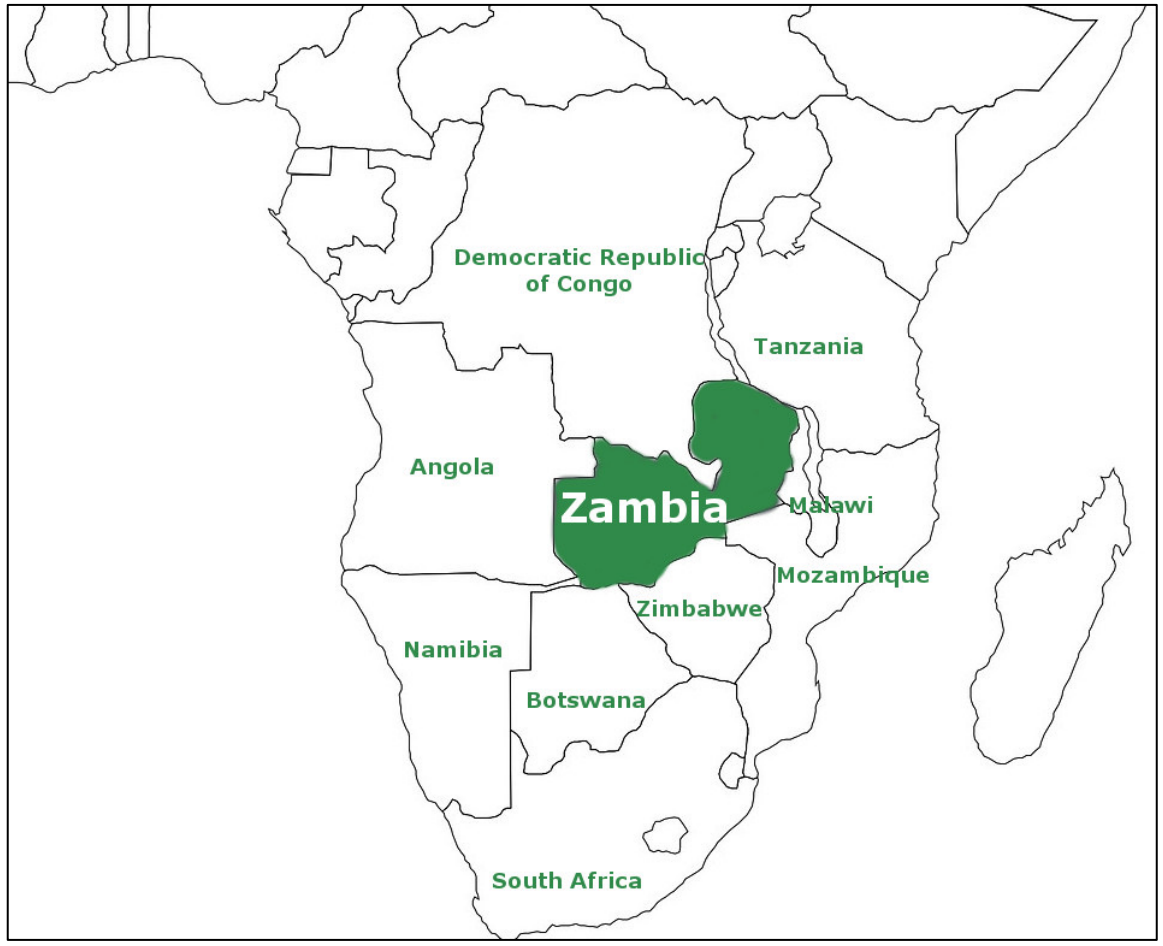
No conflict of interest to declare

What do we know about *H. Pylori* in Zambia?

1. Urban community sero-prevalence - **81%,** Fernando 2001
2. Hospital based sero-prevalence among symptomatic individauls - **87%,** Kayamba 2022
3. Hospital based active *H. pylori* among symptomatic individuals using PCR - **67%,** Kebotsamang 2024
4. Less prevalent in HIV infection, Kelly 2006
5. Not alterated by ART, Kayamba 2012

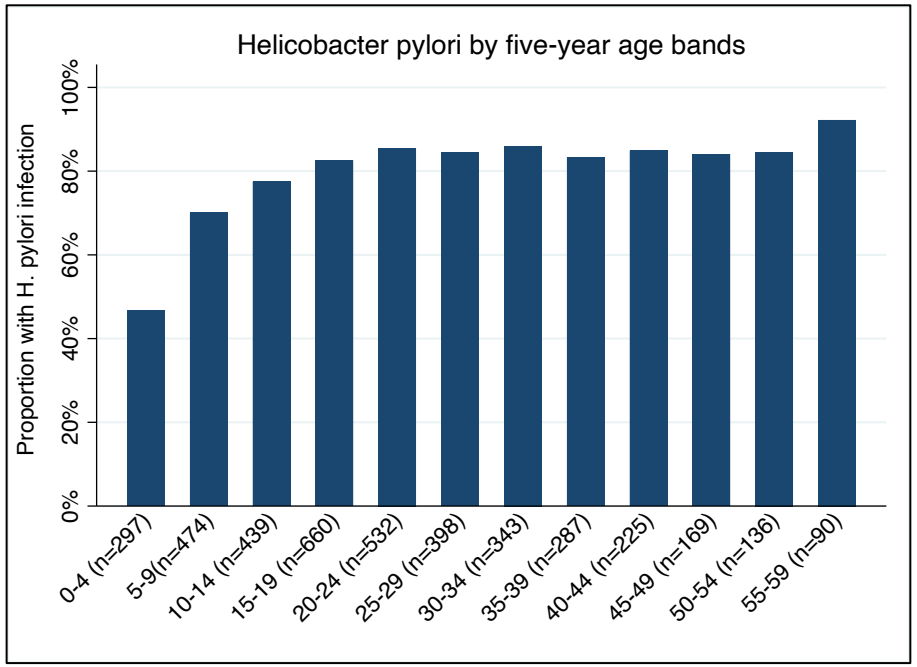
Nationwide survey - study approach



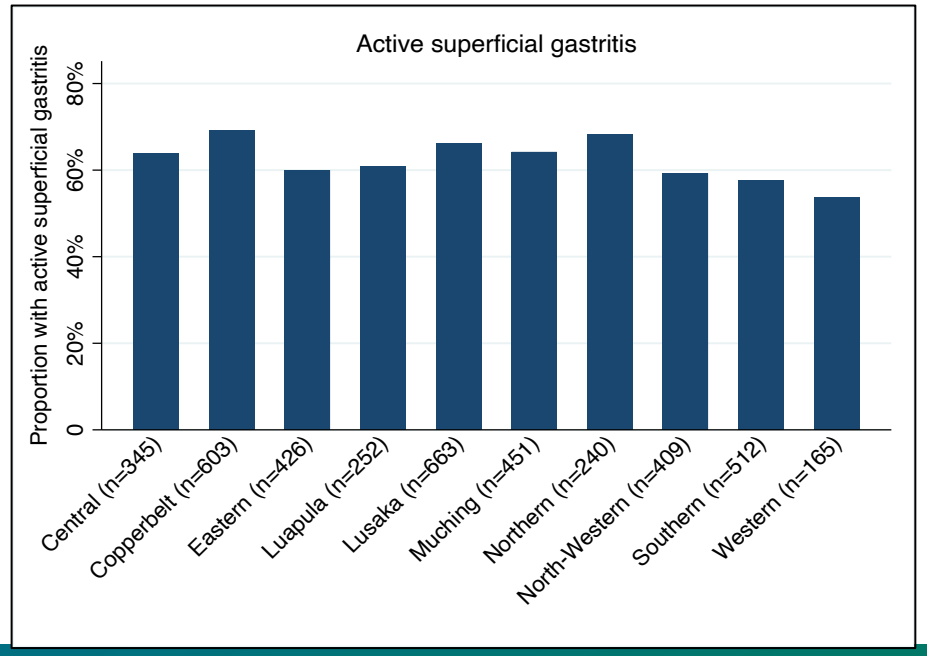
- Analysed 4,066 samples
- Door-to-door survey of asymptomatic volunteers
- Serologically diagnosed gastric atrophy using low pepsinogen 1:2 ratio

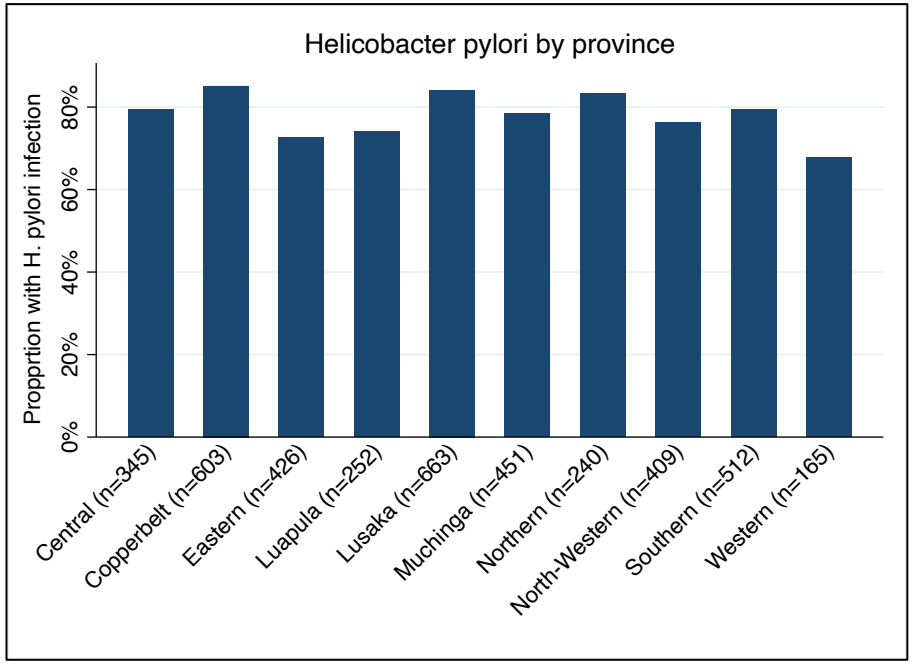
H. pylori infected and uninfected adults and children in Zambia

Characteristic	Adults (16 years and above; n=2,840)				Adolescents and children (5-<16 years; n=1,002)				Children (<5 years; n=208)			
	H. pylori positive n (%)	*H. pylori* negative n (%)	OR; 95% CI	p-value	*H. pylori* positive n (%)	*H. pylori* negative n (%)	OR; 95% CI	p-value	*H. pylori* positive n (%)	*H. pylori* negative n (%)	OR; 95% CI	p-value
Sex: Female Male	1312 (55) 1089 (45)	253 (58) 186 (42)	0.9; 0.7-1.1 Ref.	0.25	355 (49) 368 (51)	128 (46) 151 (54)	1.1; 0.9-1.5	0.36	46 (52) 42 (48)	59 (49) 61 (51)	1.1; 0.6-2.0	0.66
Median age (IQR)	28 (21-39)	28 (20-38)	-	0.19	10 (8-13)	9 (7-12)	-	<0.001	3 (3-4)	3 (2-4)	-	0.005
Residence: **Urban** **Rural**	**1054 (44)** **1347 (56)**	**140 (32)** **299 (68)**	**1.7; 1.4-2.1**	**<0.001**	**271 (37)** **452 (63)**	**71 (25)** **208 (75)**	**1.8; 1.3-2.4** **Ref.**	**<0.001**	**35 (40)** **53 (60)**	**30 (25)** **90 (75)**	**2.0; 1.0-3.7**	**0.02**
HIV: **Positive** **Negative**	**115 (5)** **2286 (95)**	**42 (10)** **397 (90)**	**0.5; 0.3-0.7**	**<0.001**	**2 (0)** **721 (100)**	**4 (0)** **275 (100)**	**0.2; 0.0-1.3** **Ref.**	**0.03**	0 (0) 88 (100)	0 (0) 120 (100)	-	-


Helicobacter pylori by five-year age bands
Proportion with H. pylori infection
0%
20%
40%
60%
80%
100%
0-4 (n=297)
5-9(n=474)
10-14 (n=439)
15-19 (n=660)
20-24 (n=532)
25-29 (n=398)
30-34 (n=343)
35-39 (n=287)
40-44 (n=225)
45-49 (n=169)
50-54 (n=136)
55-59 (n=90)

H. pylori 79%


Active superficial gastritis
Proportion with active superficial gastritis
0
20%
40%
60%
80%
Central (n=345)
Copperbelt (n=603)
Eastern (n=426)
Luapula (n=252)
Lusaka (n=663)
Muching (n=451)
Northern (n=240)
North-Western (n=409)
Southern (n=512)
Western (n=165)


Helicobacter pylori by province
Propprtion with H. pylori infection
0%
20%
40%
60%
80%
Central (n=345)
Copperbelt (n=603)
Eastern (n=426)
Luapula (n=252)
Lusaka (n=663)
Muchinga (n=451)
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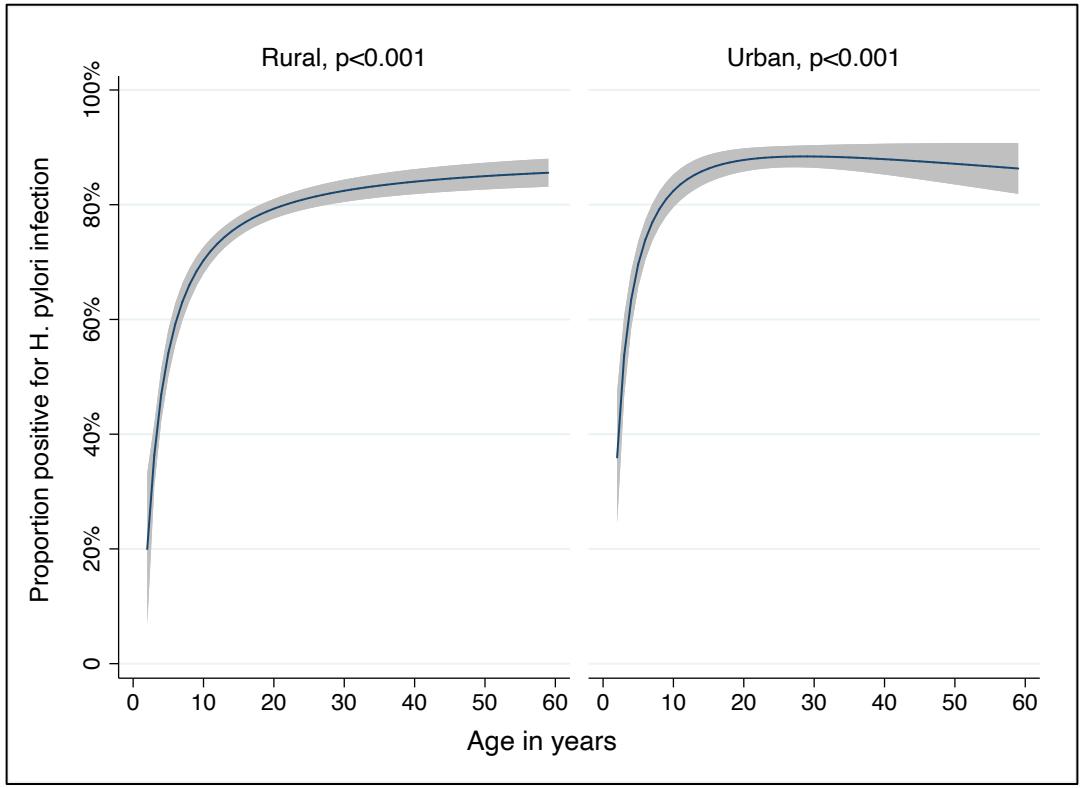
Western (n=165)

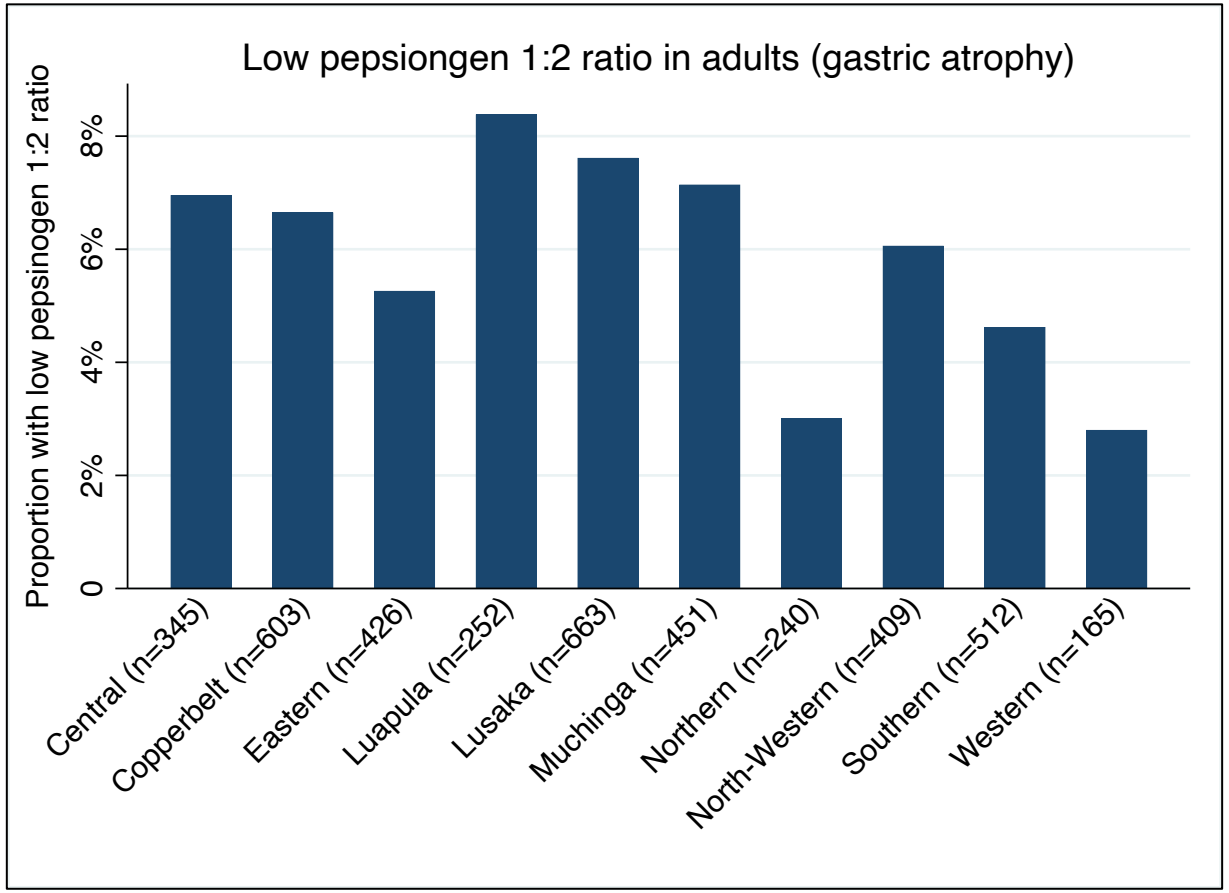
Prevalence of *H. pylori* infection by five-year age groups for rural and urban populations



The shaded areas are confidence intervals at 95%. P-values were computed using the chi square test

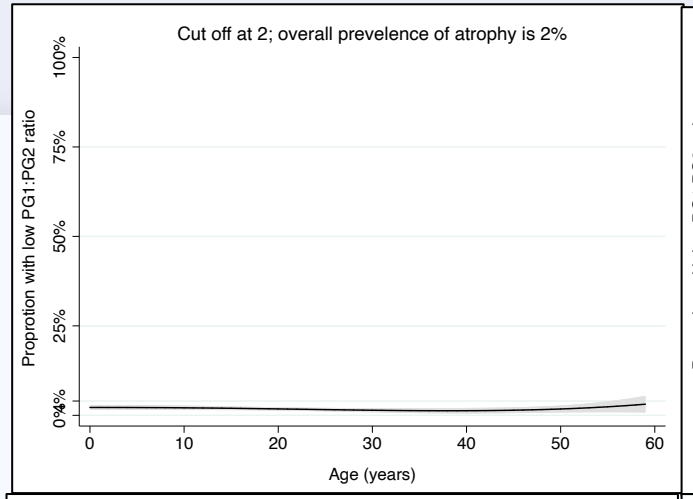
WELCOME TO NEW BUYA BAR

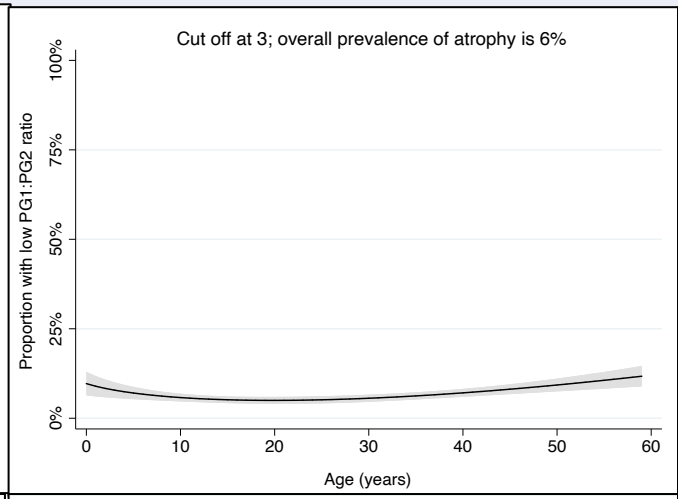
Gastric atrophy: low pep 1:2 ratio (cut-off 3)

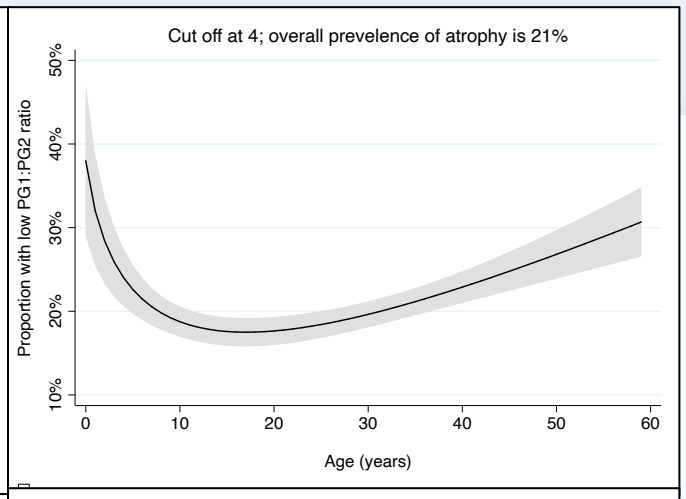


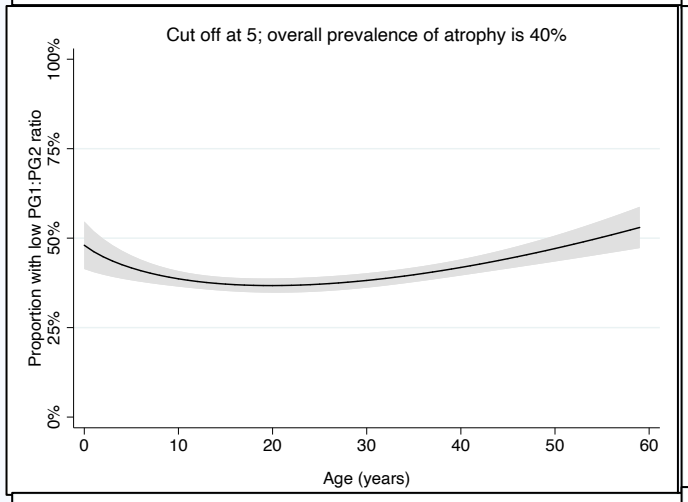
Age less than 60 years

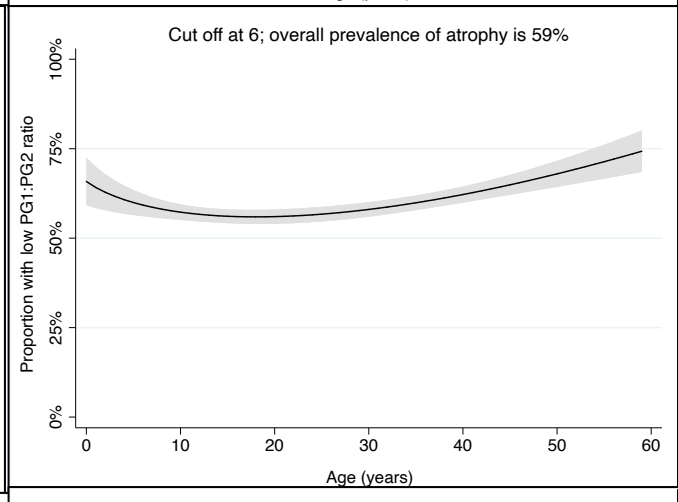
Changing the cut-off

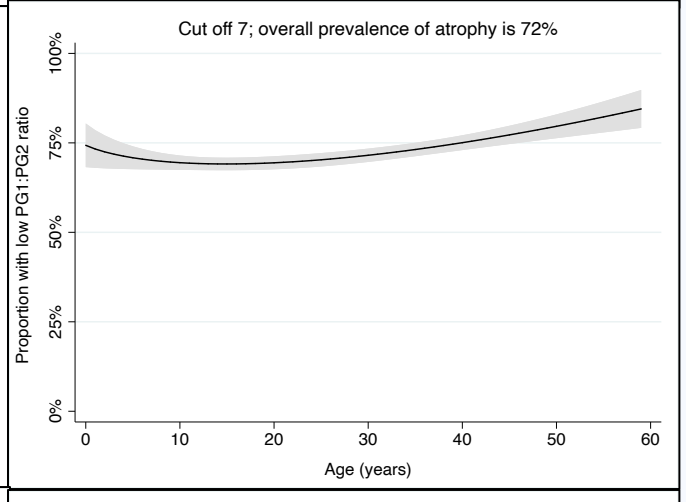


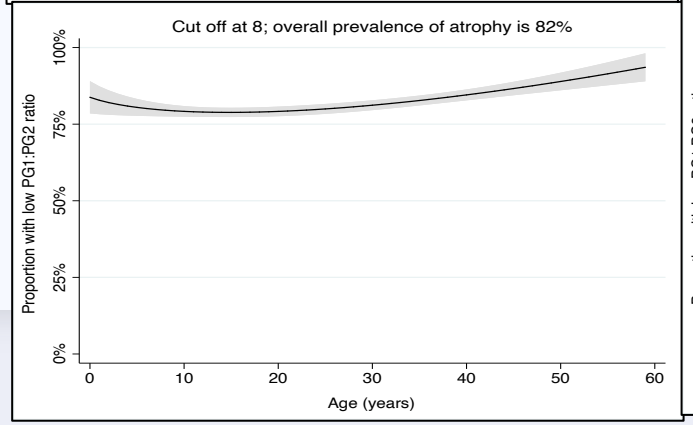


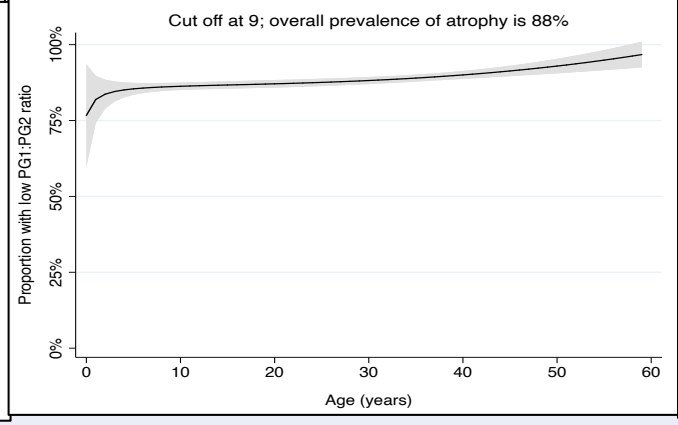


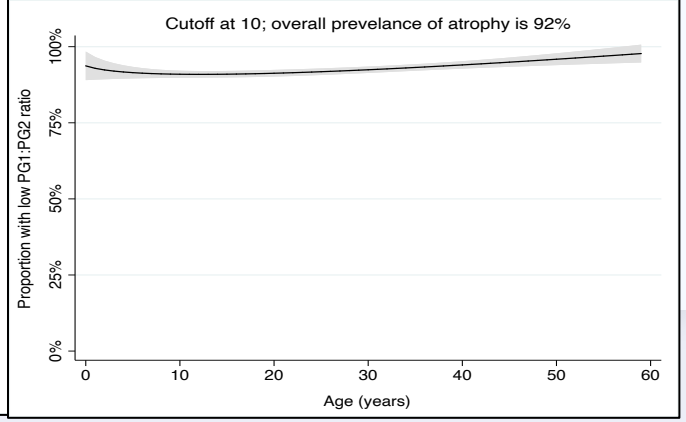












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Associated factors corrected for confounders

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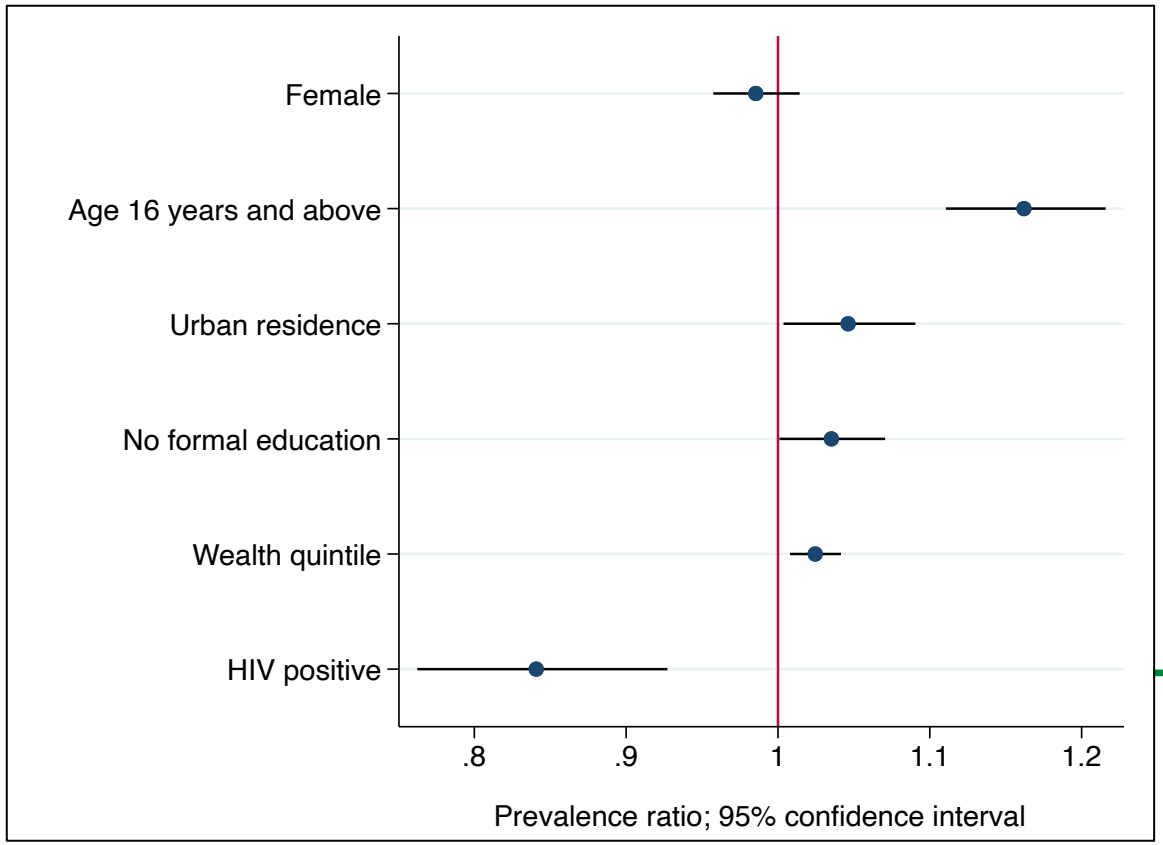
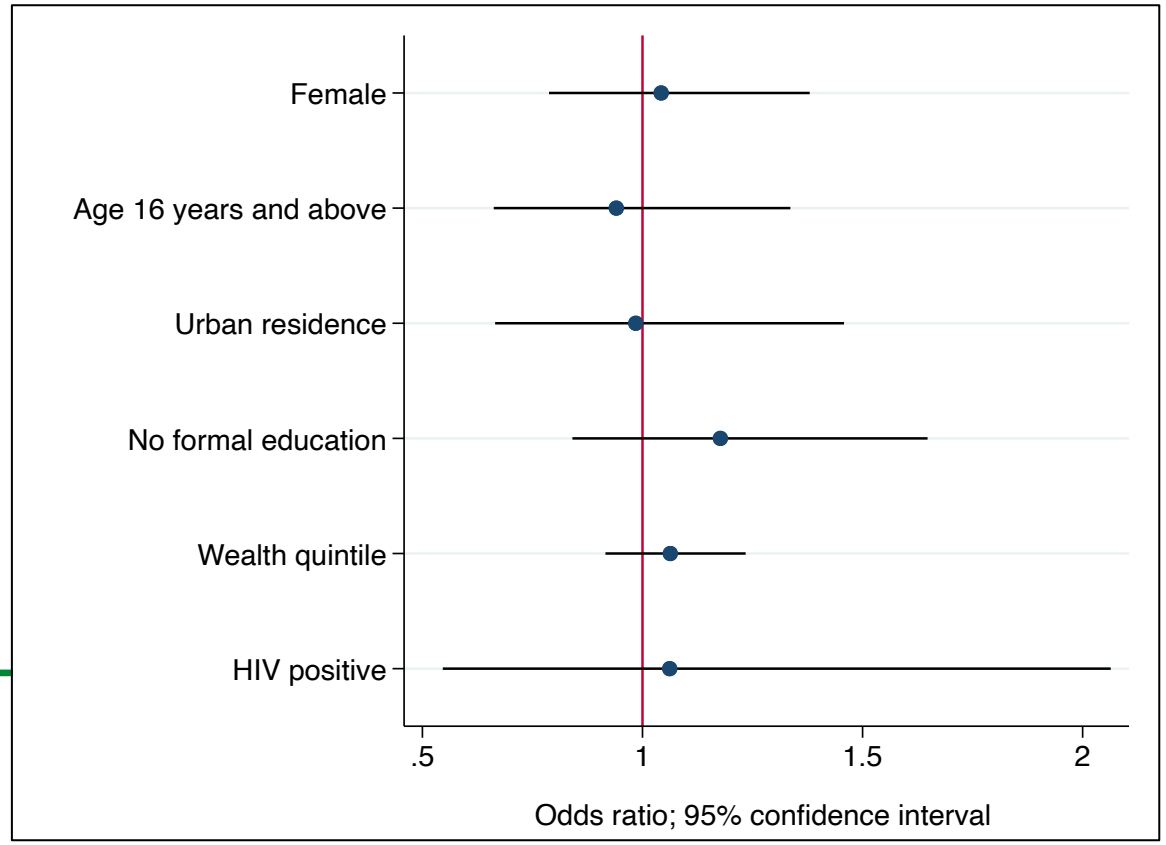
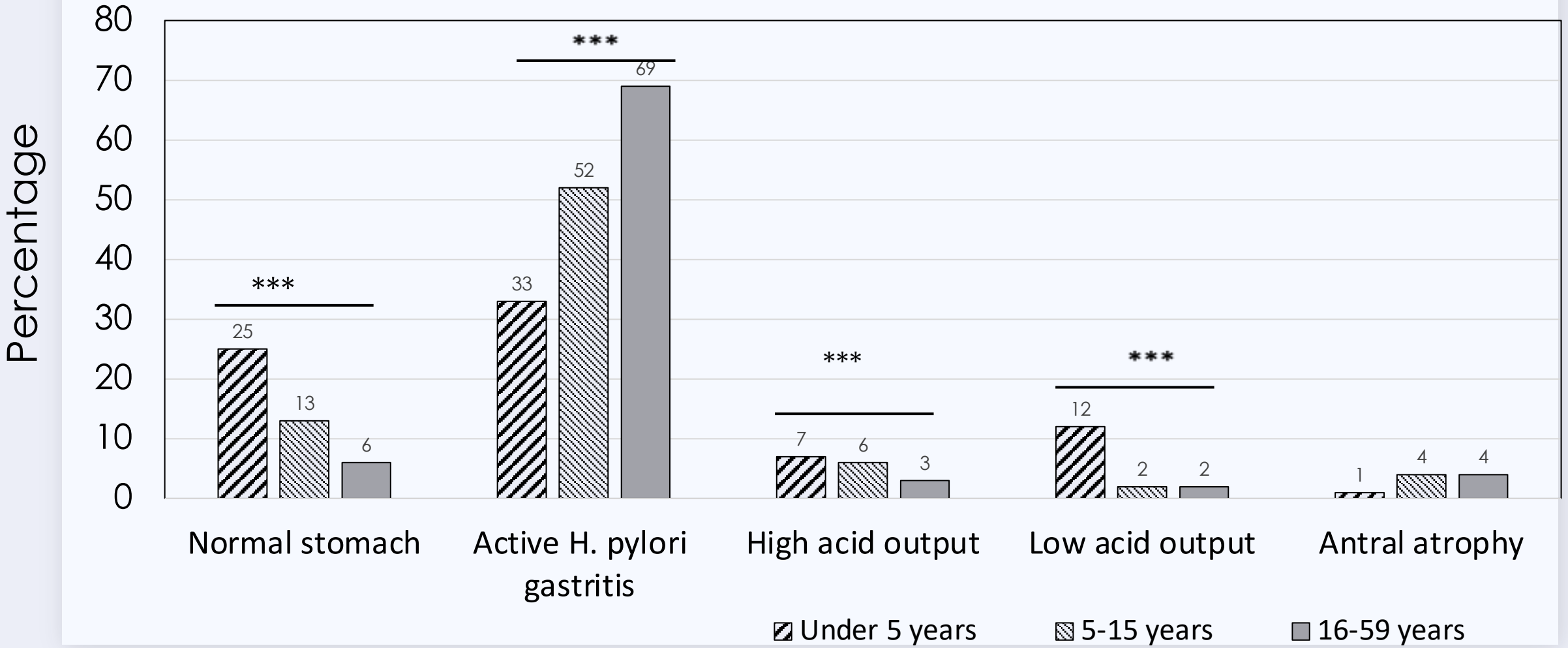


H. Pylori



Gastric atrophy

Aggregated analysis of gastropanel® results using biomarker profiles and their diagnostic equivalents



SUMMARY

1. High prevalence of *H. pylori* seropositivity in Zambia, predominantly in urban settings

2. Prevalence of gastric atrophy is broadly consistent with some populations around the globe (Eastern Europe), but our sample did not include adults over 60 years

Acknowledgements

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