

Assessment of Hepatitis E prevalence blood donors in South Africa

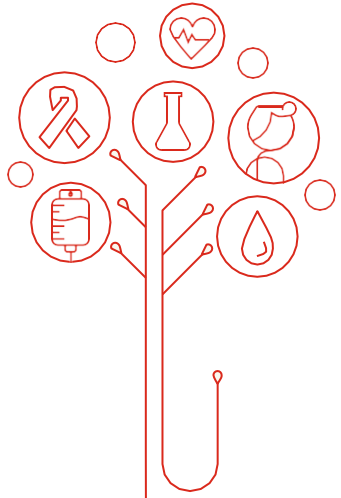
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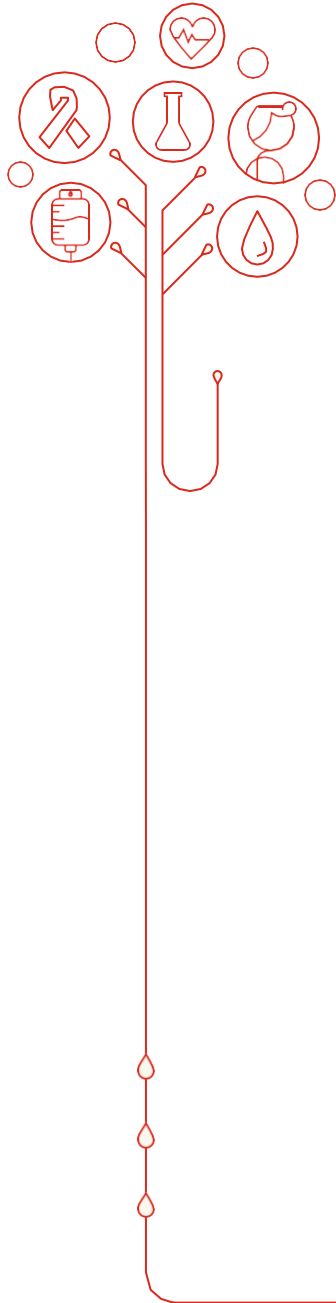




Introduction

- Hepatitis E virus (HEV) is the leading cause of acute hepatitis worldwide > 20 million infections annually
- Type 1 & 2 in developing countries through contaminated water
- Type 3 & 4 consumption of animal products in developed countries
- Is it transmissible through blood: YES
- South Africa largely unknown – Two studies done in the Western Cape reported seroprevalence of 26% and 42,8% respectively and 1/10 000 RNA positive (genotype 3)
- Aim of this study: Assess the seroprevalence of HEV and report on incidence of infections amongst South African blood donors in order to advise on the need for blood screening for HEV

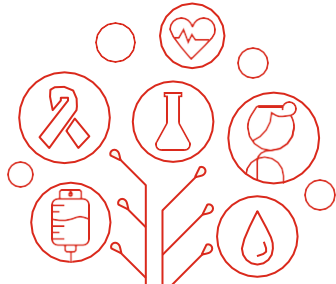




Methods

- Unlinked cross sectional study - January to March 2019
- Incidence of HEV - HEV RNA screening of 15,219 donors (Grifols Procleix HEV Assay)
- 8 geographical regions - 1872 and 2081 per region
- Prevalence though anti-HEV (IgG) screening 560 (70 samples from 8 geographical regions) randomly selected donors (Wantai HEV-IgG ELISA)
- Initial reactive results were repeated for both HEV RNA and anti-HEV and only considered as confirmed if repeatable
- Descriptive statistics, Chi square, bivariate and multivariate analysis were applied.



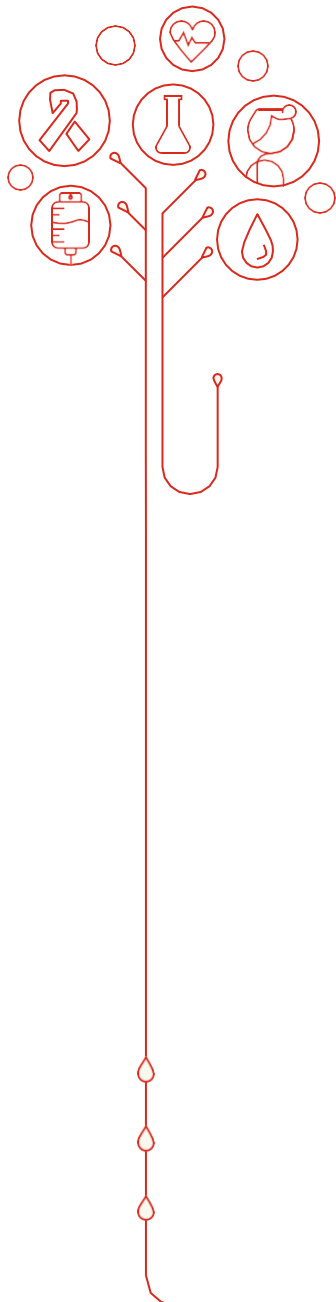


Results



HEV RNA and anti-HEV (IgG) prevalence and assay specificity on routine donor samples

Test	Samples tested (N)	Initial reactives (N)	Repeat reactives (N)	Prevalence % (95% CI)	Specificity % (95% CI)
HEV RNA	15219	19	6	0,04% (0,01% to 0,09%)	99,91% (99,85% to 99,95%)
Anti-HEV (IgG)	560	92	84	14,79% (11,97% to 17,98%)	98,39% (96,77% to 99,28%)



Results

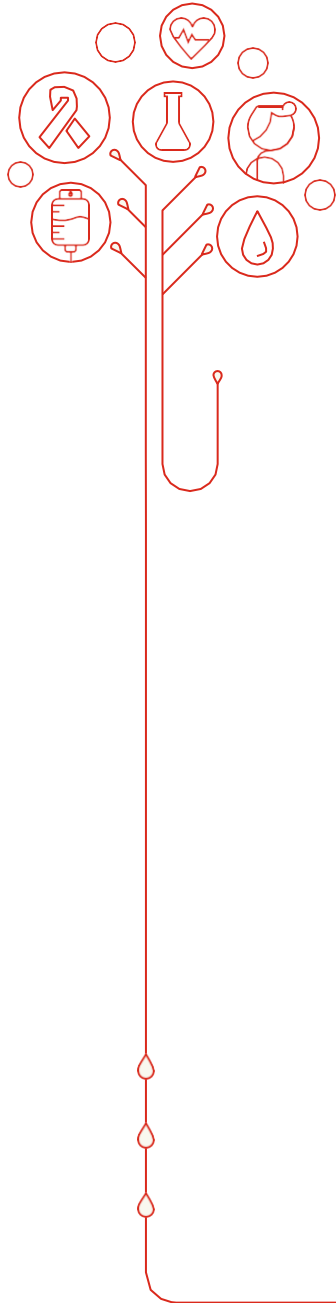
Bivariate analysis of HEV RNA positive associations with donor demographics

	Tested	Positive N (%)	P value
Total	15,219	6 (0.04)	
Donor Type			0.4
Lapsed	903	0 (0)	
New	2,45	0 (0)	
Repeat	11,866	6 (0.05)	
Race			0.77
Asian	1,074	0 (0)	
Black	5,172	1 (0.02)	
Coloured	1,404	1 (0.07)	
White	7,336	4 (0.05)	
Unknown	233	0 (0)	
Zone			0.7
Eastern Cape	1,862	1 (0.05)	
Egoli	2,081	1 (0.05)	
FreeState/NC	1,872	2 (0.11)	
KZN	1,874	0 (0)	
Mpumalanga	1,882	0 (0)	
Northern	1,885	1 (0.05)	
Vaal	1,887	1 (0.05)	
Western Cape	1,876	0 (0)	
Gender			0.94
Female	7,371	3 (0.04)	
Male	7,848	3 (0.04)	

HEV RNA positivity - Multivariable analysis using logistic regression

	aOR (95% CI)	Standard error	P value
Race	1.31 (0.54-3.20)	0.60	0.55
Zone	0.84 (0.59-1.19)	0.15	0.33
Blood type	1.01 (0.73-1.42)	0.17	0.92
Gender	0.92 (0.18-4.56)	0.75	0.92



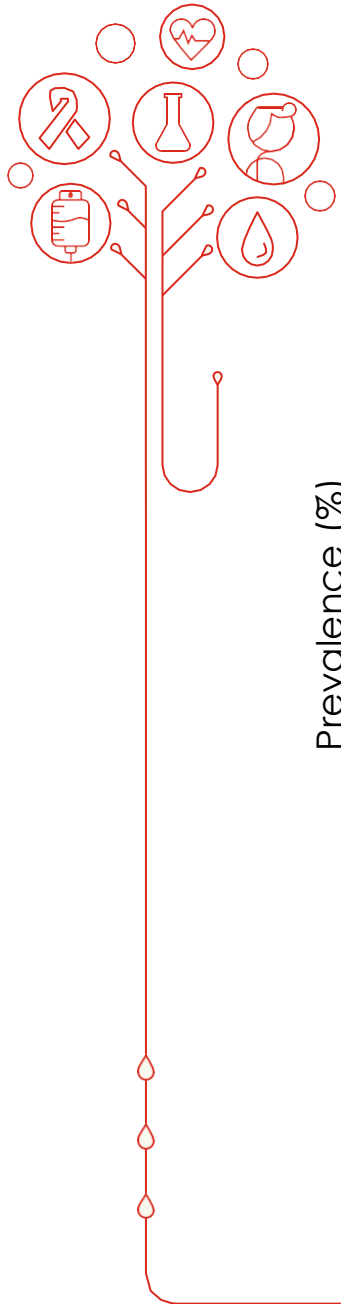


Results

Bivariate analysis of anti-HEV positive associations with donor demographics

	Tested	Positive N (%)	P value
Total	560	84	
Age			
16 to 20	88	4 (4,55)	0,02
21 to 25	57	4 (7,02)	0,18
26 to 30	61	6 (9,84)	0,53
31 to 35	47	2 (4,26)	0,05
36 to 40	55	8 (14,55)	0,96
41 to 45	57	17 (29,82)	0,002
46 to 50	61	10 (16,39)	0,52
51 to 55	54	12 (22,22)	0,03
56 to 60	32	6 (18,75)	0,31
Over 60	48	15 (31,25)	Ref
Race			
Asian	52	2 (3,85)	0,22
Black	173	19 (22,62)	0,76
Coloured	39	13 (33,33)	0,049
White	288	50 (17,36)	Ref
Unknown	8	0	
Zone			
Eastern Cape	69	9 (13,04)	0,53
Egoli	70	7 (10)	0,43
FreeState/NC	70	12 (17,14)	0,57
KZN	70	3 (4,29)	0,15
Mpumalanga	70	7 (10)	0,73
Northern	70	14 (17,14)	0,33
Vaal	70	10 (14,29)	0,54
Western Cape	70	22 (31,43)	Ref
Gender			
Female	266	33 (12,41)	0,17
Male	294	51 (17,35)	

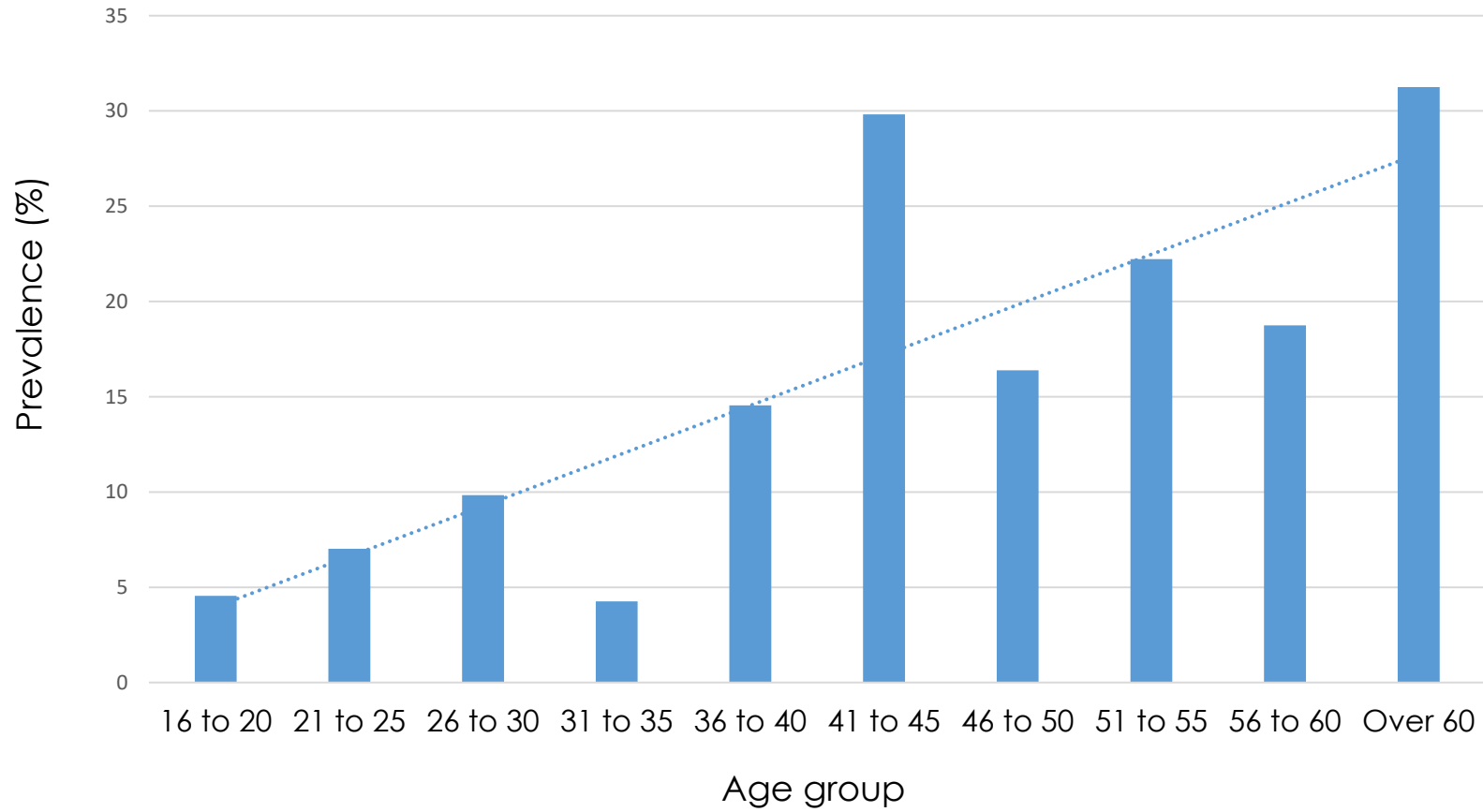


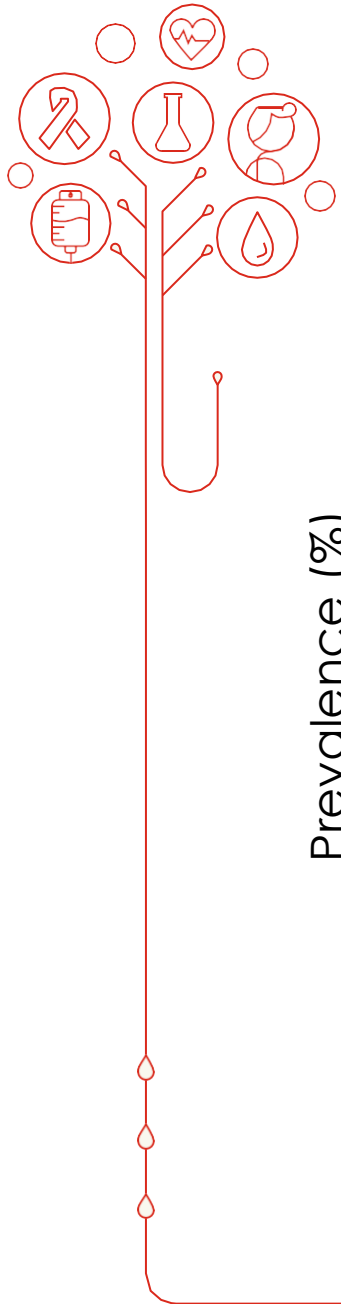


Results



Anti-HEV prevalence (%) by age

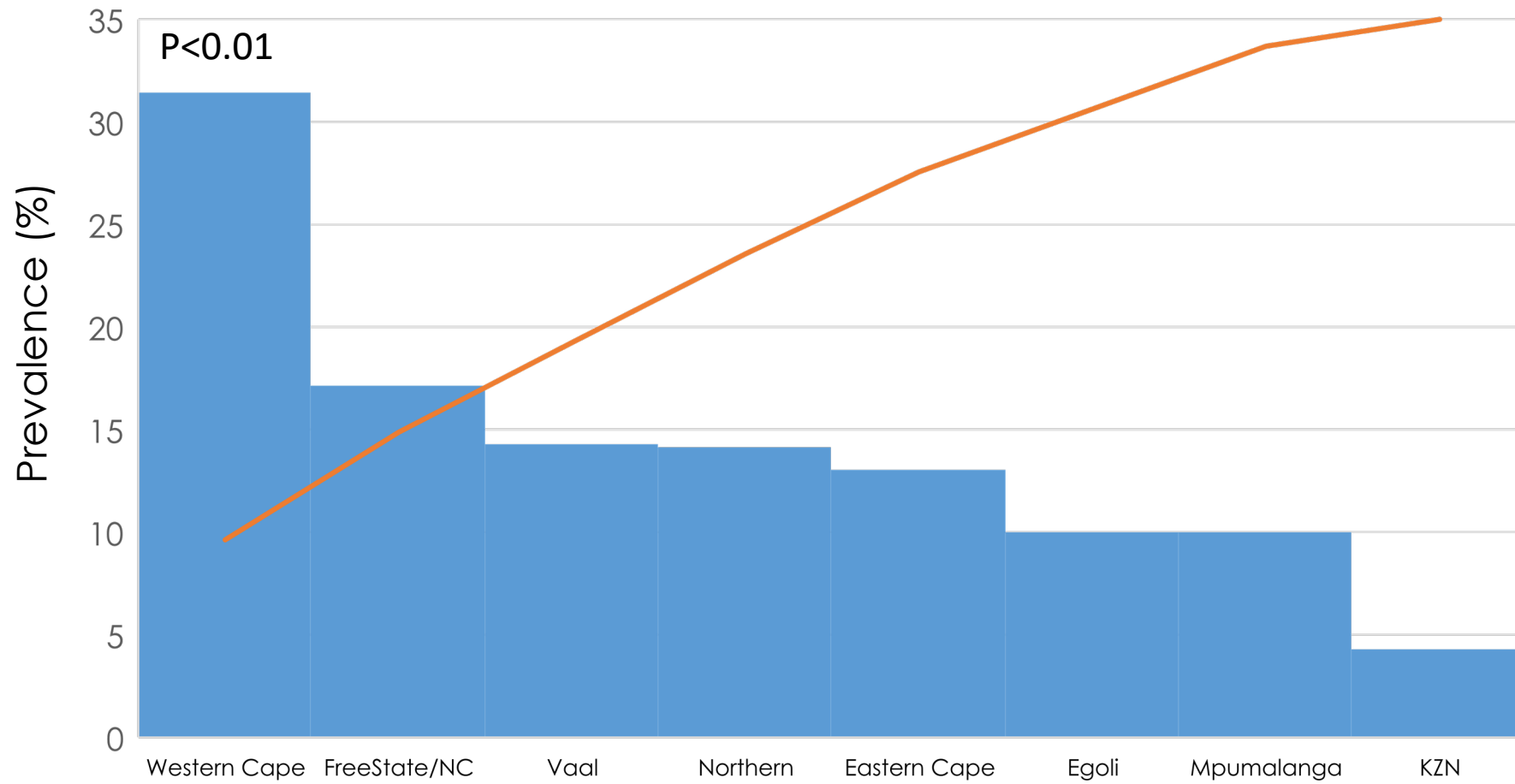


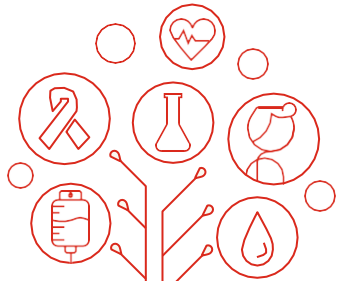


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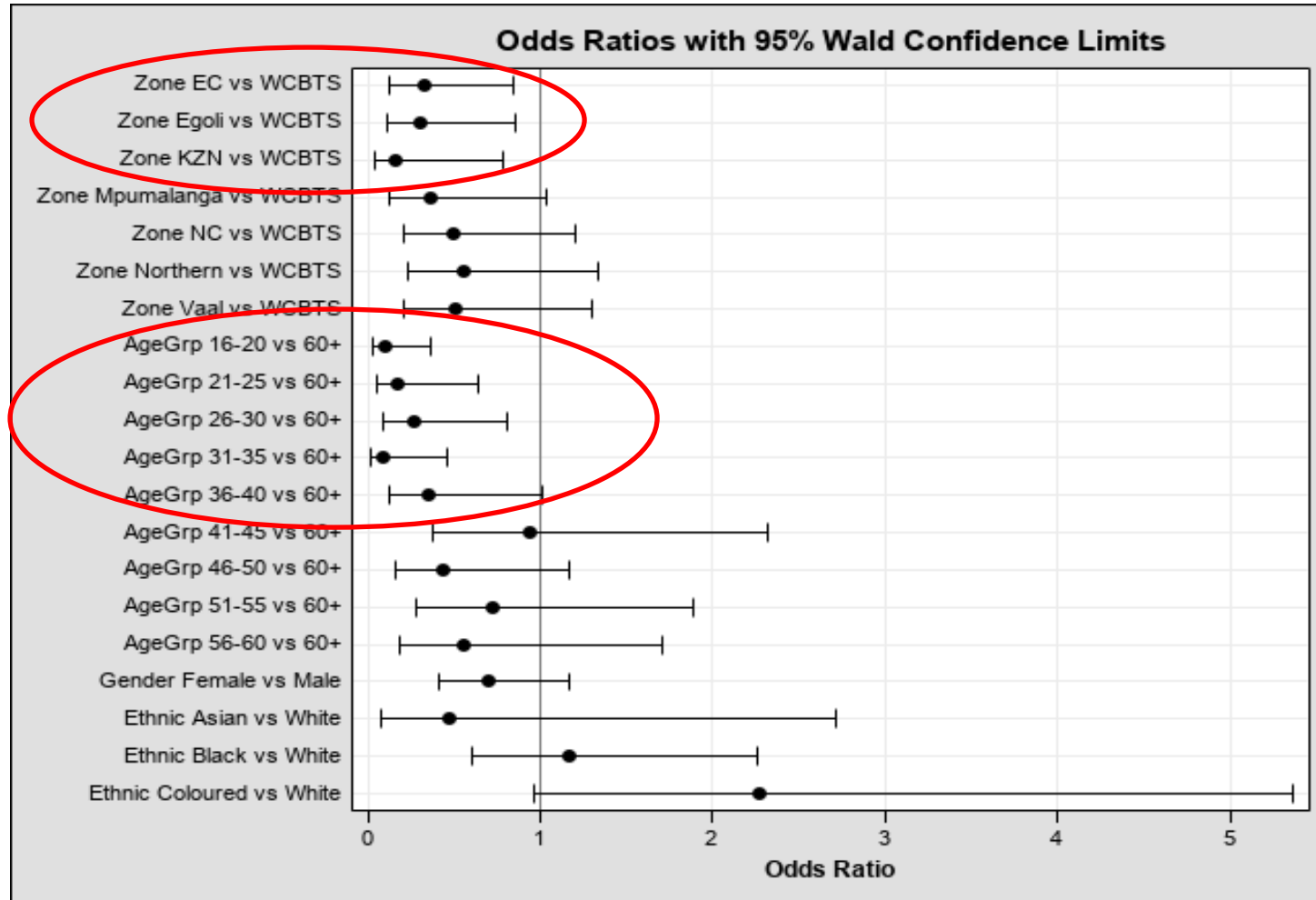


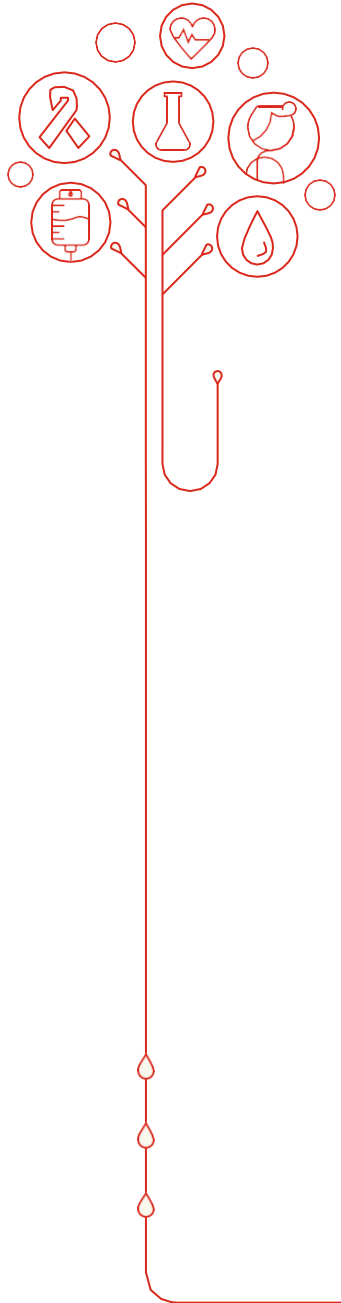
Anti-HEV prevalence by geographic area





Results





Discussion

- Exposure to Hepatitis E as reflected by the presence of antibodies is a reality
- Significantly higher prevalence in the Western Cape – reason unknown (more information on genotypes required)
- Age association have been seen in other countries
- Majority of immunocompetent individuals will remain asymptomatic, but possible threat to immunocompromised patients, pregnant women or children under 2 years of age as an increased mortality rate have been observed in these groups
- Based on the low incidence and associated risk, blood services in South Africa still decided not to implement routine screening for HEV



Thank you