

Etiological Agents and Associated Factors of Diarrhoea Among Children under five Years in Bukoma and Magombe Community Units, Busia County-Kenya

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BACKGROUND

Diarrhoea is a major global health problem among children under five years. Approximately 1.7 billion cases and 525,000 deaths reported annually. Sub-Saharan Africa accounts for approximately 30 million severe cases and 330,000 deaths. Diarrhoea ranks seventh among leading causes of morbidity with around 17,000 child deaths annually in Kenya. Busia County is among the highest in prevalence with Bunyala Sub-County accounting for over 70% of the cases in 2021. Bukoma and Magombe community units (CUs) in this Sub-County were the most affected according to this study.

OBJECTIVE

- To determine etiological agents and associated risk factors of diarrhoea in Bukoma and Magombe CUs, Busia County.

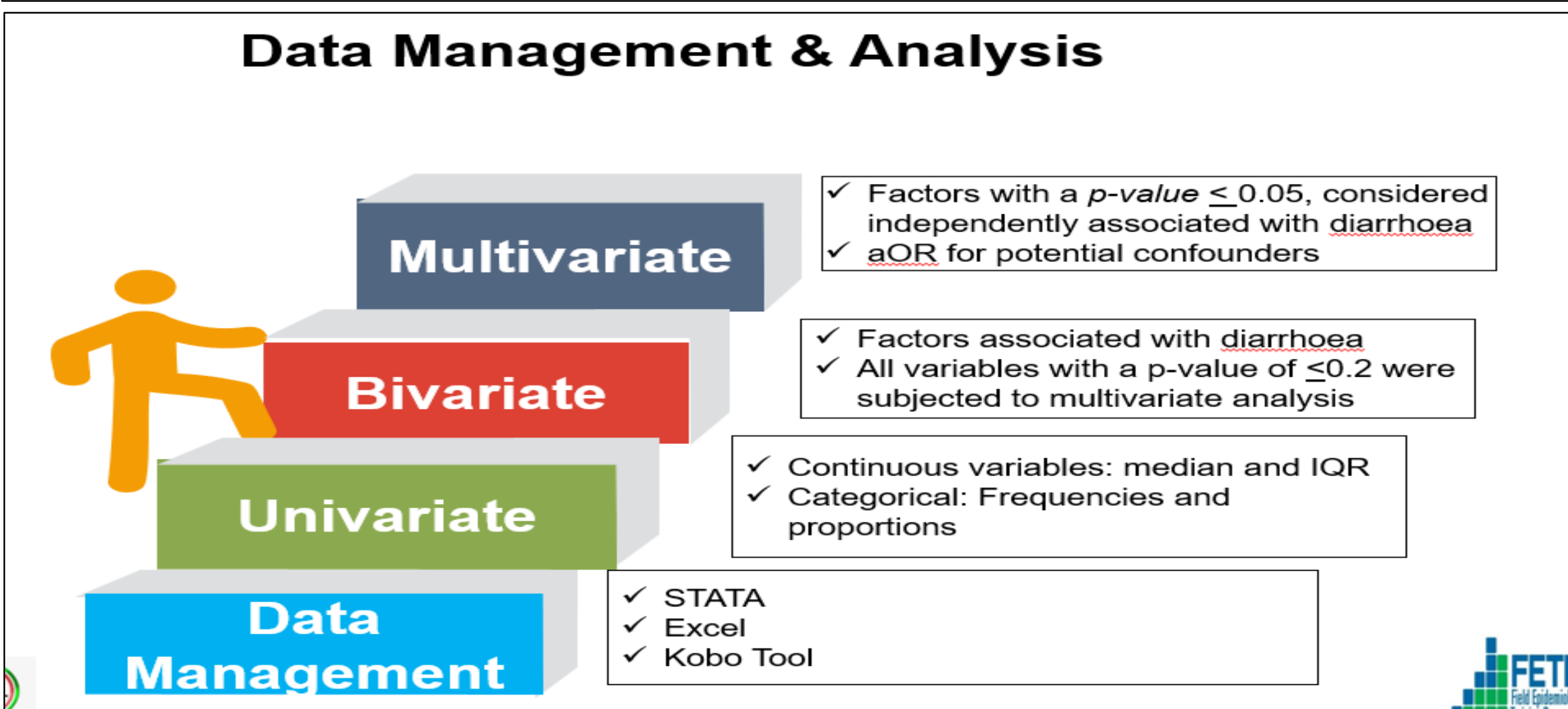
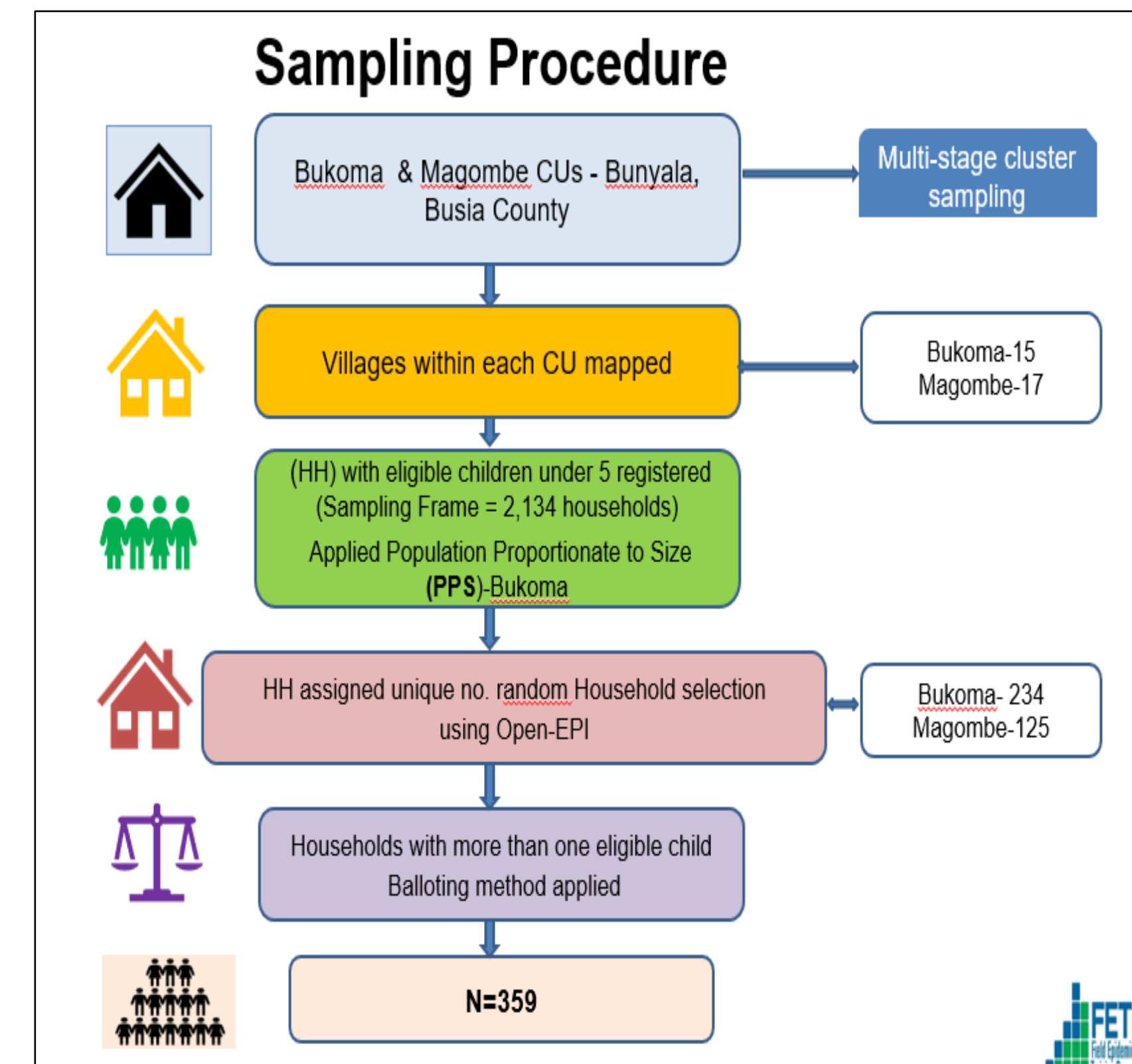
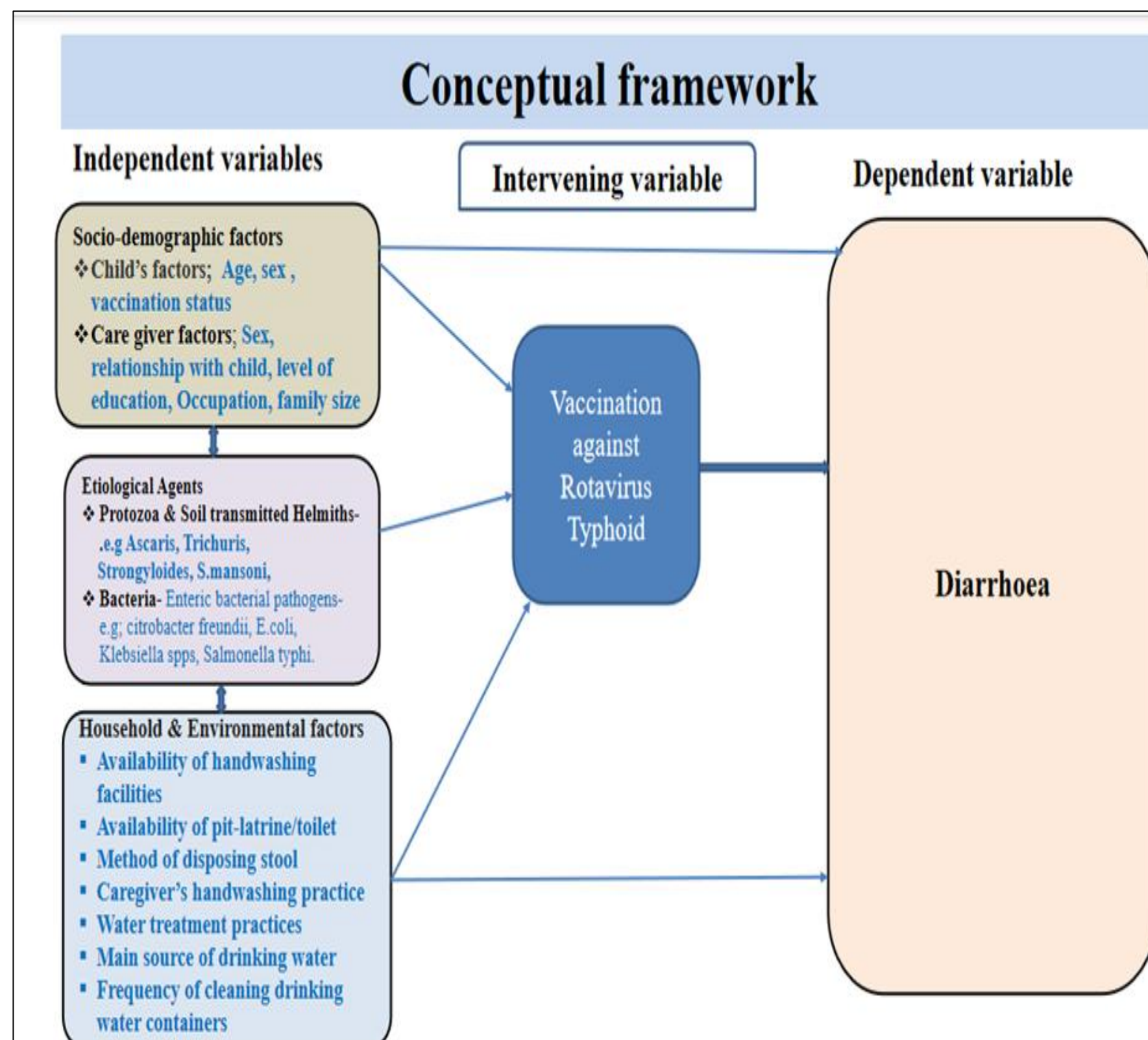
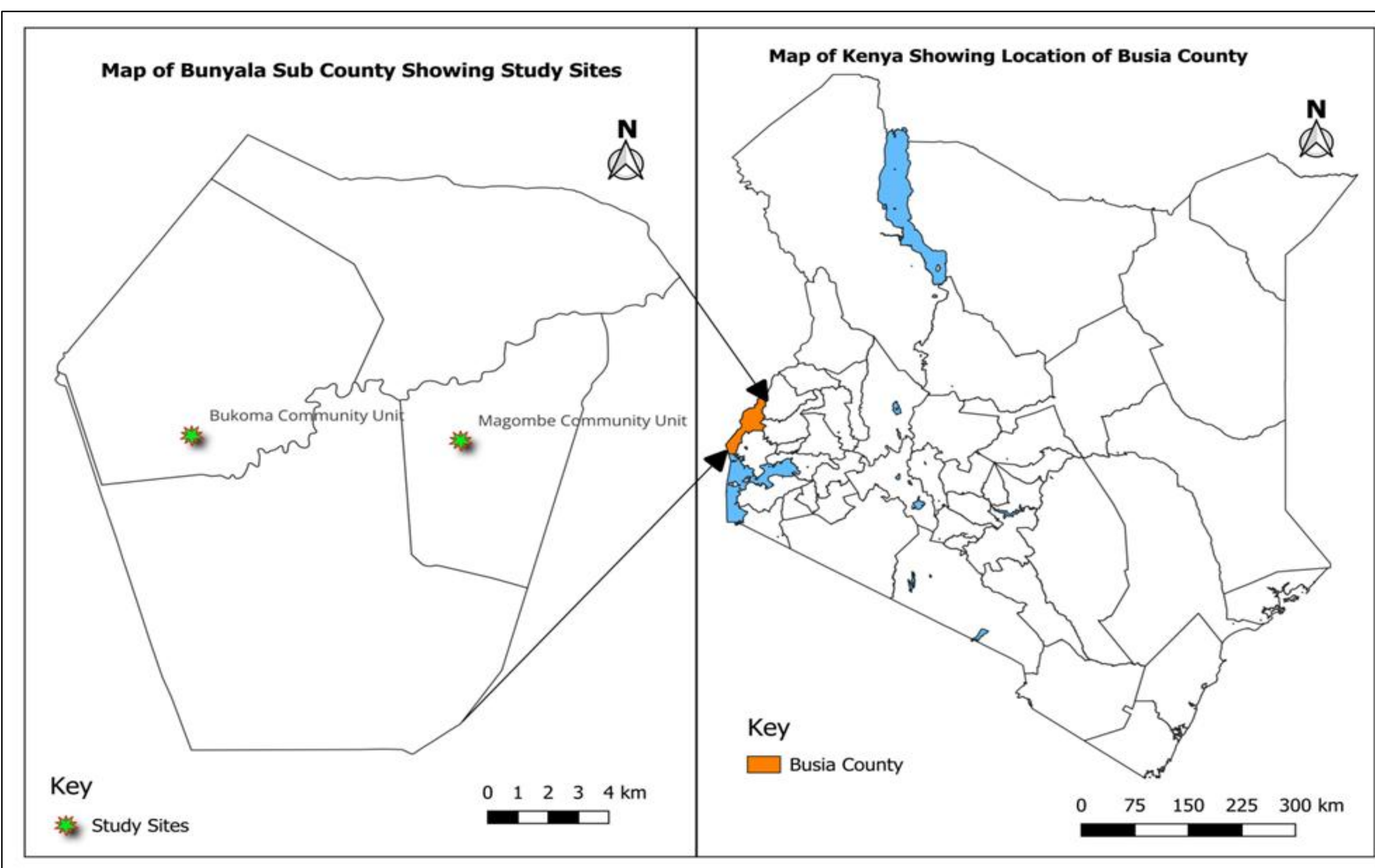
Specific objectives:

- To describe socio-demographic characteristics.
- Determine etiological agents
- Determine household factors associated with diarrhoea among children under-five years in Bukoma and Magombe Community Units.

METHODOLOGY: A community-based cross-sectional study was conducted in Bukoma and Magombe Community Units, purposively selected due to increased diarrhoea incidence.

Using a multistage sampling strategy, 359 children under five years were recruited from a sampling frame of 2,134 households. Villages were mapped, households with eligible children enumerated and Probability Proportional to Size applied to ensure fair representation. Simple random sampling was then used to select study households.

STUDY AREA: Bukoma & Magombe Community units, Bunyala, Busia- Kenya



Multivariate analysis of factors associated with diarrhoea among children aged under five years in Bukoma and Magombe Community Units in Bunyala Sub-County, 2023

Characteristic (n=359)	AOR (95% C.I)	p-value
Water treatment method		
Chlorination	REF	
Allows to settle	3.74(0.51,27.5)	0.194
Boiling	4.16(0.56,31.03)	0.164
Does not treat	3.1(1.2,7.85)	0.019
Filtration	0.68(0.13,3.53)	0.646
Ways of disposing child stool		
In the latrine	REF	
Burying	5.58(0.91,34.09)	0.063
In Lake or river	24.1(6.09,96.04)	<0.001
left in the open	1(0.12,8.41)	1.000
Other	1	-
Frequency of cleaning drinking water containers		
Daily	REF	
Never	87.0 (6.4,193.94)	0.001
Once a month	1	-
Once a week	1.79(0.51,6.28)	0.36
When I see dirt	0.6(0.11,3.45)	0.569
Sources of drinking water		
Piped into dwelling	1.93(0.54,6.87)	0.31
River or Lake	1	-
Piped into compound	1.19(0.29,4.91)	0.807

RESULTS: Diarrhoea affected **48.2%** of under-five children. **Key risk factors included untreated drinking water, unsafe stool disposal in lakes/rivers, direct consumption of lake water, poor hygiene, and unclean water storage containers. Ascaris lumbricoides** was the most common parasite, while **Salmonella typhi** was the leading pathogenic bacterial isolate. **Multivariable analysis identified untreated water, unsafe stool disposal, and failure to clean storage containers** as independent predictors of diarrhoea.

Distribution of the pathogens among children under five years in Bukoma and Magombe Community Units

Characteristic (n=359)	Overall (N=359)		Community Unit Bukoma (N=234)		Magombe (N=125)	
	Freq	Percent	Freq	Percent	Freq	Percent
Parasitology Findings						
No ova/cyst	241	67.10	141	60.30	100	80.00
<i>Ascaris lumbricoides</i> ova	40	11.10	28	12.00	12	9.60
<i>Schistosoma mansoni</i> ova	29	8.10	29	12.40	0	0.00
Hookworm ova	22	6.10	21	9.00	1	0.80
<i>Entamoeba histolytica</i> trophs	14	3.90	8	3.40	6	4.80
<i>Giardia lamblia</i> trophs	5	1.40	4	1.70	1	0.80
<i>Entamoeba histolytica</i> cyst	3	0.80	0	0.00	3	2.40
<i>Trichuris trichuria</i> ova	2	0.60	1	0.40	1	0.80
<i>Strongyloides stercoralis</i> larvae	2	0.60	1	0.40	1	0.80
<i>Trichomonas hominis</i> trophs	1	0.30	1	0.40	0	0.00
Culture Findings						
<i>Escherichia coli</i>	229	63.80	125	53.40	104	83.20
No growth obtained	71	19.80	58	24.80	13	10.40
<i>Salmonella typhi</i>	41	11.40	34	14.50	7	5.60
<i>Citrobacter freundii</i>	12	3.30	11	4.70	1	0.80
<i>Klebsiella</i>	6	1.70	6	2.60	0	0.00

DISCUSSION

Diarrhoea among under-five children is driven mainly by poor WaSH conditions and socio-demographic vulnerabilities. Caregiver factors such as low education may limit proper childcare practices. No strong link was found with specific pathogens, suggesting environmental exposure as the main cause. Key risks include unsafe water, poor sanitation, and inadequate hygiene.

CONCLUSIONS

Diarrhoea remains highly prevalent among under-five children in Bukoma and Magombe, driven predominantly by **unsafe water, poor sanitation, and inadequate hygiene practices**. Interventions focusing on **household water treatment, safe stool disposal, and improved hygiene behaviors** are critical to reducing the burden of disease in these communities.

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