

Oludoyinmola Ojifinni<sup>1</sup>, Abiola Fasina-Ayoola<sup>2,3,4</sup>, Adebisi Adeyeye<sup>2</sup>, Francis Olajide<sup>2</sup> Joao Vissoci<sup>4</sup> Catherine Staton<sup>4</sup>

<sup>1</sup>University of the Witwatersrand, Johannesburg, South Africa. <sup>2</sup>Emergency Healthcare Consultants, Yaba, Lagos, Nigeria. <sup>3</sup>R Jolad Hospital, Lagos, Nigeria. <sup>4</sup>GEMINI Research Center, Duke University, North Carolina USA

In this study, using the SIRS criteria for sepsis diagnosis, 53.1% of patients met two, and 38.9% met three of the four criteria. Additionally, 82.9% of the patients were diagnosed with malaria by blood film. Notably, 22.7% reported using antimalarials prior to hospital admission of whom 47.8% were self-administered, while 24.2% had used antibiotics prior to presentation. There is a need for caution in the application of the SIRS criteria for sepsis until further analysis shows its utility in malaria endemic settings.

## BACKGROUND

Emergency departments (EDs) often use the Systemic Inflammatory Response Syndrome (SIRS) to identify patients with sepsis<sup>1</sup>. SIRS is the occurrence of at least two of the following: fever >38.0°C or hypothermia <36.0°C, tachycardia >90 beats/minute, tachypnoea >20 breaths/minute, leucocytosis >12\*10<sup>9</sup>/l or leucopenia <4\*10<sup>9</sup>/l<sup>2</sup>. In this study, we assessed the utility of the SIRS criteria in a private hospital ED in Nigeria where malaria is endemic and infectious diseases are prevalent.

## METHODS

Using data prospectively collected in an ongoing sepsis registry, we conducted a cross-sectional analysis of the patients' demographic information, number of SIRS criteria met, antibiotic and antimalarial use before presentation and malaria diagnosis at presentation.

## RESULTS

Table 1. Socio-demographic characteristics of participants

		Frequency	Percent (%)
Gender	Male	267	44.50
	Female	333	55.50
Age	Paediatrics	182	30.33
	Adults	418	69.67
Total		600	100

Mean age = 33.5 ± 24.6 years

Fig 1. Malaria Diagnosis

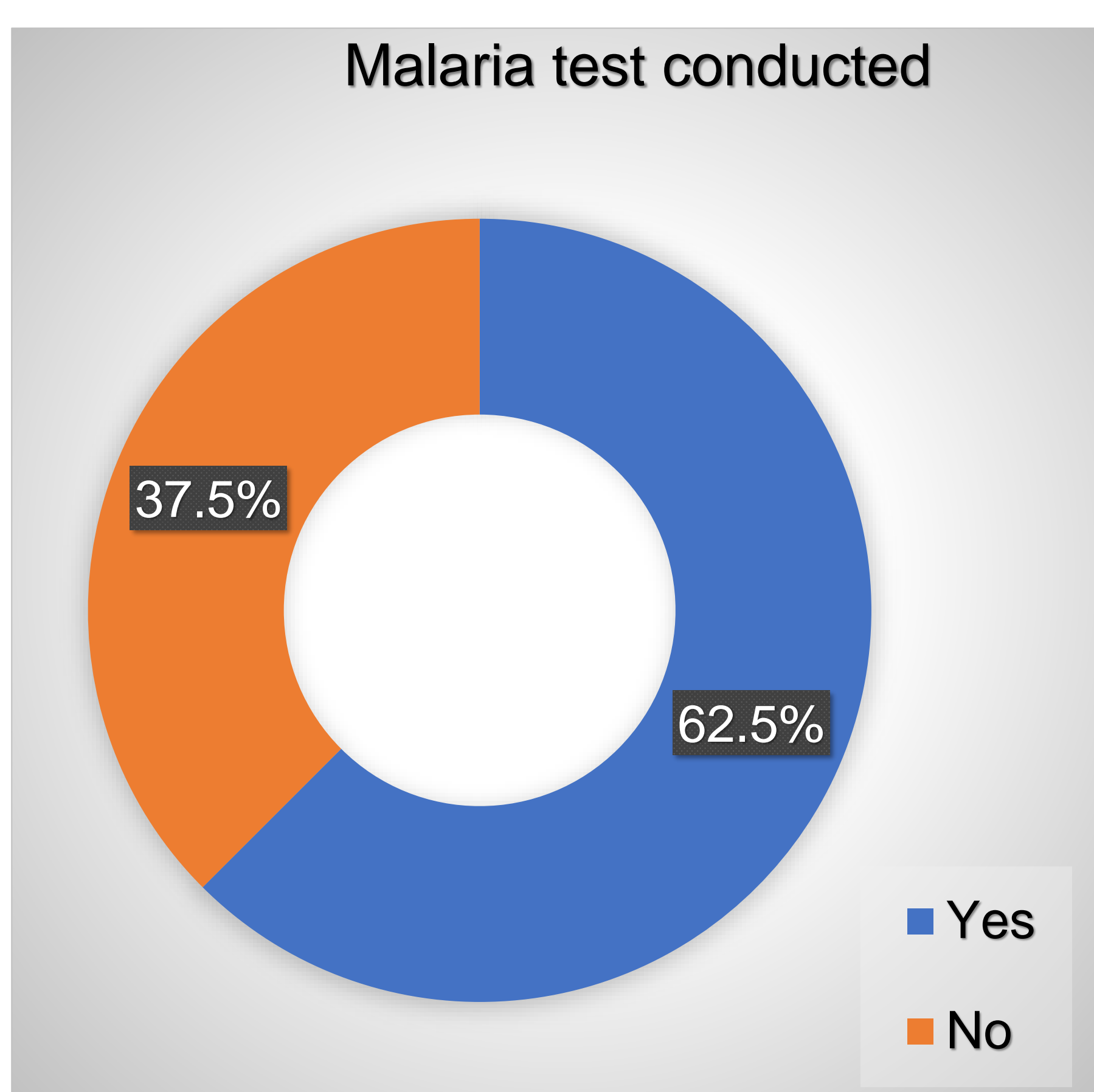
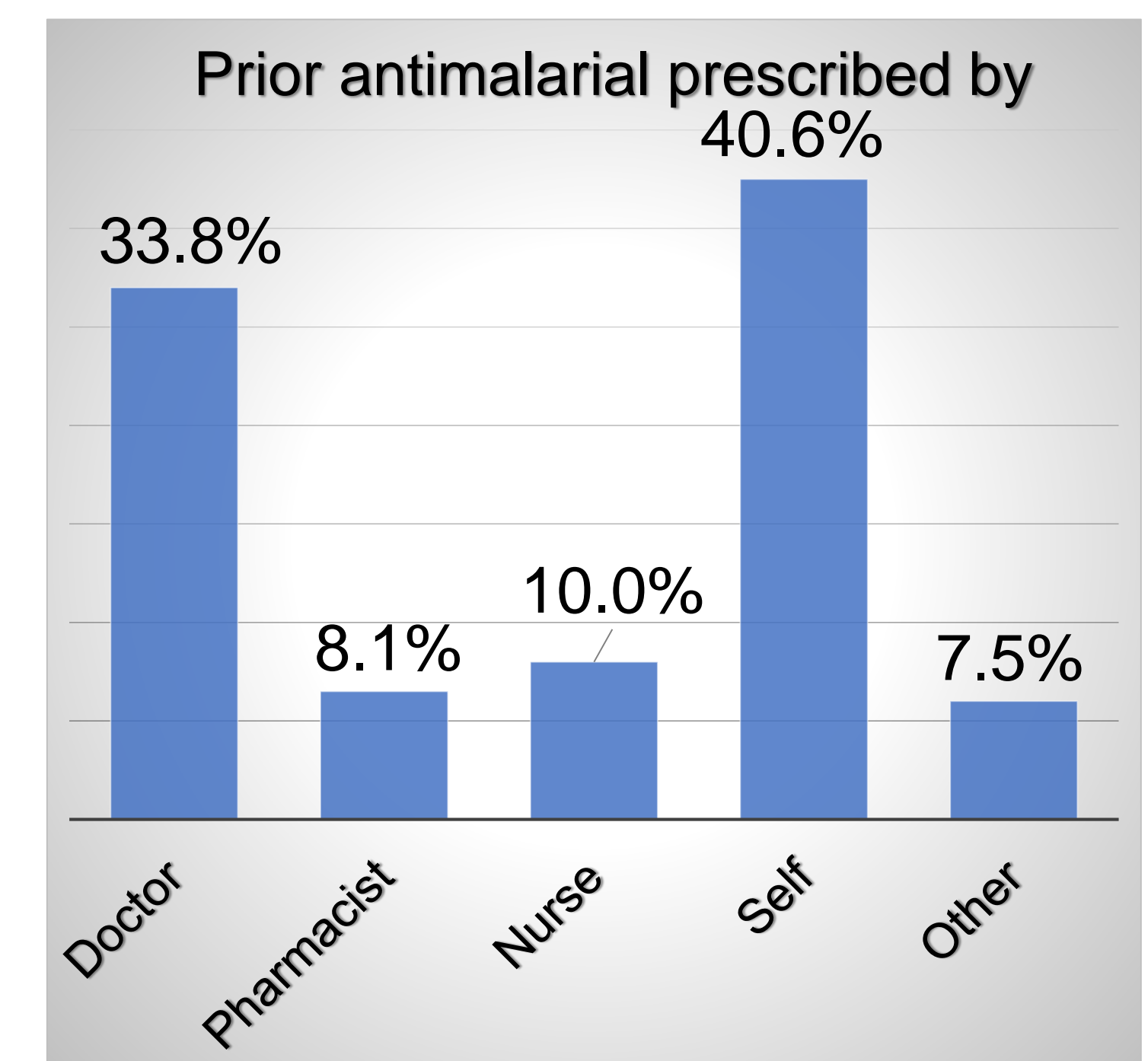
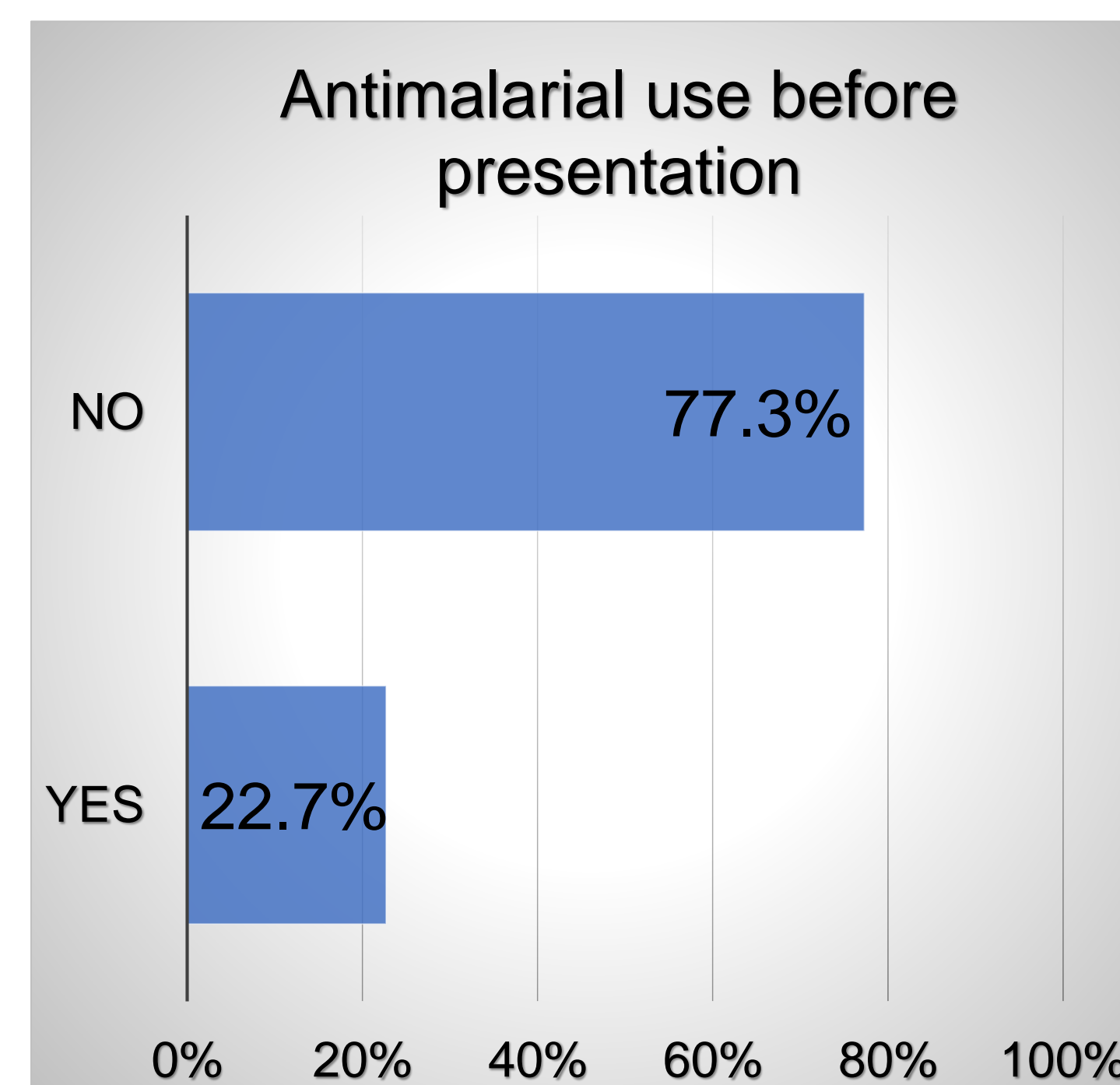


Table 2. Associations with SIRS criteria

CHARACTERISTICS	Number of SIRS criteria met			Chi-Square p-value	
	2	3	4		
<b>Gender</b>				1.784	0.410
Male	132 (49.4%)	112 (42.0%)	23 (8.6%)		
Female	181 (54.4%)	122 (36.6%)	30 (9.0%)		
<b>Age</b>				14.312	0.281
0 - 8	87 (59.2%)	47 (32.0%)	13 (8.8%)		
9 - 17	15 (42.9%)	16 (45.7%)	4 (11.4%)		
18 - 29	50 (51.5%)	38 (39.2%)	9 (9.3%)		
30 - 41	63 (56.3%)	39 (34.8%)	10 (8.9%)		
42 - 53	43 (56.6%)	27 (35.5%)	6 (7.9%)		
54 - 64	21 (40.4%)	28 (53.8%)	3 (5.8%)		
65 & Above	34 (42.0%)	39 (48.1%)	8 (9.9%)		
<b>Level of Education</b>				4.67	0.587
No formal education	65 (56.0%)	41 (35.4%)	10 (8.6%)		
Primary education	54 (55.1%)	32 (32.7%)	12 (12.2%)		
Secondary education	43 (49.4%)	36 (41.4%)	8 (9.2%)		
Tertiary education	151 (50.5%)	125 (41.8%)	23 (7.7%)		
<b>Used Antimalarials before presentation</b>				0.606	0.739
Yes	245 (52.8%)	180 (38.8%)	39 (8.4%)		
No	68 (50.0%)	54 (39.7%)	14 (10.3%)		
<b>Used Antibiotics before presentation</b>				0.513	0.774
Yes	241 (53.0%)	174 (38.2%)	40 (8.8%)		
No	72 (49.7%)	60 (41.3%)	13 (9.0%)		
<b>Malaria Diagnosis by the blood film</b>				0.313	0.209
Yes	248 (50.8%)	196 (40.2%)	44 (9.0%)		
No	61 (60.4)	32 (31.7%)	8 (7.9%)		

Fig 2. Antimalarial use before presentation Fig 3. Antimalarial prescription given by



## CONCLUSION

Although not statistically significant, a high proportion of patients who met the diagnosis the SIRS criteria for sepsis had an additional diagnosis of malaria in this study. There is thus a need for further assessment of the use of the SIRS criteria as a diagnostic tool for sepsis where malaria is endemic. Further, it is important to develop locally relevant diagnostic tools for settings where parasitic infectious are prevalent.

## REFERENCES

- Chou, H., Han, S., Yeh, C., Tzeng, I., Hsieh, T., Wu, C., Kuan, J., & Chen, K. (2016). Systemic inflammatory response syndrome is more associated with bacteremia in elderly patients with suspected sepsis in emergency departments. *Medicine*, 95(49), e5634.
- Chakraborty, R. K., & Burns, B. (2023, May 29). Systemic Inflammatory Response Syndrome. *StatPearls - NCBI Bookshelf*.