

Etiologies and Outcome of Adults Acute Febrile Illness in Urban Outpatient Clinics in Tanzania

Noémie Boillat-Blanco^{1,3}, Zainab Mbarack⁴, Samaka Josephine², Tarsis Mlaganile², Teckla Kazimoto², Aline Mamin⁵, Blaise Genton^{1,3,6}, Laurent Kaiser⁵, Valérie D'Acremont^{1,6}

¹Swiss TPH, Basel, Switzerland; ²Ifakara Health Institute, Dar es Salaam, Tanzania; ³Infectious Diseases Service, University Hospital of Lausanne, Switzerland; ⁴Mwananyamala Hospital, Dar es Salaam, Tanzania; ⁵Virology Laboratory, University Hospital of Geneva, Switzerland; ⁶Department of Ambulatory Care and Community Medicine, Lausanne, Switzerland

INTRODUCTION AND PURPOSE

- Fever is one of the most frequent reason of attendance at health facilities.
- Little is known about etiologies of fever in adults which urge clinicians to overprescribe antimicrobials.
- We investigated causes of fever among adults attending outpatient clinics in Dar es Salaam, Tanzania.

METHODS

- Consecutive patients >18 years with tympanic temperature $\geq 38^{\circ}\text{C}$ were recruited.
- Detailed medical history and clinical examination were done.
- On site, 10 point-of-care tests were used:



BLOOD Malaria | Dengue | Typhoid | HIV | Syphilis | Crypto
URINE Urine dipstick - Tuberculosis LAM
THROAT Strepto A
STOOL Rota/Adeno

- Blood cultures, serological and molecular analyses on blood and PCR on nasal/throat swabs were done.
- Chest X-rays were performed when WHO criteria for clinical pneumonia were met.
- Urine culture, stool culture and Xpert MTB/RIF were performed according to algorithms.
- Final diagnoses were based on pre-defined criteria.

RESULTS

Study Population

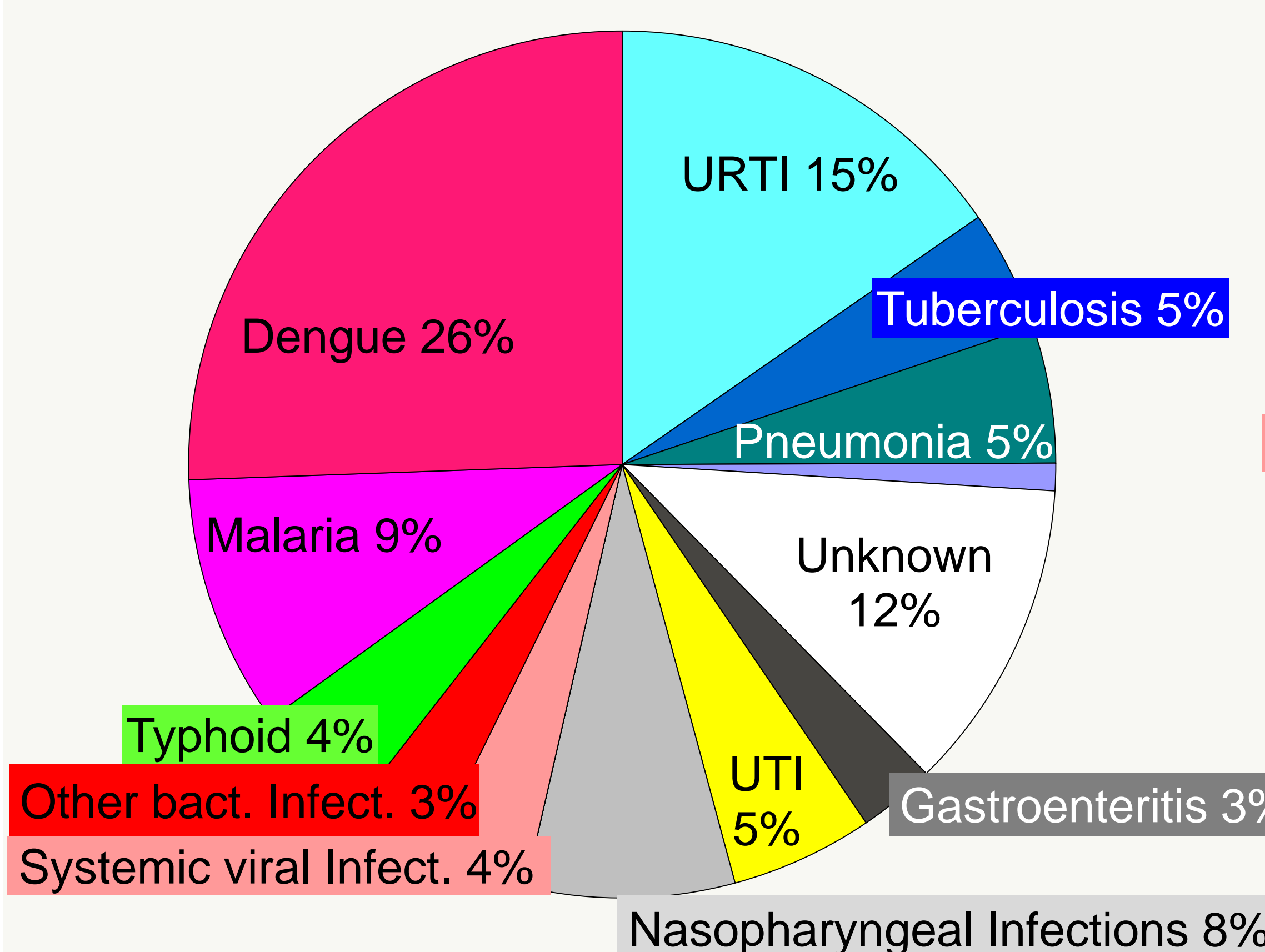
	All (N=520)	HIV- (N=392)	HIV+ (N=128)	
Age, mean (sd)	33 (13)	32 (13)	36 (10)	
Male sex	242 (47%)	198 (51%)	44 (36%)	*
HIV infection	128 (25%)	-	-	
Severe infection	62 (12%)	31 (8%)	31 (24%)	*
Admission	81 (16%)	46 (12%)	35 (27%)	*
Death (day 7)	25 (5%)	15 (12%)	10 (3%)	*

*P<0.05

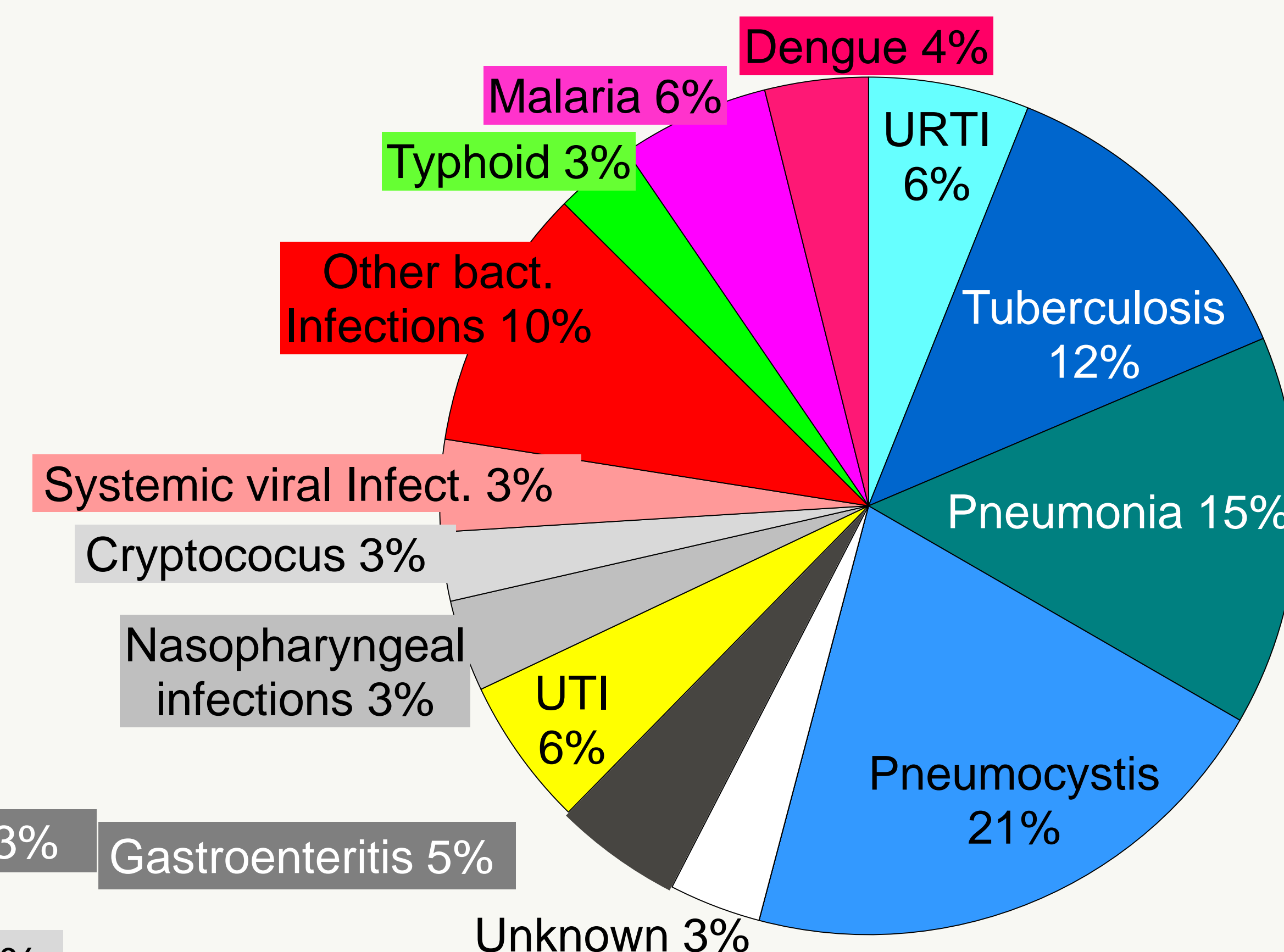
RESULTS

Distribution of diagnoses among 520 patients included between July 2013 and May 2014

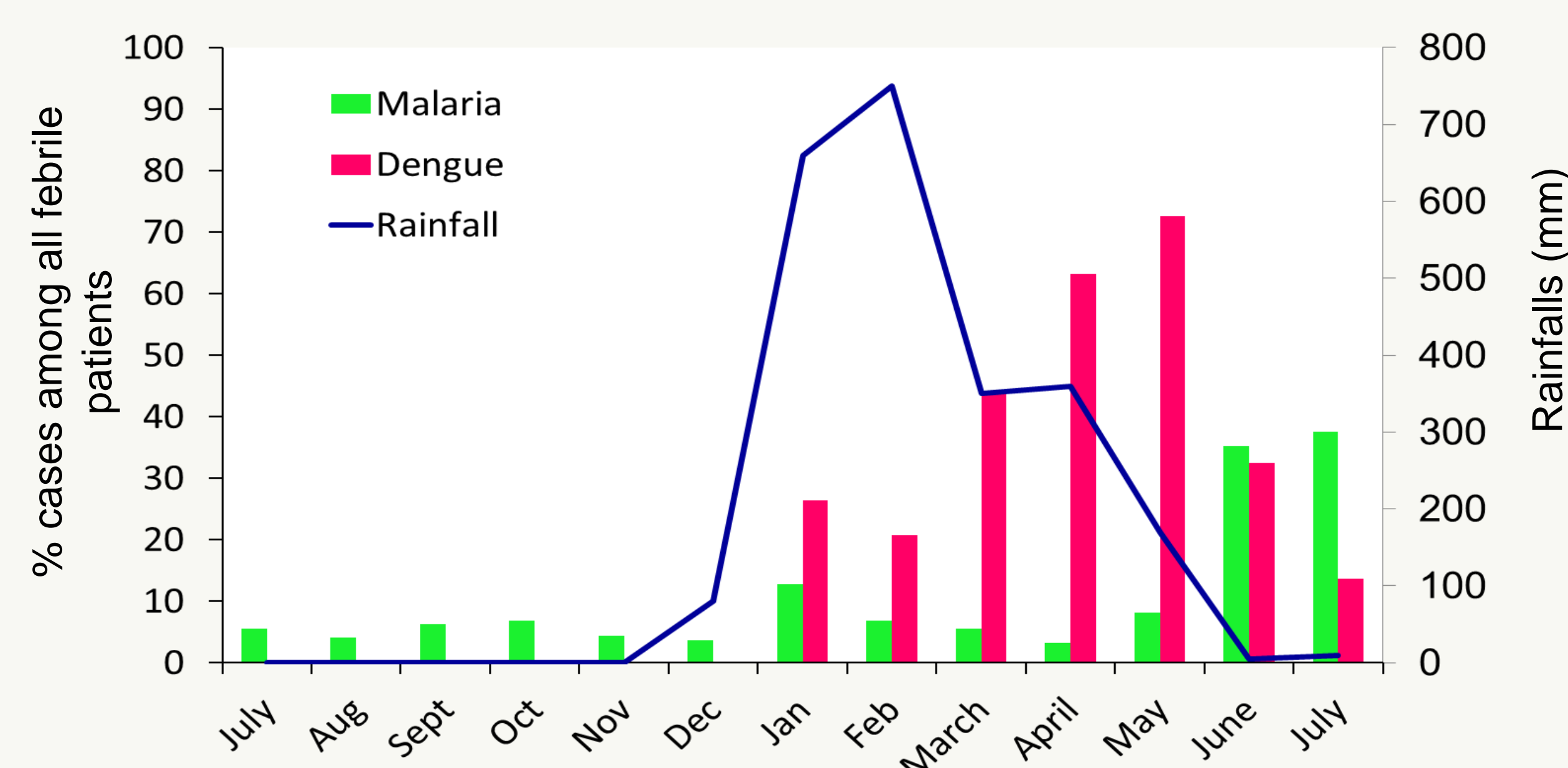
489 diagnoses among 392 HIV negative



231 diagnoses among 128 HIV positive



Dengue and Malaria Outbreaks



	Dengue patients N=134	Non dengue patients N=386	
HIV coinfection	9 (7%)	119 (31%)	*
Severe infection	5 (4%)	57 (15%)	*
Admission	8 (6%)	73 (19%)	*
Death (day 7)	2 (1%)	23 (6%)	*

*P<0.05

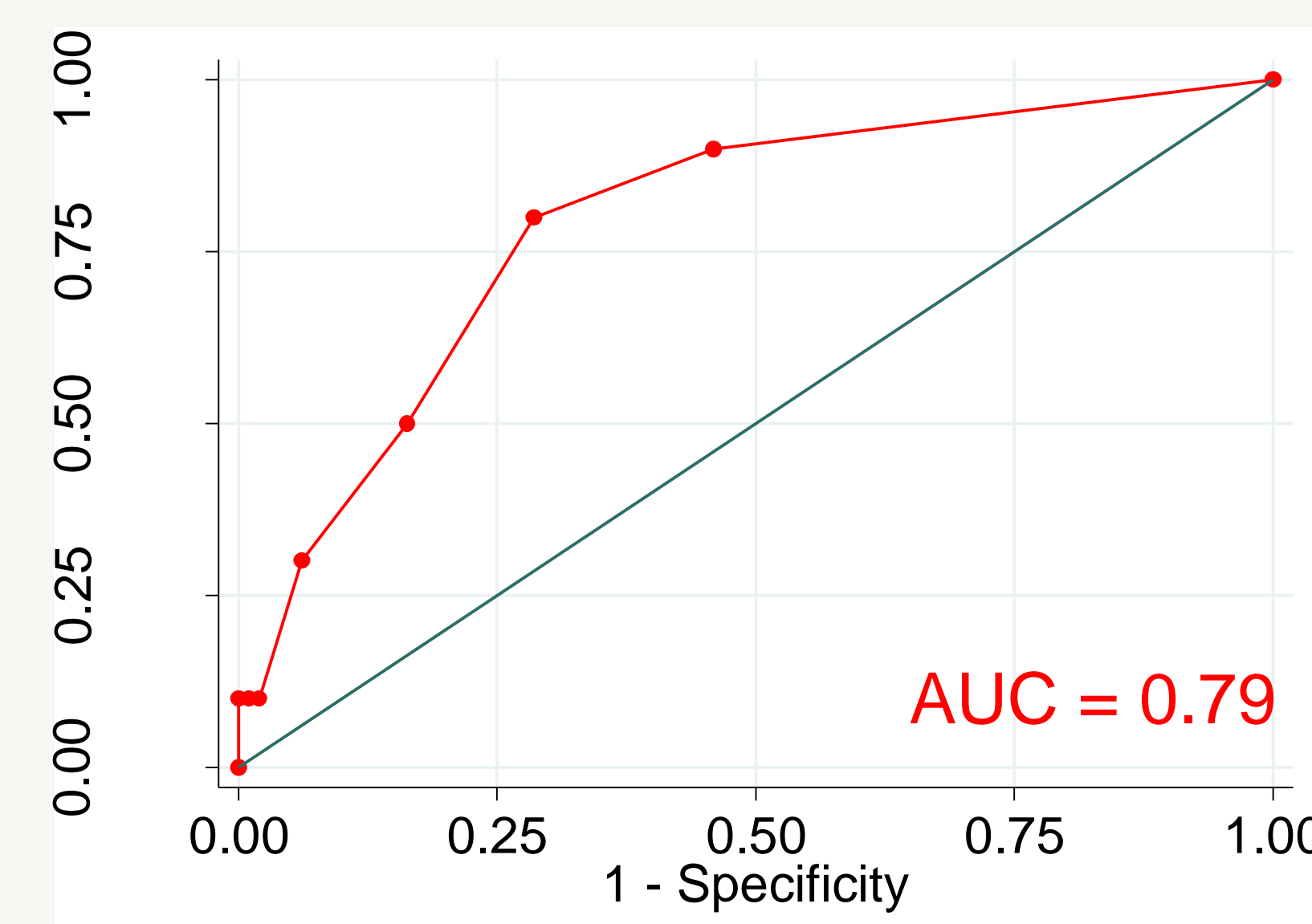
Outcome according to HIV status

Mean (SD) CD4 count in HIV positive patients: 150 (144) cells/mm³

	HIV negative N=392	HIV positive N=128	
Severe sepsis	31 (8%)	31 (24%)	*
Admission	46 (12%)	35 (27%)	*
Death (day 7)	10 (3%)	15 (12%)	*

* P<0.05

Prediction of death with SOFA score



Using the Youden Index, the best cut-off was 2:
- Sensitivity 80%
- Specificity 72%

DISCUSSION

- There is a wide variety of bacterial, viral and parasitic causes of fever in African adults. Taking into account the high HIV prevalence and the different distribution of diagnoses in HIV positive patients, a systematic HIV and TB screening in all febrile patients is essential.
- The SOFA score had limited ability to predict death. The development of host biomarkers to triage patients according to disease severity would be welcome.
- New guidelines, that include available point-of-care tests beyond malaria to support clinicians to appropriately prescribe antimicrobials, should be developed and implemented. This has the potential to improve the clinical outcome of patients, monitor epidemic-prone diseases and limit the emergence of antimicrobial resistance.