



# Paediatric Sepsis: Aetiology and outcome

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## Introduction

"Sepsis is a life-threatening syndromic response to infection and frequently a final common pathway to death for many infectious diseases worldwide. Sepsis is a common cause of morbidity and mortality in children and disproportionately affect children." (1) LMIC bear the brunt of sepsis in the world. Over 30 m are afflicted annually with sepsis with more than 90% occurring these countries with more than 9m deaths.(2) However, there is paucity of information sepsis aetiology and outcome to guide management of cases these countries facing the major burden. The SSG provide guide on management of paediatric sepsis. The applicability and outcome hasn't been assessed in LMIC (3) Elucidating the causes and outcome could shed light onto sepsis burden to guide both healthcare workers and policy makers To describe the etiology and clinical out of children presenting t LMIC referral center with sepsis



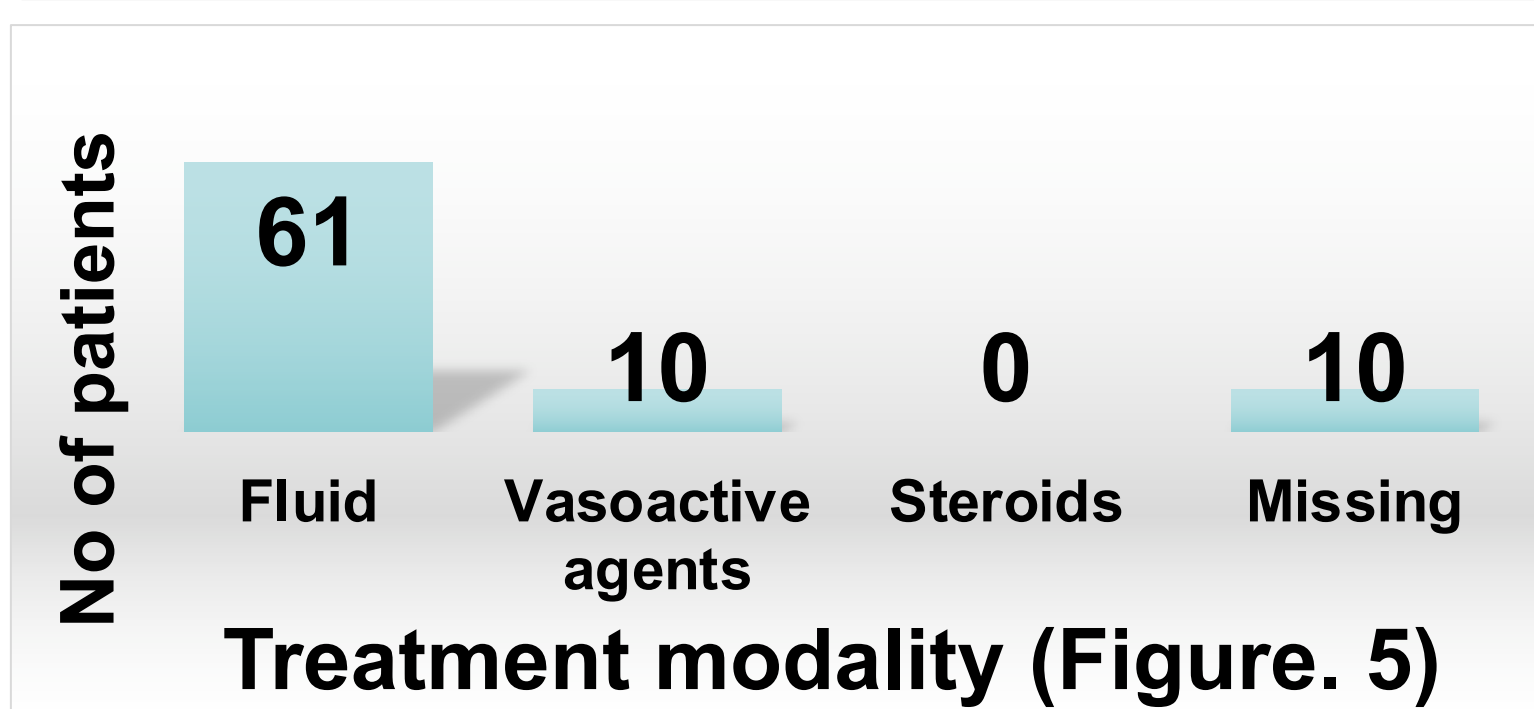
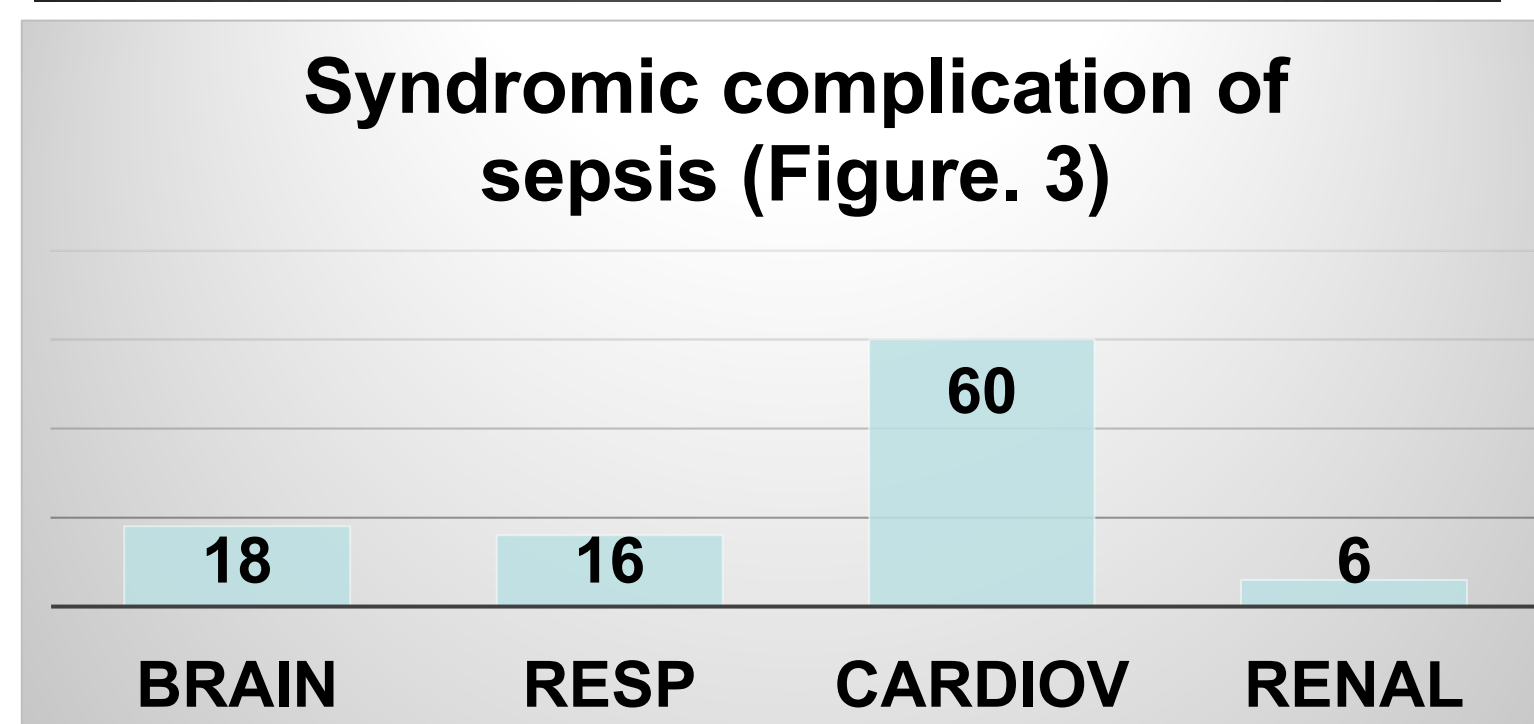
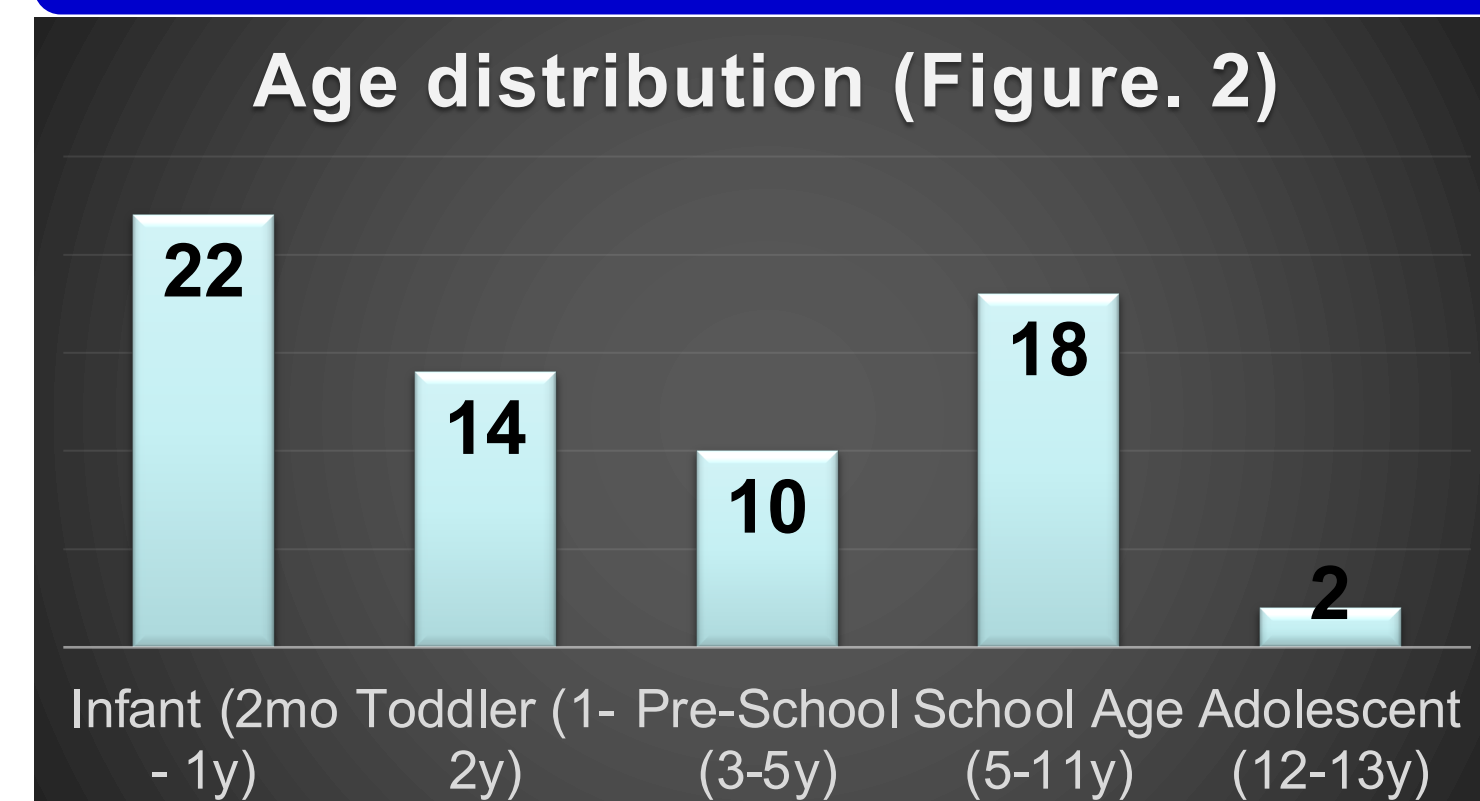
Figure. 1. PICU ward rounds with visiting Critical care specialist, UCT

## Methods

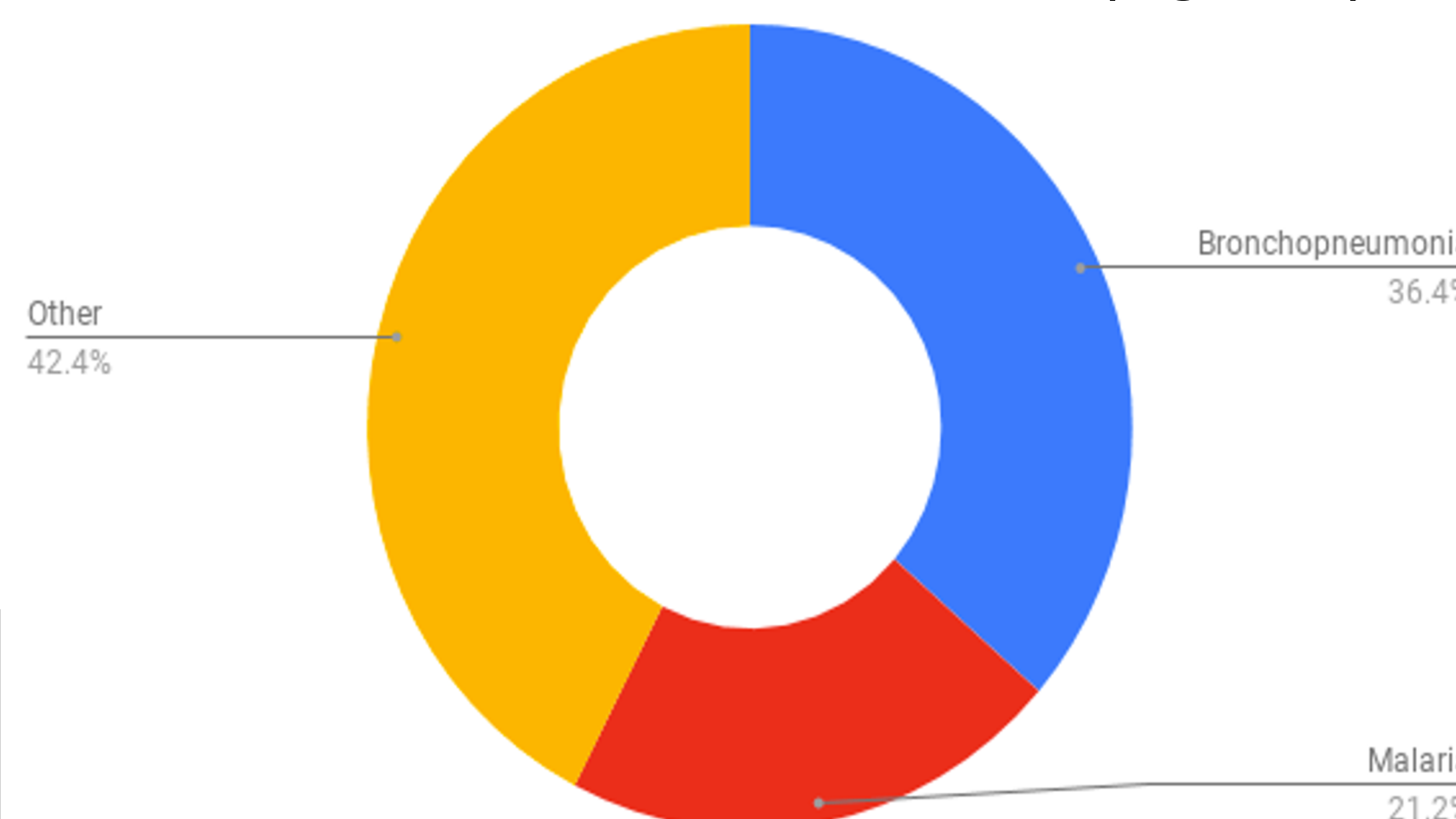
**Study design:** Prospective cross sectional study  
**Site:** PEU and PICU at Komfo Anokye Teaching Hospital. A referral center with over 3 million catchment area  
**Patient population:** children from 2 months to 14 years  
**Inclusion criteria:** all cases admitted and diagnosed with sepsis by clinician managing clinician  
**Intervention:** no intervention  
**Data collection and analysis:** patient demographic, clinical features and source of infection and patient outcome (discharge from PICU and death)  
**Ethics:** KATH IRB approval

Poster produced by PICU – KATH

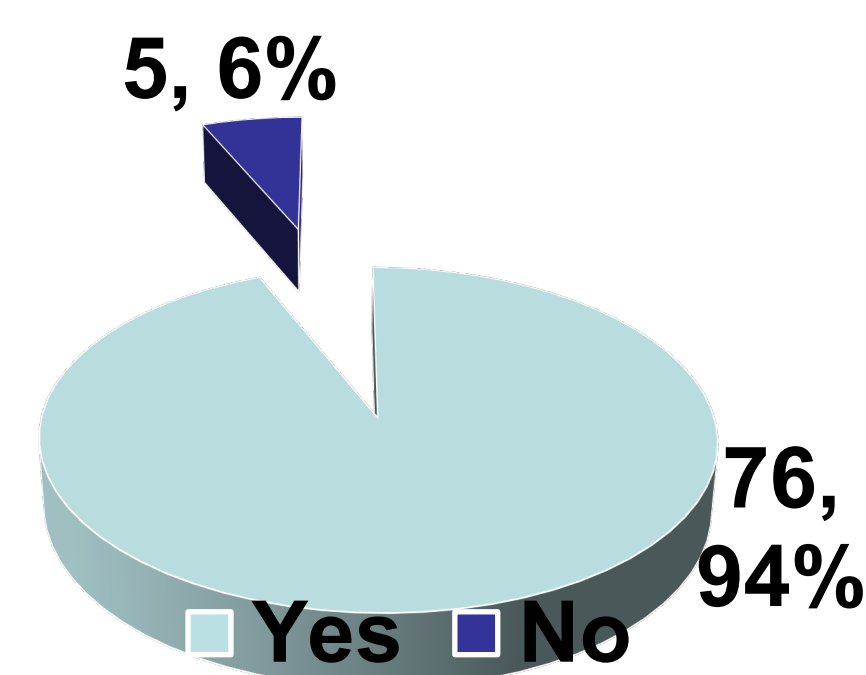
## Results



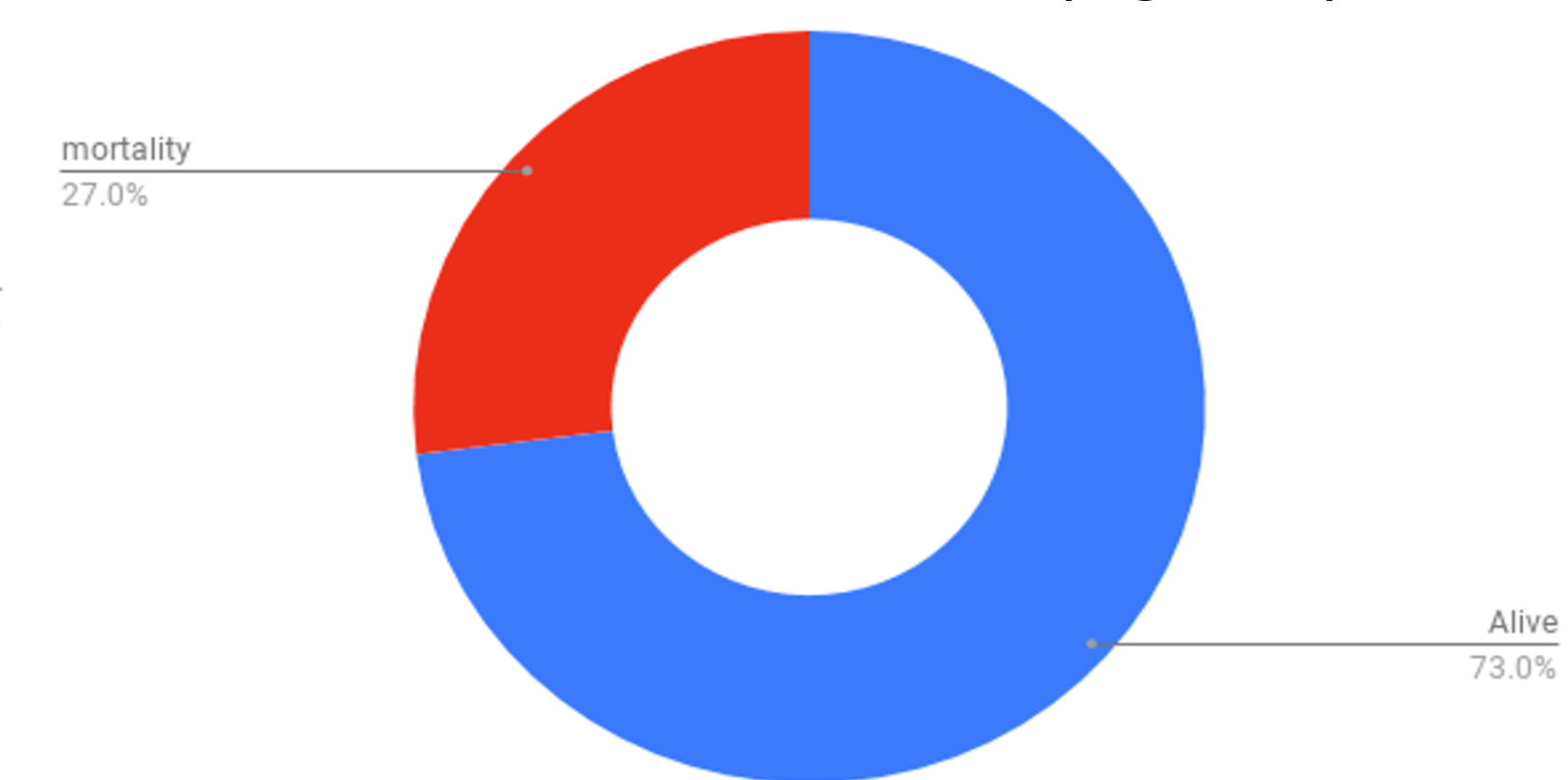
Most common etiologies (Figure. 4)



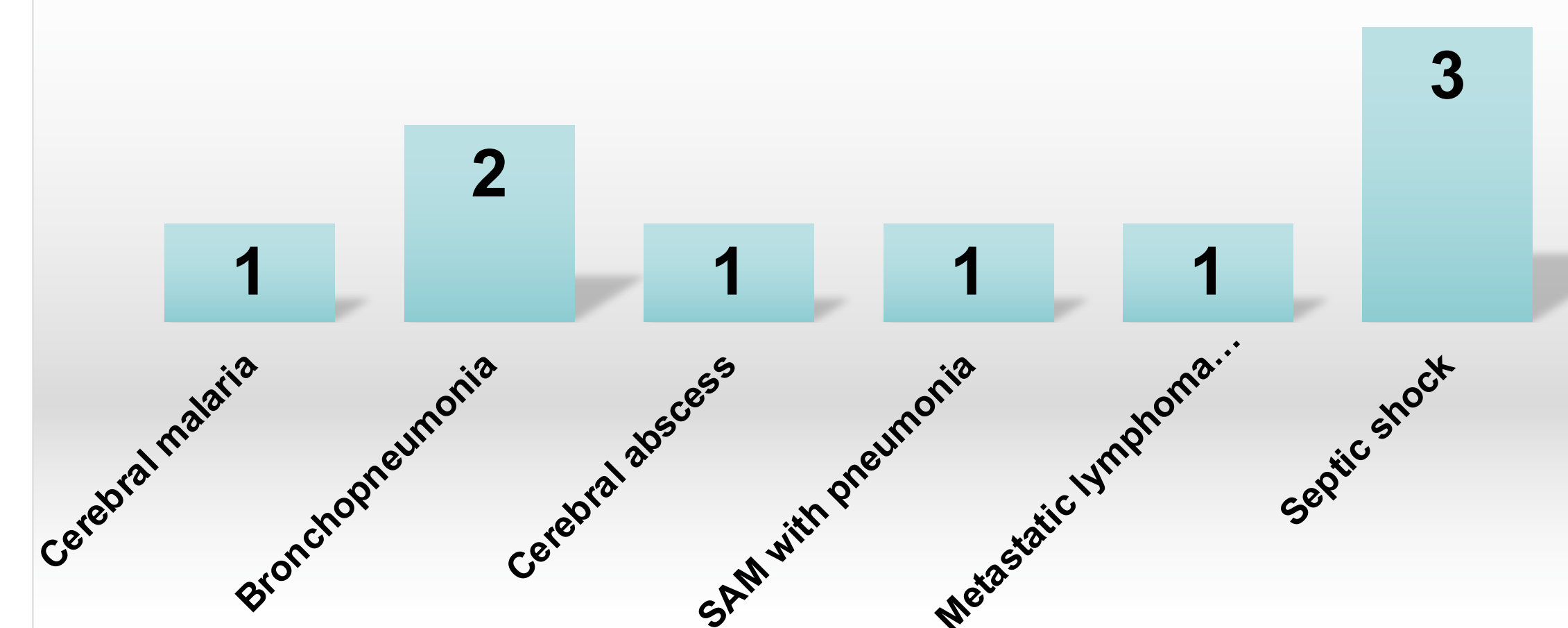
Antibiotic therapy (Figure.6)



Overall Mortality (Figure. 7)



Cause of death (Figure. 8)



## Discussion

The sample analyzed included age distribution of patients, which showed a incidence in the school aged among patients with sepsis. This has been reported in the literature(4). Possible variables, including time from disease onset to admission or the difficulty in recognizing the clinical course of sepsis in older children, who are emphasized less, may have contributed to this finding.

This study found bronchopneumonia to be the overwhelming cause of sepsis. 42% of diagnosis of sepsis had RTI as the underlying source of infection, whilst cardiovascular system was the system mostly complicating sepsis. Complications: CNS - 27%, Resp - 24%, CVS – 91%, Renal – 1%. Significantly high proportion of complicated sepsis with CVS issue probably signifying late diagnosis.

Mortality of 27% is higher in our study than comparable LMIC 20 in Brazil (4,5). Toddlers have a higher mortality rate (33%) than the other age groups (6) similar to Japanese study showing it to be higher in older children (7)

**Limitation**  
Small number of cases compared to sepsis studies  
Inclusion of patients from a single healthcare provide

## Conclusions

The finding that sepsis incidence is high unusually high toddlers and especially school going calls additional focus on high index of suspicion

Sepsis was associated with significant complication involving multiple organs with potential long term impact on quality of life  
Mortality is quite high in the paediatric population as compared to other LMIC  
There therefore the need to address prevention of infection, early recognition and appropriate management of sepsis  
Future research could aim to confirm this finding independently and evaluate mechanisms of sepsis.

## References

1. Who.int. 2021. Sepsis. [online] Available at: <https://www.who.int/news-room/fact-sheets/detail/sepsis> [Accessed 5 February 2021].
2. Rudd, K., Johnson, S., Agesa, K., Shackelford, K., Tsoi, D., Kievlan, D., Colombara, D., Ikuta, K., Kissoon, N., Finfer, S., Fleischmann-Struzek, C., Machado, F., Reinhart, K., Rowan, K., Seymour, C., Watson, R., West, T., Marinho, F., Hay, S., Lozano, R., Lopez, A., Angus, D., Murray, C. and Naghavi, M., 2021. Global, regional, and national sepsis incidence and mortality, 1990–2017: analysis for the Global Burden of Disease Study.
3. Sccm.org. 2021. [online] Available at: <https://www.sccm.org/getattachment/SurvivingSepsisCampaign/Guidelines/Pediatric-Patients/Initial-Resuscitation-Algorithm-for-Children.pdf?lang=en-US> [Accessed 5 February 2021].
4. Pedro, T., Morcillo, A. and Baracat, E., 2021. Etiology and prognostic factors of sepsis among children and adolescents admitted to the intensive care unit.
5. Bacterial sepsis in Brazilian children: a trend analysis from 1992 to 2006 Mangia CM, Kissoon N, Branchini OA, Andrade MC, Kopelman BI. Carcillo J PLoS One. 2011; 6(6):e14817.