NEONATAL SEPSIS AT A RURAL TERTIARY TEACHING HOSPITAL IN KENYA: PREVALENCE, ANTIMICROBIAL RESISTANCE, AND TREATMENT OUTCOMES

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20.79%
HOSPITAL PREVALENCE (296/1,424)

55.56%
MULTIDRUG RESISTANCE (MDR)

9.46%
ALL-CAUSE MORTALITY RATE

1. BACKGROUND & OBJECTIVES

Global Context: Neonatal sepsis (NS) drives **one-third** of global newborn deaths, predominantly in LMICs.

National Situation: Kenya's neonatal mortality stands at **21 per 1,000 live births** (exceeding global avg of **17/1,000**). Regional East Africa pooled prevalence is **~29.77%**.

Rationale: Critical gaps persist regarding institutional **AMR profiles** and clinical outcomes to guide empirical treatment.

Objective: To evaluate prevalence, clinical profile, septic workup yield, AMR profiles, and outcomes of NS at **AIC Kijabe Hospital**

2. METHODOLOGY & STUDY DESIGN

- **Study Design:** 2-year retrospective cohort study.
- **Setting & Period:** AIC Kijabe Hospital, Kenya (Jan 2022 – Dec 2023).
- **Data Source:** Digitally extracted from hospital electronic records using a standardized abstraction tool.
- **Analysis:** Analyzed via STATA. Bivariate analyses evaluated risk factors associated with in-hospital mortality.

3. CLINICAL PROFILE & PREVALENCE

Proven Sepsis (61.2%) vs Clinical (38.8%) 61.2%

Early-Onset EOS (66.2%) vs Late LOS (33.8%) 66.2%

- Preterm Births (**39.2%**)
- C-Section Delivery (**77.4%**)
- VLBW <1,500g (**23.7%**)
- Maternal PROM (**65.5%**)

4. DIAGNOSTIC WORKUP & PATHOGENS

Workup Test Coverage vs Culture Yield:

Culture Specimen	Tested (%)	Yield (%)
Blood Cultures	**89.2%**	**61.8%**
Urine Cultures	**81.4%**	**25.0%**
CSF Cultures	**78.9%**	**7.03%**
CVC Cultures	Catheter lines	**0.0%**

Blood Isolates Spectrum:

SOSA / Contaminants (CoNS) 59.1%

Klebsiella pneumoniae 12.0%

Escherichia coli 11.0%

Urine Cultures (Gram-Negative Dominance):

Escherichia coli (**34.9%**) & Klebsiella spp. (**30.3%**) = Total **65.2%**

5. ANTIMICROBIAL RESISTANCE (AMR)

Resistance Rates in Non-Contaminants:

Ampicillin Resistance 95.83%

Gentamicin Resistance (First-Line) 40.82%

Meropenem Resistance 27.50%

Empiric Therapy Appropriateness: Overall **52.08%** (E. coli: **75%** Appropriate; Pseudomonas: **20%** Appropriate)

6. OUTCOMES & CRITICAL RISK PREDICTORS

Treatment Escalation & Hospital Stay: Escalated to 2nd Line (Meropenem **28.9%** Median Length of Stay (LOS): **14 days** overall (EOS: **11 days** vs LOS: **20 days**; Culture-proven: **16 days**).).

Clinical Outcomes: Recovered / Cured (**71.6%**), All-Cause Mortality (**9.46%**), Complication Rate (**12.5%**).

Mortality Risk Drivers ($p < 0.001$): Prematurity and VLBW (<1,500g).

Platelet Severity Marker: Thrombocytopenia strongly correlated wit death (Non-survivors median **82.5 × 10^9/L** vs Survivors **213 × 10^9/L**). h

7. CONCLUSION & ACTION ITEMS

Conclusion: Neonatal sepsis accounts for **~1 in 5 admissions** at AIC Kijabe Hospital Preterm/VLBW infants are highly vulnerable, and MDR rates pose an urgent threat. .

Key Action Items:

- **Targeted Screening:** Prioritize early septic workups and platelet monitoring VLBW/preterm neonates.
- **Empiric Realignment:** Update guideline in to cover dominant Gram-negative profiles.
- **Stewardship & IPC:** Strengthen infection s control and establish stewardship programs.

AIC Kijabe Hospital
Health Care to God's Glory

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