

Does Hospital Management Matter? Evidence on the Relationship between Hospital Management Practices and the Quality of Newborn Care in Malawi

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Background

- Poor quality of care is a barrier to universal health coverage, responsible for 5.7-8.4 million deaths annually in low- and middle-income countries (LMICs).¹
- Despite increasing hospital deliveries in Malawi, neonatal mortality rate has stagnated at 27-31 per 1000 livebirths for the past 20 years.
- Clinical interventions such as training and audits can improve health outcomes.^{2,3}
- However, clinical care in LMICs depends critically on factors at the organizational level, yet there is limited research attention to broader, organization-level factors, such as hospital management.^{4,5}
- Few studies have been conducted in LMIC settings, linking management practices with mortality of sick newborns⁶.

Objective

- We examined the association between the level of adoption of management practice domains and neonatal mortality.

Methodology

- Study design:** A cross-sectional study
- Study setting:** 36 district and central hospitals in Malawi owned by the government and Christian Health Association of Malawi (CHAM) where NEST360 Project provided technologies and capacity building for sick newborn service delivery
- Study period:** May to December 2022
- Study participants:** Hospital and neonatal ward management staff (Table 1) for assessing management practices; admitted sick newborn babies (0-28 days) for assessing neonatal mortality.

Table 1: Categories of manager responding to each domain of management

Category of manager	Unit names	Senior in-charge of neonatal unit	Administrator	Chief nurse manager	Chief medical manager
1. Delivery of clinical care in neonatal unit		✓	✓	✓	✓
2. Human resources		✓	✓	✓	✓
3. Targets and monitoring		✓	✓	✓	✓
4. Financial management		✓	✓	✓	✓
5. Leadership and governance		✓	✓	✓	✓



- Data collection:** Semi-structured interviews using a tool adapted from the World Management Survey to assess performance of 5 management domains with 28 management practices (Table 2) and hospital electronic medical records for outcomes of admitted sick newborns, including death.
- Data management & analyses:** Management practice was scored on a scale of 1 to 5 (Table 3). Mixed-effects logistic regression model was fitted to assess association between management practice and neonatal mortality.

Table 2: Hospital management domains and practices

DELIVERY OF CARE IN THE NEONATAL UNIT	HUMAN RESOURCE MANAGEMENT FOR HEALTH WORKERS	HOSPITAL AND NEONATAL UNIT LEVEL TARGET SETTING AND MONITORING OF PERFORMANCE	FINANCIAL MANAGEMENT	LEADERSHIP AND GOVERNANCE
<ul style="list-style-type: none"> Layout of NNU Triage for newborns Protocols for SSNC Protocols for IPC Handover between shifts Referral system Audit of neonatal deaths Supervision Equipment management 	<ul style="list-style-type: none"> Appraisal system Promoting high performing health workers Rewarding high performers Dealing with poorly performing health workers Recruiting skilled health workers Hiring temporary and loose health workers Health-worker allocation Programme for capacity strengthening 	<ul style="list-style-type: none"> Monitoring errors/safety Performance review User satisfaction Setting an appropriate range of targets Clarity and communication of targets 	<ul style="list-style-type: none"> Budget setting Reviewing expenditure against the budget 	<ul style="list-style-type: none"> Senior leadership governance Quality of care governance Procurement processes for medicines and supplies for the neonatal unit Governance for infection prevention control

Table 3: Management practice scoring scale

5	Structured management practices and systems in place which are being fully and correctly implemented
4	
3	Some management practices or systems in place, but they are not being fully or correctly implemented
2	
1	Few structured management practices or systems in place

Results

- Median (range) in-hospital neonatal mortality rates across 36 hospitals: 17.2% (6.5-25%).
- Mean management scores were lower for central hospitals than district and CHAM hospitals (Figure 1).
- Mean scores for “Delivery of clinical care in neonatal unit” and “Financial management” domains were moderately high but imperfect (Figure 1).
- Mean scores for “Human resource management” and “Target setting/monitoring performance” domains were sub-optimal (Figure 1).

Figure 1: Mean scores by hospital type and by management domain



- Only the “Delivery of clinical care in neonatal unit” domain was significantly associated with neonatal mortality, in a mixed effects model adjusting for hospital type and duration of experience of hospital leaders.

Table 4: Relationship between management domains and neonatal mortality

Management practice domain	Odds Ratio (95% Confidence interval)	P-value
Delivery of clinical care in neonatal unit	0.68 (0.47, 0.98)	0.04
Human resource management	0.93 (0.63, 1.37)	0.72
Target setting and performance monitoring	1.21 (0.74, 2.01)	0.45
Financial management	0.84 (0.63, 1.13)	0.25
Governance and leadership	1.37 (0.81, 2.30)	0.24

Conclusion

- In-hospital neonatal mortality remained high in Malawian hospitals.
- There was a variation in the level of implementation of different management practices within various domains across hospitals which may affect quality of clinical care.
- Improved quality of delivery of clinical care in neonatal units was significantly associated with a reduction in neonatal mortality.
- Distal hospital management practices were not significantly associated with neonatal mortality but further analyses are required to explore pathways by which they may influence the quality of clinical care.

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