

# Establishment of a neonatal nursery in a rural district hospital in Malawi: A retrospective review of neonatal outcomes in Neno District Hospital (2014 - 2021)



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## Introduction

Despite efforts to improve neonatal care worldwide, neonatal mortality rates in sub-Saharan Africa, including in Malawi, remain high with a need for space, equipment, and staff. **We evaluated the impact of establishing a district-level neonatal nursery and subsequent strengthening efforts across three different intervals at Neno District Hospital, Malawi.**

## Methods

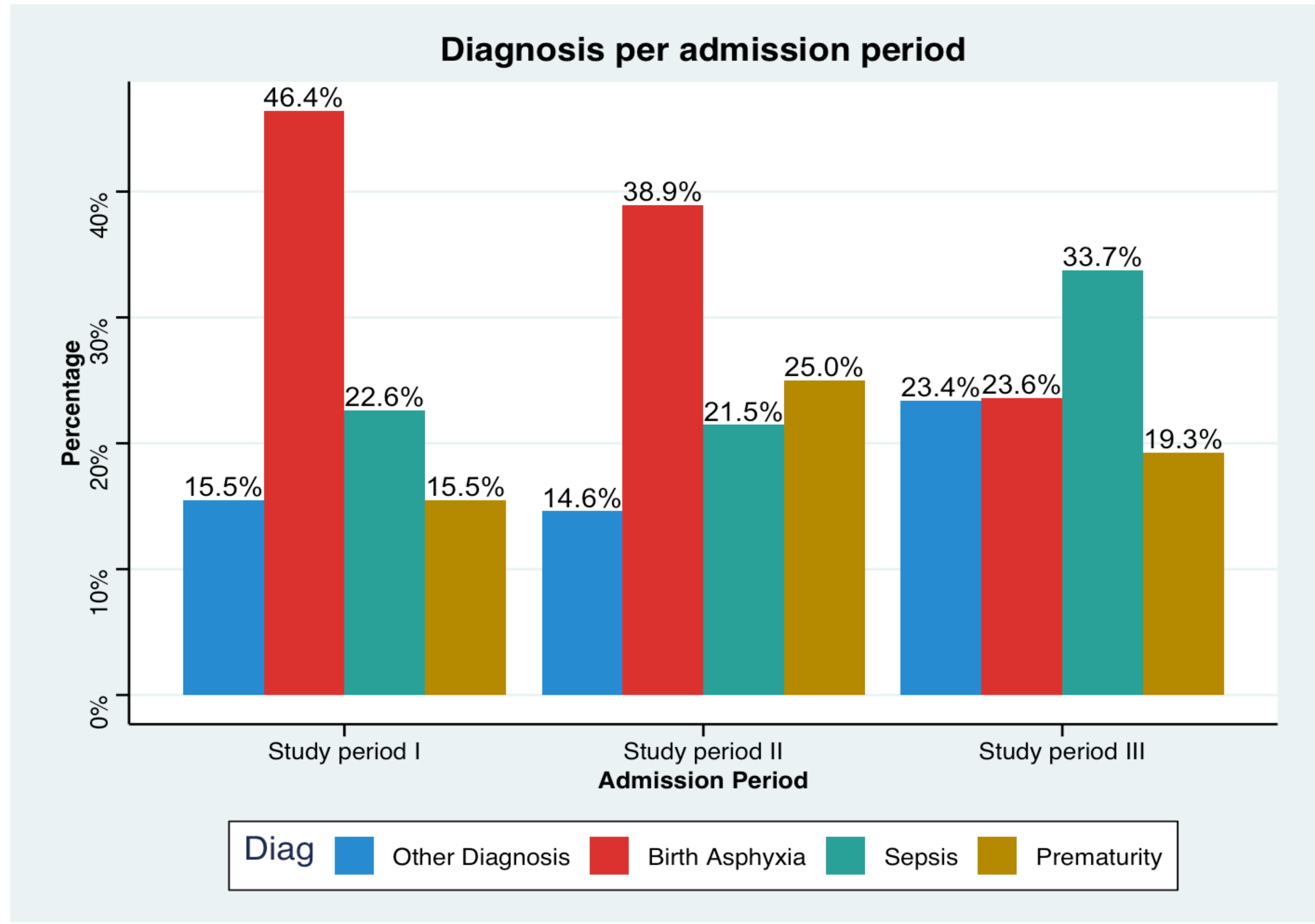
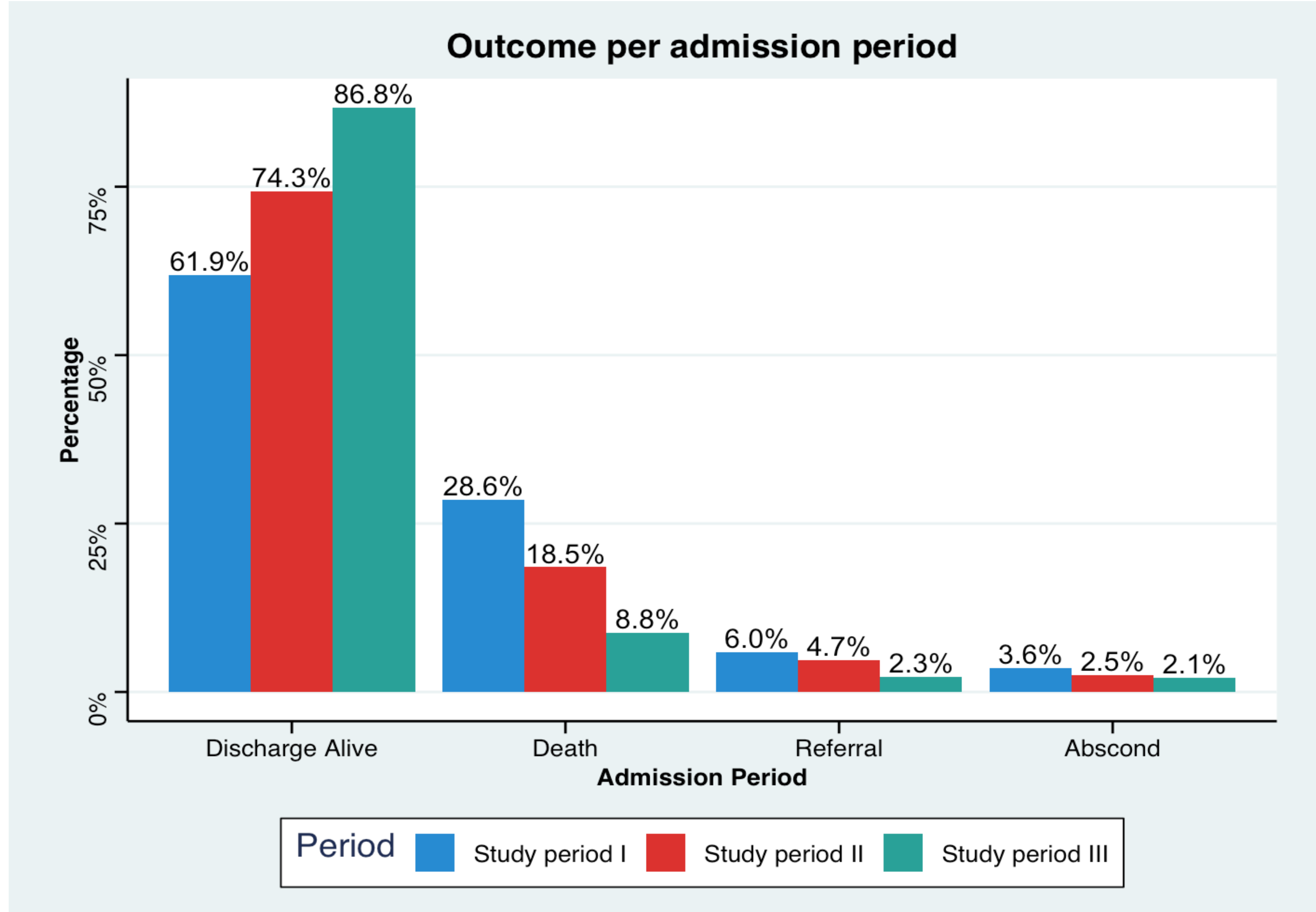
We conducted a **retrospective cohort study** to measure neonatal outcomes across three study periods:

- Before the neonatal nursery [study period I (n=84)]
- Following the establishment of a nursery [study period II (n=448)]
- Ongoing strengthening efforts [study period III (n=836)]

Protocol was approved by Malawi National Health Sciences Research Committee.

We extracted data from a total of 1366 neonatal records and performed:

- Descriptive statistics and chi-squared tests to compare the overall neonatal outcomes between admission periods
- Logistic regressions to isolate factors associated with successful neonatal discharge



*\*Of the 1366 total patient records analyzed, 84 (6.1%) were from admissions during study period I, 448 (32.8%) during study period II, and 836 (61.2%) were from admissions during study period III.*

## Results

Of 1366 neonates over the entire study period (2014-2021), the three primary admission diagnoses were birth asphyxia (30%, n=411), sepsis (29%, n=396), and prematurity (21%, n=286).

The proportion of **neonates discharged alive increased from 62% to 74% to 88%** in study periods I, II, and III, respectively. The odds of being discharged alive were four times higher in study period III compared to study period I (OR=4.34; 95% CI: 2.6-7.04) and increased sixfold after adjusting for gender (aOR=6.51; 95% CI: 3.69-11.5; p<0.001).

## Discussion

Over a seven-year period, establishment of a nursery at Neno District Hospital resulted in increased survival of neonates.

A multi-dimensional decentralized approach at the district hospital with adequate space, staff, equipment, and medications is vital to treating sick neonates and decreasing neonatal mortality.

