

DELIVERING CARE FOR NEWBORNS IN NAIROBI

Identifying the gaps that need to be addressed to reduce neonatal mortality as part of Universal Health Coverage



Introduction

Efforts to reduce child mortality have been a national and global policy concern for a long time and the global Sustainable Development Goals (SDGs) expressly state that reducing deaths in the first 28 days of life (neonatal mortality) to below 12 deaths per 1,000 live births is a health goal. In Kenya, reducing neonatal mortality from an average 22/1000 live births is part of the government's efforts to achieve Universal Health Coverage (UHC) as neonatal mortality now contributes around 45% of all under-five deaths. Globally it has been estimated that over 60% of neonatal deaths might be prevented by good quality, basic hospital care. However, in Nairobi City County where neonatal mortality is 39/1000 live births there is little data on where inpatient neonatal care is provided and whether it is good quality. Researchers at the KEMRI-Wellcome Trust working with expert groups and multiple partners started the Health Services that Deliver for Newborns (HSDN) project to provide this information.

Key Messages

1. 45% of all under-five deaths happen in the first 28 days of life in Kenya. Compared to the national average of 22 deaths per 1000 live births, Nairobi experiences the highest neonatal mortality in the country of 39 deaths per 1,000 live births.
2. If the county wants to achieve the Sustainable Development Goal target it has to reduce neonatal mortality to at most 12 deaths per 1,000 live births by 2030.
3. Our research suggests only about 24% of babies born in Nairobi requiring inpatient newborn care for serious illness reach a facility ready to provide the high quality care they need to survive; over 44% of seriously ill newborns may not reach a suitable facility at all.
4. Defining standards for care and categories of neonatal care as standard, intermediate and intensive may help planning to improve access and quality as part of Universal Health Coverage.
5. In Nairobi, 4 public hospitals provide 71% of all inpatient neonatal care, to improve access to high quality care for all and especially the poor the county should consider.
 - a. Upgrading some facilities so they can provide standard category neonatal care.
 - b. Strengthening the existing hospitals so they can reliably provide intermediate category care.
 - c. Establishing a county wide referral strategy and system.

Estimating the need for inpatient neonatal services for Nairobi County and identifying which facilities provide inpatient neonatal care 24 hours a day 7 days a week.

Epidemiological methods and existing research was used to estimate in 2017 Nairobi City County's population at 4.26 million with an expected 132,025 live births with almost 1 in 5 babies (around 24,000) likely to need inpatient care for serious illness. Most births and episodes of serious neonatal illness occur in the densely populated, low-income areas in Nairobi. (Table 1)

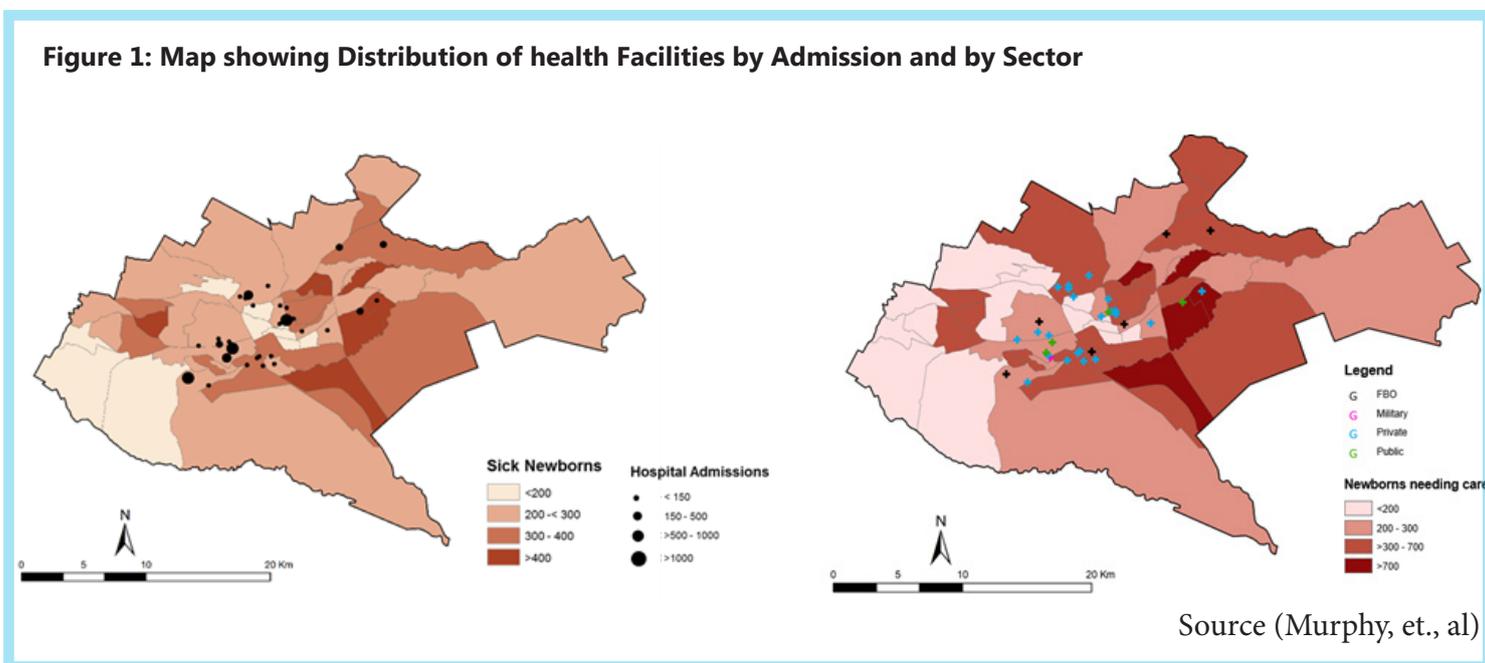
Nairobi has 14% of all registered health facilities in the country and 89% of Nairobi births happen in a health facility (Table 1) but it's Neonatal mortality is 39 per 1,000 live births. So where can the 24,000 seriously sick babies get care in Nairobi?

Population	4.26 Million
Area in KM ²	696 km ²
Housing	60% -70% of all residents live in informal settlements
Estimate of live births	132,025
Estimate % of newborns requiring inpatient care	24,000

Table 1: Key Demographic Statistics of Nairobi County

Source (Murphy, et., al)

Figure 1: Map showing Distribution of health Facilities by Admission and by Sector



Source (Murphy, et., al)

Only 33 health facilities from public, private and faith-based sectors (plus one military hospital) provide 24/7 inpatient neonatal care. Of these 33 facilities only 4 are public but they provide 71% of all existing inpatient neonatal care. High costs in the private and often in the faith-based sector will likely make low-income users dependent on the public sector (Figure 2).

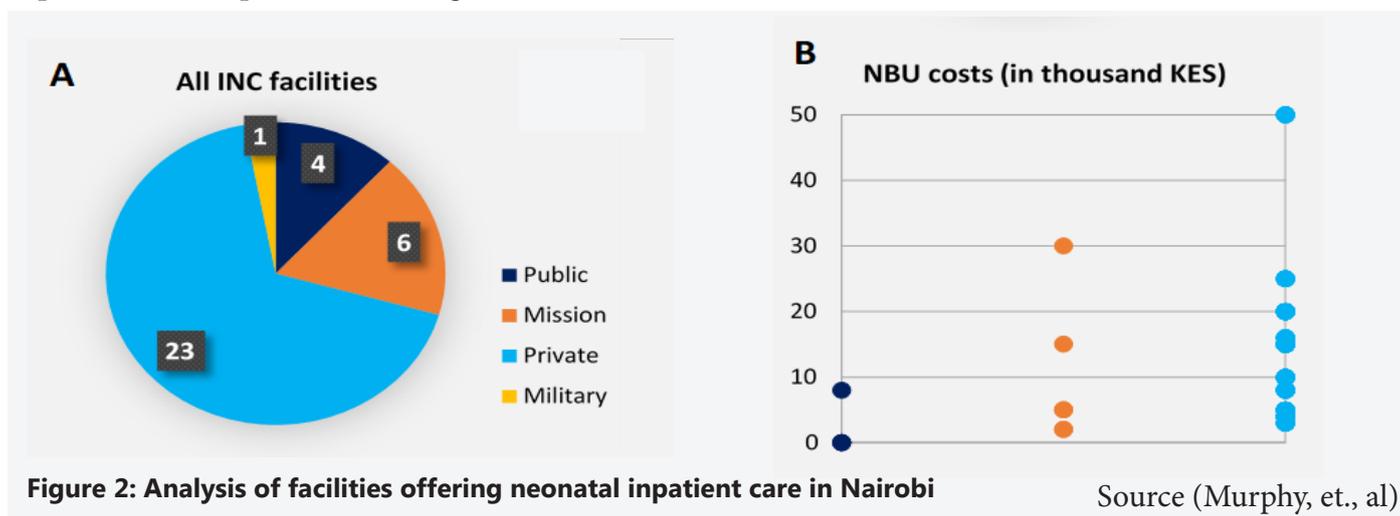


Figure 2: Analysis of facilities offering neonatal inpatient care in Nairobi

Source (Murphy, et., al)

Are facilities ready and able to provide quality inpatient neonatal care

The HSDN team worked with its expert partners and collaborators to assess hospitals' readiness (equipment, staffing, organisation of care) and developed a 'structure score' to summarise this information. Of the 31 hospitals providing 24/7 inpatient neonatal care, only seven had a structural score of above 90%, twelve had a score of 80-90% and 12 scored lower (Figure 3).

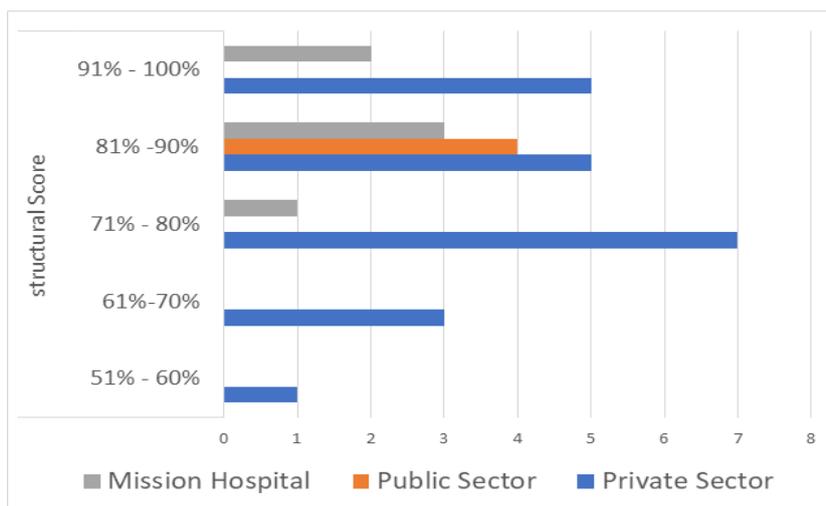


Figure3: Average structure score by sector

From (Figure 3) above, public hospitals had better structure scores than private hospitals, 11 of 31 private hospitals had a structure score of less than 80%, while the four public hospitals in the study had a structure score of 81% to 90%.

In the same way the HSDN team assessed whether medical care was correct in the form of a 'process score' and what nurses knew about essential maternal and neonatal care as a 'knowledge score' (see Table 2 for knowledge areas). The researchers evaluated neonatal cases against agreed best practices for neonatal care to assess the process score and used a survey to test nurses knowledge.

Across all 31 hospitals the overall process score was 50%. Public hospitals performed slightly better than private or faith-based hospitals and large hospitals better than smaller ones. (Figure 4).

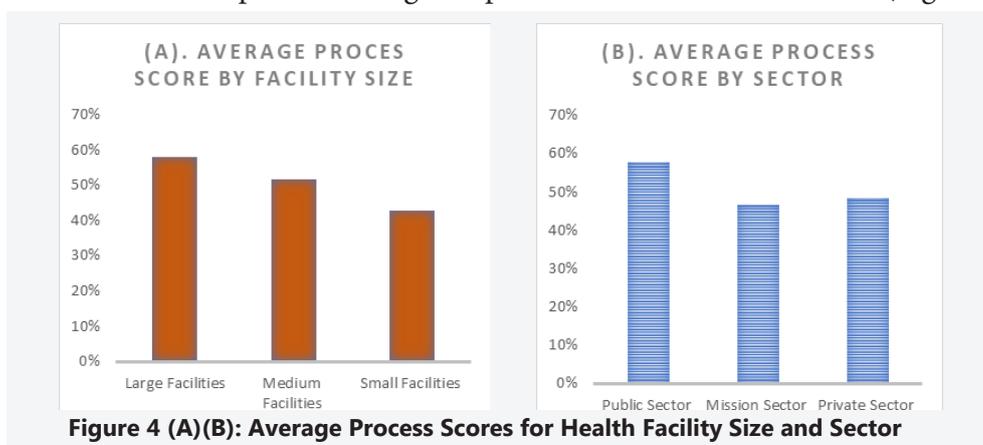


Figure 4 (A)(B): Average Process Scores for Health Facility Size and Sector

Performance varied in different areas of process of care, the best performance was in documentation of admission in the public hospitals, the poorest area of performance across sectors were oxygen prescribing / provision and fluids and feeds prescribing (Fig 5).

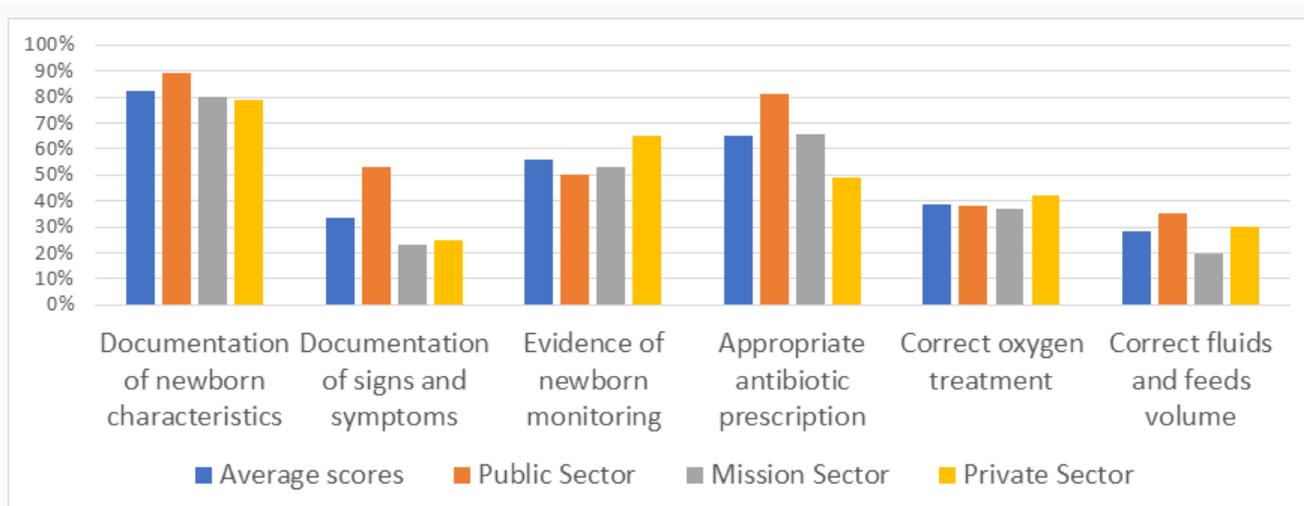


Figure 5: Average Neonatal Process Indicator Scores by Domains for Health Facilities in Nairobi

Table2: Knowledge areas assessed amongst hospital nurses

The quality of maternity of care	The quality of routine newborn care	Sick newborns
1.Active management after birth	1.Immediate care	1.Signs and symptoms
2.Post-partum haemorrhage	2. Care on first day	2. Management
3. Hypertension in pregnancy	3. Breastfeeding	4.Infant resuscitation
5. Maternal resuscitation	4. Newborn resuscitation	

Overall knowledge for maternity care was 71%, for routine newborn care was 74% and for care of sick newborns was 62%. Hospitals varied in the knowledge of their nurses and almost 40% of seriously sick babies were admitted to hospitals with low knowledge scores.

Effective Coverage – how many seriously ill newborns receive care in facilities that are ready and able to provide it 24/7

We found that about 24,000 seriously ill babies are likely to need care but all the 31 hospitals that should be able to provide this care together only admit about 56% of this group. This means about 44% of all seriously ill newborns are given care in a facility that is not suitable at all or do not reach a facility at all – perhaps helping to explain Nairobi’s high neonatal mortality.

Reaching a facility that should provide good care is the first challenge, then that facility should provide high quality neonatal care. We examined how many babies get care in a hospital with a good structure score, a good process score and a good nursing knowledge score. Only 24% of the seriously ill newborns in Nairobi are likely to access a hospital that provides good quality care (Figure 6) in all 3 of these areas.

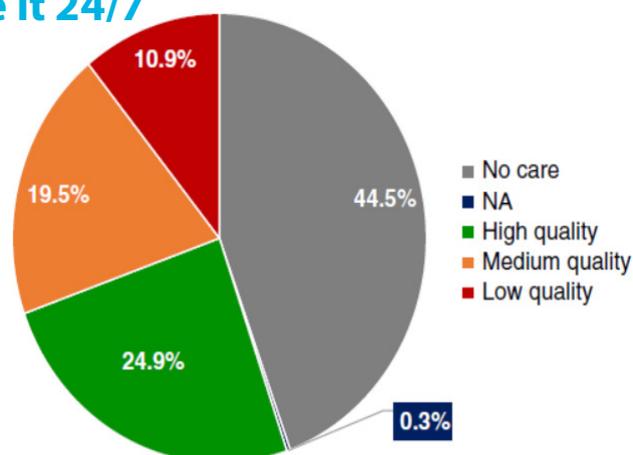


Figure 6: Effective Coverage for neonatal treatment

Closing the gaps – what type of neonatal services might be needed

Working with multiple stakeholders and drawing on research literature and reported experience from India and South Africa structured criteria for defining different categories of neonatal inpatient hospital care were developed. Three categories of care were defined: The Standard Category still requires 24/7 nursing care and medical cover and focuses on providing basic curative and supportive interventions (eg. iv antibiotics and assisted feeding); the Intermediate Category delivers more interventions (eg. CPAP and intravenous fluids) and requires a multidisciplinary team led by a pediatrician; the Intensive Category delivers the most advanced forms of care (eg. positive pressure ventilation) and requires a larger multidisciplinary team led by specialist neonatologists. Achieving improved neonatal survival as part of Universal Health Coverage in Nairobi will likely need investment in additional facilities providing Standard Care, upgrading of the county hospitals to provide intermediate care effectively and development of an effective referral system. A critical gap in providing high quality newborn care is the shortage of nursing staff.

- There is poor effective coverage of essential inpatient neonatal services with barriers to care being:
 - » Inadequate provision
 - » Quality
 - » Cost
 - » Physical barriers: maldistribution of facilities with need
- Expanding coverage requires increasing the capacity of the public sector in areas where there is a mismatch in need versus access
- Although there are good documentation practices, there is sub-optimal delivery of appropriate interventions as per guidelines (e.g. oxygen, antibiotics, and fluids)
- There is need for standardization of processes of care, with strict adherence to guidelines across the different categories of health facilities.
- Nursing care is very important for inpatient newborns, as such there is need to bridge the gap between requirements in care and the knowledge and skills that nurses have and ensure more nurses are employed

Related Publication:

- (1) **Murphy, GAV et al** Estimating the need for inpatient neonatal services: an iterative approach employing evidence and expert consensus to guide local policy in Kenya.
- (2) **Murphy, GAV et al** Effective coverage of essential inpatient care for small and sick newborns in a high mortality urban setting: a cross-sectional study in Nairobi City County, Kenya.
- (3) **Murphy, GAV et al** Nursing knowledge of essential maternal and newborn care in a high-mortality urban African setting: A cross-sectional study Developing recommendations for neonatal inpatient care service categories: reflections from the research, policy and practice interface in Kenya.
- (4) **Murphy, GAV et al** Developing recommendations for neonatal inpatient care service categories: reflections from the research, policy and practice interface in Kenya.
- (5) **Keene, et al** Developing recommendations for neonatal inpatient care service categories: reflections from the research, policy and practice interface in Kenya