

Maternal and Newborn Health Service Delivery Redesign (SDR) Feasibility Assessment in Nakuru

Background

Recent estimates show that 96% of Kenya's women receive skilled antenatal care during pregnancy and 61% deliver in a facility, but these improvements and access to care have not translated to improved maternal and newborn outcomes. Service delivery redesign is a systems-level approach proposed by the Lancet Global Health Commission on High-Quality Health Systems to improve survival and accelerate progress toward achieving sustainable development goals; it is a strategy to rationalize the health system such that high-quality services are provided at the right level, by the right provider and at the right time.

Methods

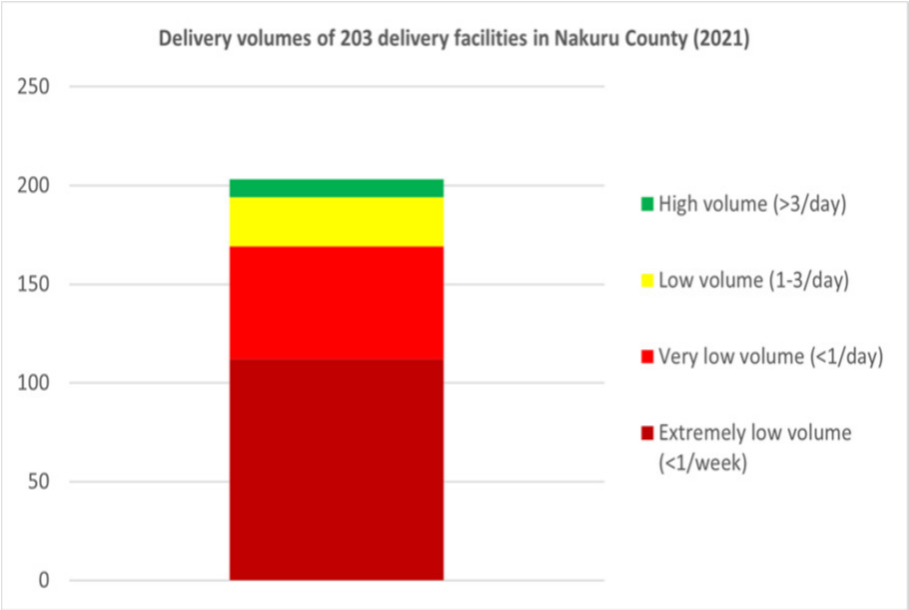
Assessment Approach and Data Sources

Component	Sampling/analysis approach	Data sources/Sample size
Health System Mapping	Document review, Secondary data, primary data collection	DHIS, KMHFL, CIDP, Policy documents, Reports, CDOH, conversation with stakeholders
Geographic analysis	GIS mapping – WHO's AccessMod tool	Health facilities, Distribution of pregnancies, Road and road classification, Landcover, Digital elevation dataset, Water bodies, Protected
Facility assessment	Census of all level 4 health facilities Purposive sampling of level 2/3 facilities based on delivery volumes Client exit interview	32 level 4 facilities 29 level 3 facilities 9 level 2 facilities
Provider survey	All staff (doctors, nurses/midwives and clinical officers) on duty in the maternity unit during the day of the facility assessment	Nurses – 267 CO – 14 MO & Consultants - 6
Qualitative approach purposive sampling	16 FGDs: women with recent facility deliveries (4) women with recent home deliveries (4) grandmothers, mothers-in-law & TBAs (4) Male partners and other male community members (4) 20-25 KIIs Health providers (7) & Health managers (4), Key stakeholders	

Key Findings

Current Service Delivery Structure

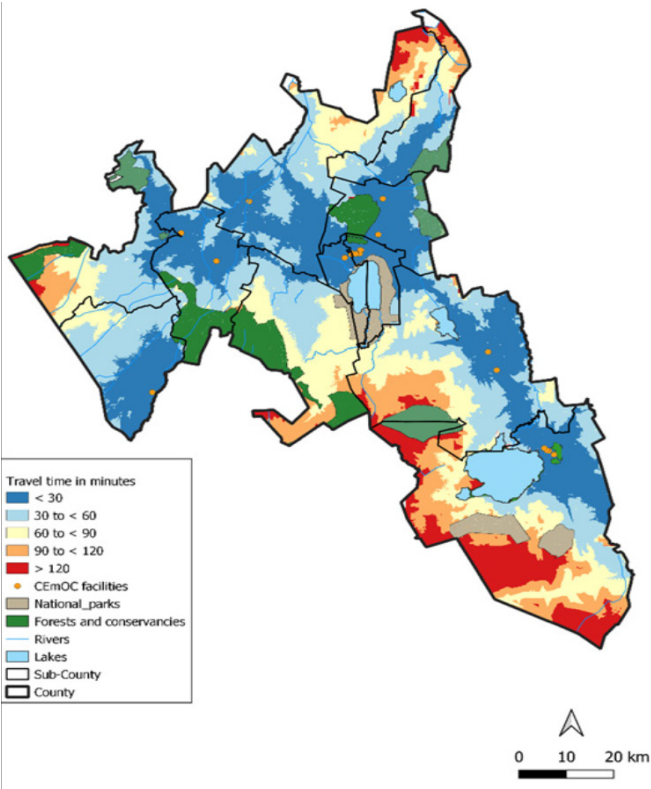
The Service Delivery Redesign assessment reveals that most deliveries (68%) occur at hospitals (Level 4/5 facilities), while most clients obtain antenatal care (59%) and postnatal care (73%) at primary care facilities.



Delivery volumes	No. of facilities (n=203)	%	No. of deliveries (n)	%
High volume (>3/day)	9	4%	33412	55%
Low volume (1-3/day)	25	12%	16057	26%
Very low volume (<1/day)	57	28%	9557	16%
Extremely low volume (<1/week)	112	55%	1702	3%

Currently, approximately 78% of pregnant women in Nakuru live within a 1-hour travel time to a Comprehensive Emergency Obstetric and Newborn Care (CEmONC) facility, with significant variations in accessibility across the county's 11 sub-counties. While this structure is theoretically sound, implementation gaps severely compromise service quality and outcomes.

Map 1 shows the travel time to any of the nearest health facilities (Level 4) providing CEmOnC (n=20) services



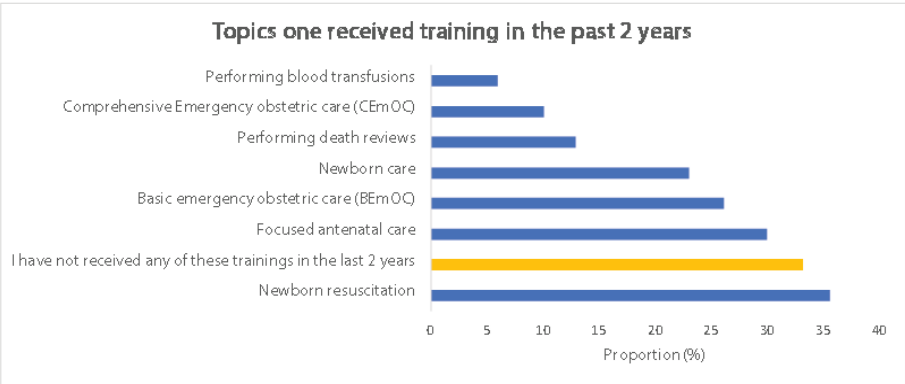
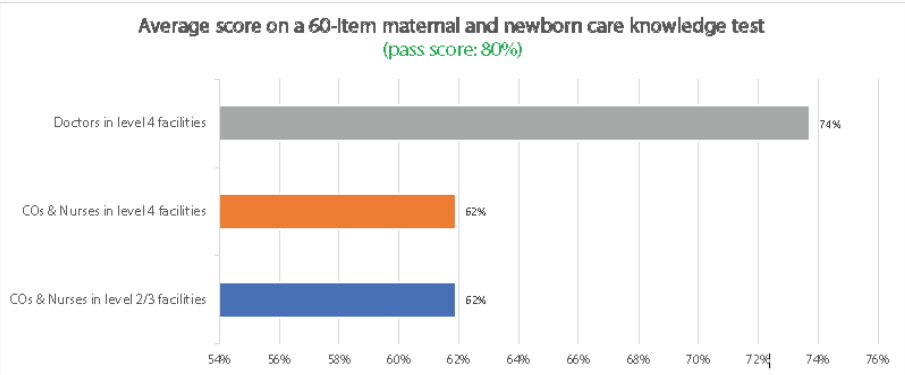
Challenges

Human Resources Constraints

Level 3 facilities struggle with severe understaffing, with often only one nurse handling multiple deliveries per shift. High turnover disrupts continuity of care and patient rapport.

A huge current gap in terms of the number of HCPs required to offer quality delivery and newborn care

- There were 292 medical officers and obstetricians and 850 nurses and clinical officers providing delivery/newborn care in the 32 level 4 facilities (Table 2)



Infrastructure and Equipment Deficiencies

A huge current gap in terms of infrastructure required to offer quality delivery and newborn care

- There were 572 maternity beds in the 32 level 4 facilities, which represents an excess of 202 beds according to hospital norms.
- Of the 32 facilities, 16 had functional newborn units, 25 facilities had functional operating rooms, 24 facilities provided CS services, and 20 provided blood transfusion.
- Within the current context, all these services need to be offered across all 32 facilities (Table 1).

Many Levels 3 facilities lack private, dignified delivery spaces, with reports of up to three mothers sharing a single bed. Essential equipment shortages trigger unnecessary referrals to higher-level facilities, while laboratory congestion creates service bottlenecks. Specialized services like ultrasound scanning remain largely unavailable at local facilities.

Inefficient Referral Systems

When complications arise, mothers face delays in ambulance responses of up to two hours. Poor road infrastructure, particularly in Kuresoi and Subukia sub-counties, further compromises emergency transport. Financial barriers often prevent timely referrals even when medically necessary.

Financial Sustainability Issues

Delayed reimbursements from programs like Linda Mama disrupt service provision. Over half the county health budget goes to staff salaries, leaving minimal resources for infrastructure and equipment. Patients frequently incur out-of-pocket expenses for services not available locally.

Compromised Patient Experience

Field reports document instances of disrespectful care, particularly from older healthcare workers. Patients express concerns about privacy breaches, extended wait times for laboratory services, and financial barriers to accessing prescribed interventions.

Implementation Priorities

1. Infrastructure Upgrades: Develop dedicated maternity wings that ensure privacy and dignity, addressing the critical infrastructural gaps identified in the Service Delivery Redesign assessment
2. Staffing Enhancement: Increase nurse-midwife staffing and provide specialized training to address the serious competency gaps revealed in the knowledge assessment
3. Equipment and Supplies: Ensure consistent availability of essential equipment and commodities, particularly focusing on newborn care units which are currently available in only 16 of 32 Level 4 facilities
4. Diagnostic Capacity: Establish basic diagnostic capabilities to reduce unnecessary referrals
5. Community Integration: Strengthen linkages with community health volunteers
6. Emergency Systems: Enhance ambulance availability and establish clear referral protocols, with particular attention to the 22% of pregnant women who currently live beyond a 1-hour travel time to CEmONC facilities

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This brief was developed by Dr. Jacinta Nzinga | jnzinga@kemri-wellcome.org | Hillary Koros | hkimutai@kemri-wellcome.org | Brian Arwah | barwah@kemri-wellcome.org |

For more information, email Brian.Arwah@kemri-wellcome.org

