King's Global Health Partnerships in Zambia

MARCH 2023

BASELINE STUDY SUMMARY

Emergency care for mothers and babies in the Copperbelt province, Zambia: challenges and opportunities

KING'S HEALTH PARTNERS

KING'S College LONDON

Maternal and neonatal health: the global picture

Globally 15 per cent of women develop complications during pregnancy or after giving birth, leading to the deaths of approximately 300,000 women each year. Ninety-four per cent of these deaths occur in low-resource settings and could have been prevented if the mother had access to quality healthcare before, during, and after birth. Most commonly, women die from severe bleeding, infections or blood pressure disorders in pregnancy.

In addition, 2.4 million newborns die each year, with one million dying in the first 24 hours following birth. Preterm birth, asphyxia and infections are the leading causes of newborn mortality. A child is 10 times more likely to die during its first month of life in Sub-Saharan Africa compared to high-income countries.[1]

Improving primary healthcare for mothers and newborn babies is a core strategy to ensure equitable access to care. Quality healthcare is brought closer to the patient, simultaneously reducing the caseload on specialist hospitals.[2]

MATERNAL AND NEONATAL STATISTICS, ZAMBIA[3]

252 per 100,000

Number of maternal deaths per 100,000 live births. The SDG target is <70.

23 per 1,000

Number of deaths per 1,000 livebirths. The SDG target is <12.

Eight hours

Referrals from primary healthcare clinics to specialist tertiary facilities can take over 8 hours.

Neonatal mortality

Leading causes of neonatal mortality: prematurity complications, asphyxia, and sepsis.

Maternal mortality

Leading causes of maternal mortality: post-partum haemorrhage, sepsis and hypertensive disorders (such as eclampsia).

Maternal and neonatal health in Zambia

Over the past decade, the Government of Zambia has looked to increase the number of facility-based births and invested in increasing universal access. Primary healthcare clinics (PHCs) in Zambia play a vital role in providing basic emergency obstetric and newborn care and ensuring safe referral to secondary and tertiary centres where more specialist care is available. Increasing equitable access to these facilities is a priority for the Zambian Ministry of Health (MoH).

King's Global Health Partnerships (KGHP) is working with 11 PHCs in the Copperbelt Province. These clinics are busy places, with an average catchment population of 42,975 people. This means that staff at the clinics can attend up to 175 deliveries per month, while also providing family planning services, vaccinations, antenatal care, cervical screening and outpatient care, as well as maternity care. A lack of staff and resources makes these facilities challenging places to work.

Together with Zambian colleagues, KGHP are working to strengthen emergency maternal and neonatal care in the province by improving basic and emergency maternal and neonatal care at primary level and reducing the number of inappropriate and late referrals to the tertiary level.

This report summarises the key findings of a baseline assessment conducted by KGHP staff, registrar doctors from Ndola Teaching Hospital (NTH) and postgraduate students from King's College London.

1 WHO, 2022, "Newborn Mortality." 2 Gianetti et al., 2019, "Maternal Mortality Trends and Correlates in Zambia." 3 Ministry of Health, 2016, "Zambia National Health Strategic Plan 2017-2021"

Finding 1: The average time from referral to admission is 2 hours 37 minutes but many patients face longer delays

If a woman in labour requires specialist care, the PHC staff will call an ambulance. There are only two operational ambulances available for Ndola District and roads are poor, causing delays to patient care.

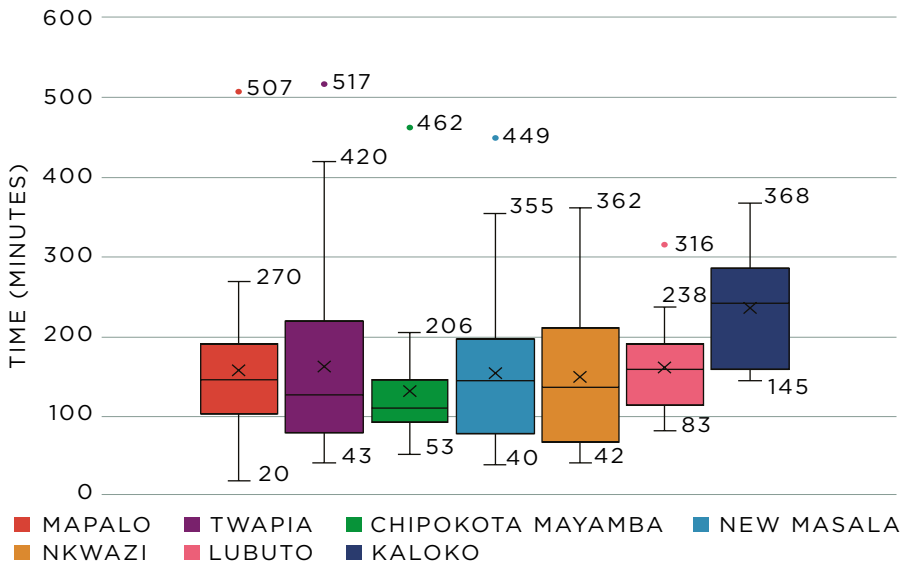
The PHCs furthest away from a tertiary hospital are Lubuto and Kaloko which are 18 and 15km away respectively. Despite the relatively short distance, on difficult roads this can take a long time in an ambulance. Our review of obstetric referrals found that the average time between referral from the PHC and admission at NTH was 2 hours 38 minutes. Most PHC facilities are less than 10km away from a tertiary hospital.

Eighty-five per cent of patients arrived at NTH in less than four hours after the health centre called for the ambulance to refer the patient. Only 8% were admitted at NTH before the one hour mark. The remaining 15% took between four hours and eight and a half hours to be admitted after the facility made the referral.

Maternal near miss cases (patients who came close to experiencing morbidity or mortality according to the sub-Saharan near miss criteria)[4] arrived at NTH almost one hour sooner than those who did not experience a near miss. They also spent less time at the PHC before a referral call was made. This suggests that the PHC staff are recognising higher risk patients and prioritising them appropriately.

4 Tura et al., 2017, "Adaptation of the WHO maternal near miss tool for use in sub-Saharan Africa: an International Delphi study"

Average time between call for referral by PHC and admission to tertiary hospital



Finding 2: Blood pressure disorders are a major cause of obstetric emergencies

Our assessment of emergency obstetric referrals confirmed that hypertensive disorders and high blood pressure were significant contributors towards obstetric emergencies.

The assessment showed that mothers who experienced a near miss were on average registering the pregnancy at the PHC, 5 weeks later than those who did not experience a near miss. 'Near miss' mothers also had higher blood pressure than 'non-near miss' mothers. The most common reason for referral resulting in a near miss case was hypertensive disorders of pregnancy (55%) and obstetric haemorrhage (33%).

In addition, babies born to mothers who had experienced a near miss were more likely to need further monitoring and treatment (56%) compared to babies born to mothers who had not experienced a near miss (20%).

THE MOST COMMON REASON FOR REFERRAL RESULTING IN A NEAR MISS CASE WAS

hypertensive disorders of pregnancy (55%)

Finding 3: There is a need to develop the skills of midwives to manage the key causes of maternal and neonatal mortality

NINETY PERCENT OF STAFF FROM THE SELECTED PHCS REPORTED FEELING FULLY CONFIDENT TO HANDLE OBSTETRIC EMERGENCIES. HOWEVER, IN PRACTICE:

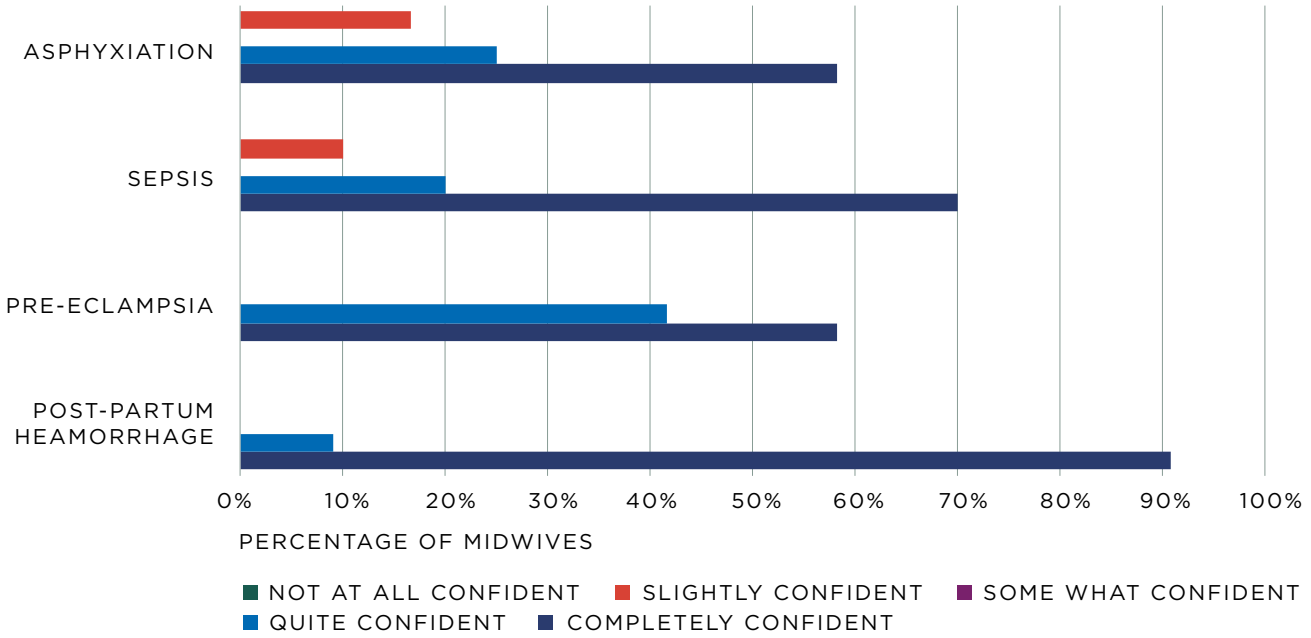
Only 17% were assessed as having the appropriate skills to handle post-partum haemorrhage.

Only 8% of midwives could appropriately recognise and handle sepsis cases.

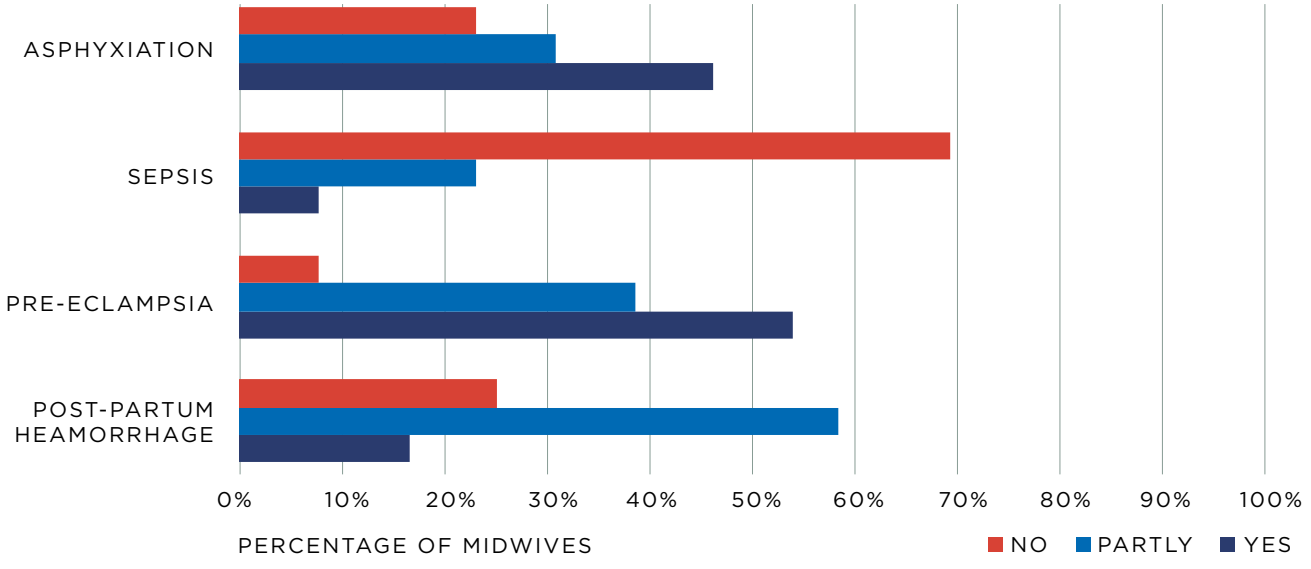
Nearly 50% of midwives lack the knowledge and skills to handle asphyxiation and pre-eclampsia cases.

There is a need for increased training on handling all emergency obstetric complications. Both the Ministry of Health and other NGOs have previously conducted trainings on obstetric and neonatal care in Ndola. However, ensuring sustainable financing for continuous professional development has been a challenge.

How confident are midwives in dealing with common emergency obstetric and neonatal scenarios?



Do midwives have the knowledge and skills to deal with common emergency obstetric and neonatal scenarios?

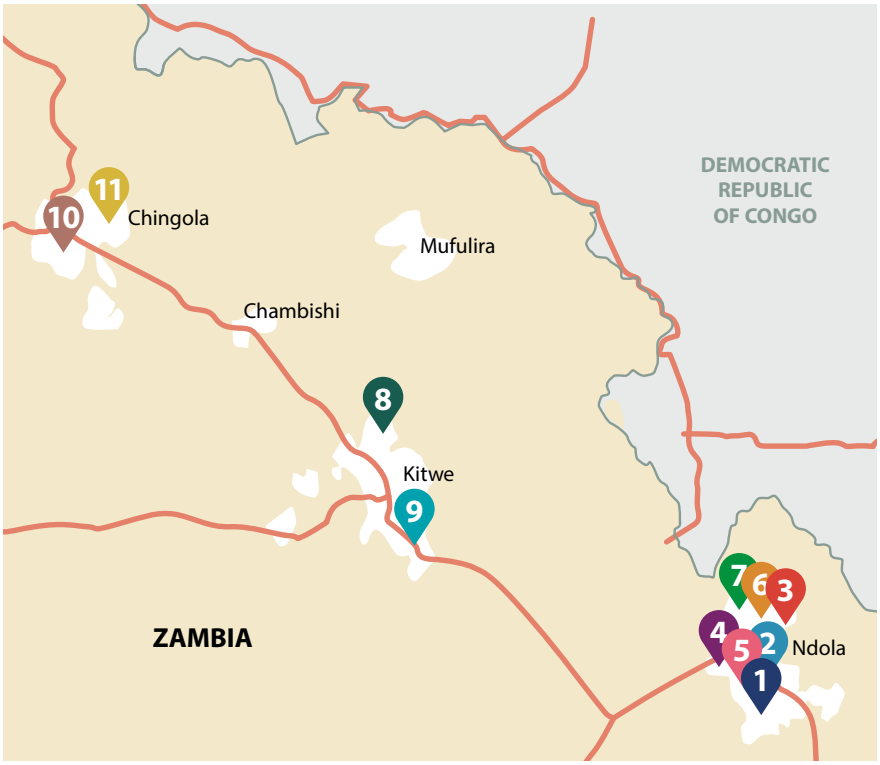


Finding 4: The critical shortage of staff, equipment and supplies significantly hampers effective referrals

PHC facilities are mainly staffed by nurses and midwives. However, there is a significant lack of staff, often causing them to be overworked and having a negative impact on patient care. Midwives must accompany the patient in the ambulance, leaving the labour ward in the hands of a general nurse who may be untrained in obstetric care.

Most PHC facilities do not have access to a doctor. Doctors assigned to PHC facilities are usually assigned to multiple facilities and practise general medicine, seeing outpatients, as well as overseeing maternal services.

There is also a lack of equipment and medical supplies. This drives unnecessary referrals outside of clinical guidelines, as PHC midwives cannot perform even simple procedures without the right consumables and equipment.



Availability of sufficient resources at each primary healthcare clinic:

		Catchment population	Ultrasound	Neonatal resus ambubag	Urine dipstick	Blood count reagents	Incubators	Labour beds	Neonatal warmers	BP monitors	Oxygen
1	KALOKO	19120	✗	✗	✗	✗	✗	✗	✗	✗	✗
2	NEW MASALA	52981	✗	✗	✗	✗	✗	✓	✗	✗	✗
3	MAPALO	47898	✓	✗	✗	✗	✓	✗	✗	✗	✗
4	TWAPIA	26187	✗	✗	✗	✗	✓	✗	✗	✗	✗
5	LUBUTO	49160	✗	✗	✗	✗	✗	✓	✗	✗	✗
6	NKWAZI	41324	✗	✗	✗	✗	✗	✗	✗	✗	✗
7	CKM	63095	✓	✗	✓	✓	✓	✗	✓	✗	✓
8	KAWAMA	35035	✗	✗	✓	✓	✗	✗	✗	✗	✗
9	MULENGA	42685	✗	✗	✓	✗	✓	✓	✓	✗	✓
10	CHAWAMA	43448	✗	✗	✗	✗	✗	✗	✗	✗	✗
11	KABUNDI	33773	✓	✗	✓	✗	✗	✗	✗	✓	✗

Finding 5: More collaboration between primary and tertiary healthcare staff can have a positive effect on referrals

"I have one colleague who worked from the hospital, and she said: 'When I was working from there, I thought the midwives from the clinic were irrelevant, they were just putting pressure on us and they didn't want to work. But when I came to the clinic, I understood'. She was having that understanding, she was really confessing: 'Before, I thought you were mean.' So I think it works well when people exchange." (Midwife at PHC facility)

Interviews with midwives and doctors at NTH showed that staff at the tertiary hospital have a poor perception of primary healthcare staff. Tertiary staff believe PHC staff lack the appropriate skills and would rather pass a patient on to the hospital than manage the case themselves. The perceived lack of skill, motivation and mutual understanding of working conditions inhibits positive working relations between primary and tertiary facilities. On the other hand, PHC facility staff do not feel valued by the staff at NTH as their skills are often questioned by the doctor on call. Lack of resources and staff contribute to situations where national referral guidelines are not followed and tense, mistrustful relationships can develop between primary and tertiary staff.

Healthcare workers (HCWs) at all levels valued inter-facility collaboration, as this provided the possibility to learn from each other and gain understanding about each other's working conditions. Mutual understanding increased where HCWs collaborated more frequently and were able to focus on ensuring positive patient outcomes collaboratively.

"It gives me that kind of positive attitude, I get motivated to put in more. I know that the team I have is supportive and the communication with the clinics is also good. So that gives me the desire to actually do more." (Midwife at NTH)

Key learning points

To further improve the quality of emergency obstetric and neonatal care in Ndola District, Zambia, there is a need to:

- Provide further training and mentoring to HCWs in recognising and managing patients with **sepsis, post-partum haemorrhage, pre-eclampsia (and hypertension) and neonatal asphyxiation.**
- Increase dialogue and collaboration between primary and tertiary HCWs to improve teamwork and communication in the referral process.
- Undertake research into **health-seeking behaviour, antenatal care and appropriateness of referrals** to understand women's pathways from their first antenatal visit to delivery.
- Address the bottlenecks caused by pre-hospital transport, ensuring that patients can be referred quickly to tertiary centres.
- Address **supply chain issues** that threaten the sustainable resourcing of PHCs.
- Address s**taff shortages and low retention in primary health care.**
- Engage with the Ministry of Health through national, provincial and district offices to ensure that continuous professional development of HCWs is **sustainably resourced and managed.**

This research was conducted as part of the project: Improving the survival of mothers and babies at off-track primary healthcare facilities in the Copperbelt Province, Zambia, funded by the James Percy Foundation. KGHP and partners are working to improve the quality of care at primary health care level and increase the number of safe referrals, thereby improving the survival chances of mothers and newborns.

To achieve this goal, we are:

- Building the confidence and skills of PHC staff to manage maternal and neonatal complications and emergencies appropriately and safely.
- Addressing the lack of basic equipment and training materials at the primary level.
- Strengthening communication and working relationships between healthcare workers at the PHC facilities and the two tertiary hospitals in Ndola: Ndola Teaching Hospital and Arthur Davison Children's Hospital.

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King's Global Health Partnerships

King's Global Health Partnerships works with health facilities, academic institutions and governments to strengthen health systems and improve the quality of care in four countries: Somaliland, Sierra Leone, the Democratic Republic of Congo and Zambia. We bring together health, academic and international development expertise from King's College London, the UK's National Health Service (NHS) and our international partners to: Educate, train and support healthcare workers, strengthen healthcare and training institutions, and enhance national health policies and systems. This report summarises the key findings of a baseline assessment which sought to identify the current state of maternal and neonatal care in Ndola District through an assessment of 11 Primary healthcare clinics and two tertiary facilities (Ndola Teaching Hospital and Arthur Davison Children's Hospital).

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