CHAMPS in Practice – Data to Action

CHAMPS collaborates with local MoH to reduce neonatal mortality by promoting Kangaroo Mother Care (KMC) and Enhancing Emergency Obstetric Care (EmOC) in Siaya, western Kenya

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Summary

UNICEF targets for neonatal mortality rate (NMR) is 12 per 1000 live births [1], however in Kenya the neonatal mortality rate has remained significantly high at 21 deaths per 1,000 live births [2]. The Child Health and Mortality Prevention Surveillance (CHAMPS) identified key causes of neonatal deaths related to complications of intrapartum events, complications of prematurity, infections and respiratory disorders with recommendations for preventability most often including improved clinical management and quality of care for neonates (49%), improved antenatal and obstetric care and management (49%) and improved infection prevention and control (27%) [3] . These findings necessitated a collaborative effort between the Siaya County Department and CHAMPS Kenya to implement targeted interventions and reduce neonatal deaths.

The implementation was pegged to three main strategies based on CHAMPS findings: (1) Kangaroo mother care (KMC), which promoted skin-to-skin contact between mothers and preterm or low birth weight infants to regulate temperature, enhance breastfeeding and improve survival rates; (2) Enhanced emergency obstetric care (EmOC), which involved training healthcare workers (HCWs) to manage

obstetric emergencies more effectively, ensuring timely and adequate care for mothers and newborns; and (3) Training on emergency triage, assessment, and treatment (ETAT), which provided HCWs with specialized training to improve the initial assessment and treatment of emergency cases, enhancing the overall quality of neonatal care. Additionally, health providers from maternity and newborn units developed work improvement teams, identify specific quality of care (QoC) gaps, and action plans for addressing those gaps.

The outcomes were a reduction in neonatal deaths, with infants receiving KMC showing improved survival rates; enhanced HCWs skills through EmOC and ETAT training, leading to better neonatal outcomes; and increased awareness and acceptance of KMC and the importance of timely obstetric and neonatal care by the mothers. These simple but effective interventions have potential for scale-up in similar settings.

Background and context

Despite overall improvements in childhood health, Kenya still struggles with high neonatal mortality at 21 deaths per 1000 live births [2] which has only slightly decreased from 33 per 1,000 live births in 2003 to 31 per 1,000 in 2008 and subsequently to 22 per 1,000 in 2014 [4]. The Data-to-action (D2A) workstream uses data from CHAMPS to guide public health actions at various levels, focusing on maternal and child health. In Kenya, D2A collaborates with the Ministry of Health (MoH) and County Departments of Health in Kisumu and Siaya to improve neonatal and pediatric care and health-seeking behaviors. CHAMPS and the MoH have enabled county-led interventions, informed resource allocations, and tailored recommendations to reduce childhood mortality. This collaboration has also enhanced community and health facility engagement, fostering sustainable, context-specific health improvements.

The county government of Siaya, utilizing CHAMPS findings which show the high neonatal mortality was mainly due to premature and small-for-gestational-age (SGA) infant deliveries at Siaya County Referral Hospital (SCRH), decided to implement kangaroo mother care (KMC) among other-data-to-action initiatives aimed at improving the quality of care thereby reducing neonatal deaths. KMC is a transformative and lifesaving practice in low and middle-income countries (LMICs) for the well-being of premature and low-birthweight infants [5] [6]. It is also regarded as good practice for newborns in general especially in low resource settings [7].

Intervention

Some of the interventions that CHAMPS in collaboration with the Ministry of Health, Siaya County, undertook include:

1. **Kangaroo Mother Care:** Health providers were sensitized and mentored to provide KMC at SCRH between the second and third quarters of 2022. Implementation of KMC targeted premature and SGA neonates to achieve the desired temperatures outside the uterus by having skin-to-skin contact with the mother, father or caregiver to prevent death from exposure to low temperatures outside the uterine environment of about 37^0C (Figure 1). This helped the babies achieve ideal temperatures for survival. Additionally, the CHAMPS team supported the renovation of the KMC room which accommodates approximately 15 mothers/caregivers (Figure 1). Through a cost-sharing mechanism, CHAMPS also supported the hospital to acquire room warmers and incubators in the spirit of sustainability. Continuous education of mothers on the benefits of KMC
2. **Enhanced Emergency Obstetric Care (EmOC) Training:** This involved training healthcare providers to manage obstetric emergencies more effectively, ensuring a better quality of care for mothers and newborns.
3. **Training on Emergency Triage, Assessment and Treatment (ETAT):** Provided healthcare workers with specialized training to improve the initial assessment and treatment of emergency cases, enhancing the overall quality of neonatal care.
4. Training community health volunteers (CHVs) to identify and refer at-risk mothers and children.

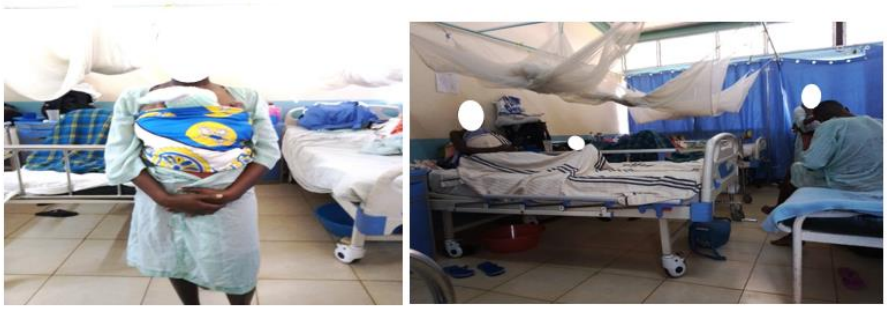

Figure 1. Kangaroo mother care (KMC). A mother giving KMC to her newborn baby at SCRH (L). KMC room at Siaya County Referral Hospital (SCRH) accommodating several mother-infant pairs (R).

Impact of interventions

1. **Kangaroo Mother Care: Increased awareness among mothers and caregivers -** Continuous education and health talk efforts raised awareness and acceptance of KMC and the importance of timely obstetric and neonatal care. This has led to almost a doubling of admissions to the KMC unit in Siaya sub-County between 2022 and 2023 (Figure 2).

2. **EmOC and ETAT training: Enhanced Healthcare Worker Skills -** the enhanced training programs for healthcare providers in EmOC and ETAT improved the management of obstetric emergencies and the initial assessment and treatment of neonatal emergencies, thereby enhancing the overall quality of neonatal care and contributing to better neonatal outcomes
3. **Neonatal mortality reduction:** The introduction of KMC, enhanced EmOC and ETAT training significantly decreased neonatal deaths. Figure 3 shows that increased admissions to the KMC were accompanied by a gradual decrease in neonatal deaths. Crude death rates calculated by dividing the total number of deaths by the sum of newborn unit (NBU) and KMC admissions also showed a decline that is concurrent with the timing of the revamp of KMC (Figure 4).
4. Informed by the result of these good practices, the county formed a WhatsApp group where all maternal deaths, fresh stillbirths, macerated stillbirths, and neonatal deaths are audited and reviewed weekly.

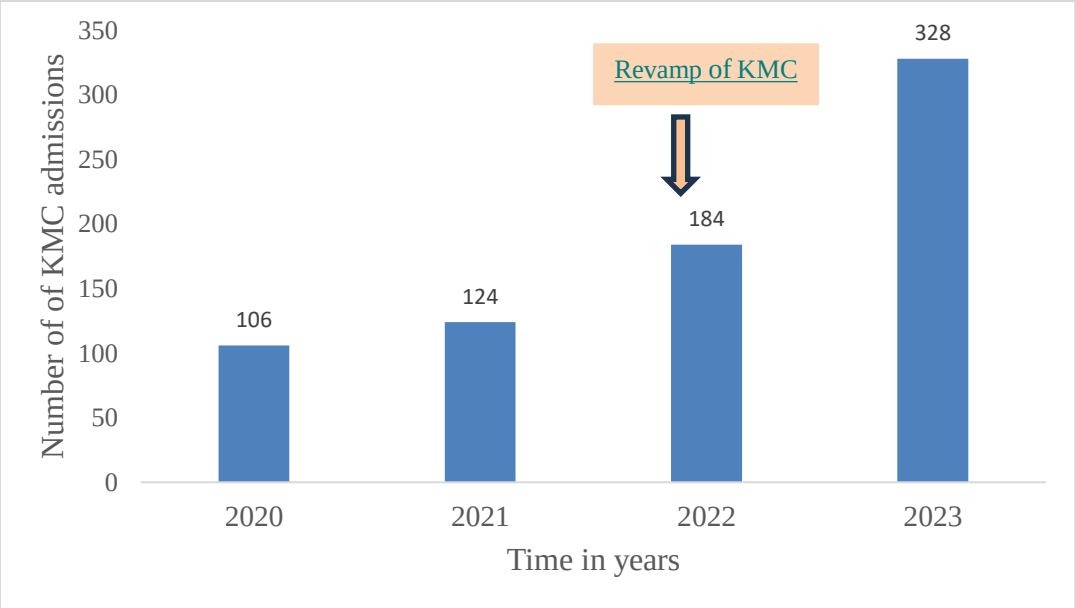

Figure 2: Number of KMC admissions by year in Siaya County Referral Hospital (Data was only available from 2020).

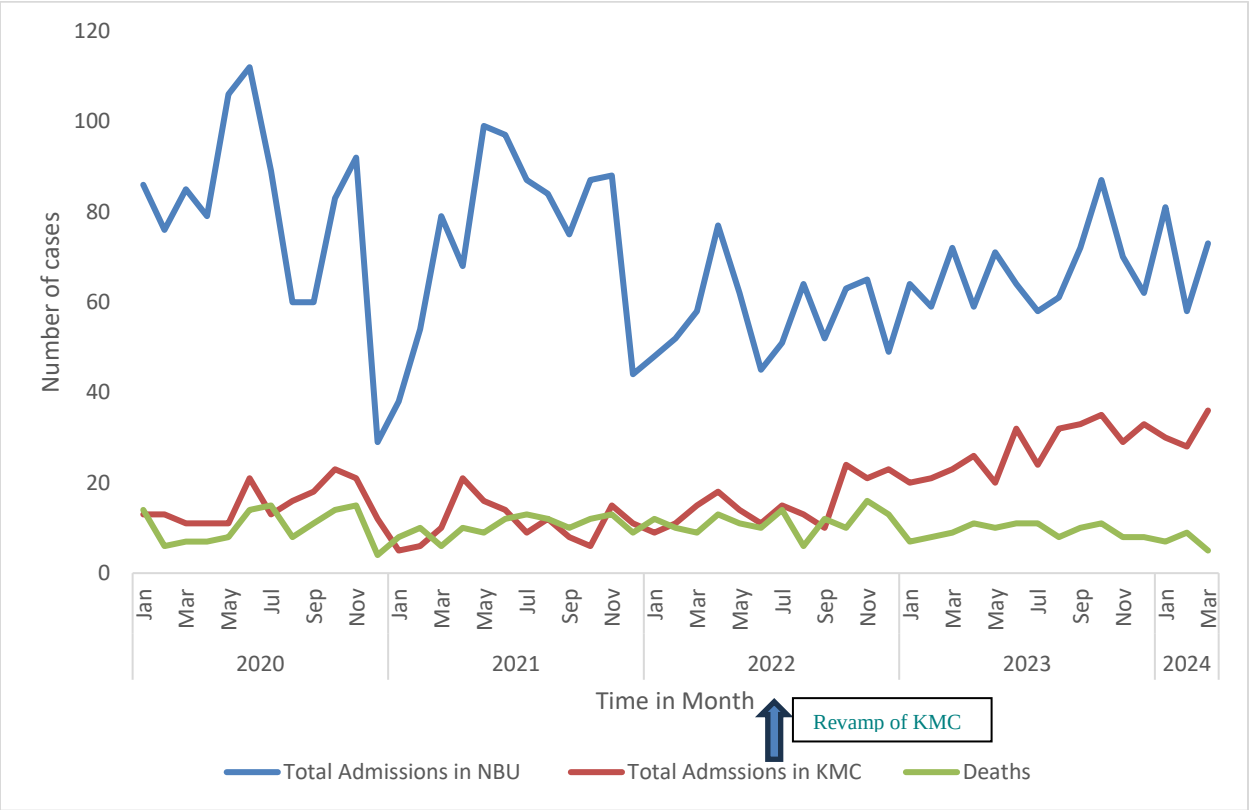

Figure 3: The trends in admissions to the newborn and kangaroo mother care units, as well as deaths, by month (Data was only available from 2020).

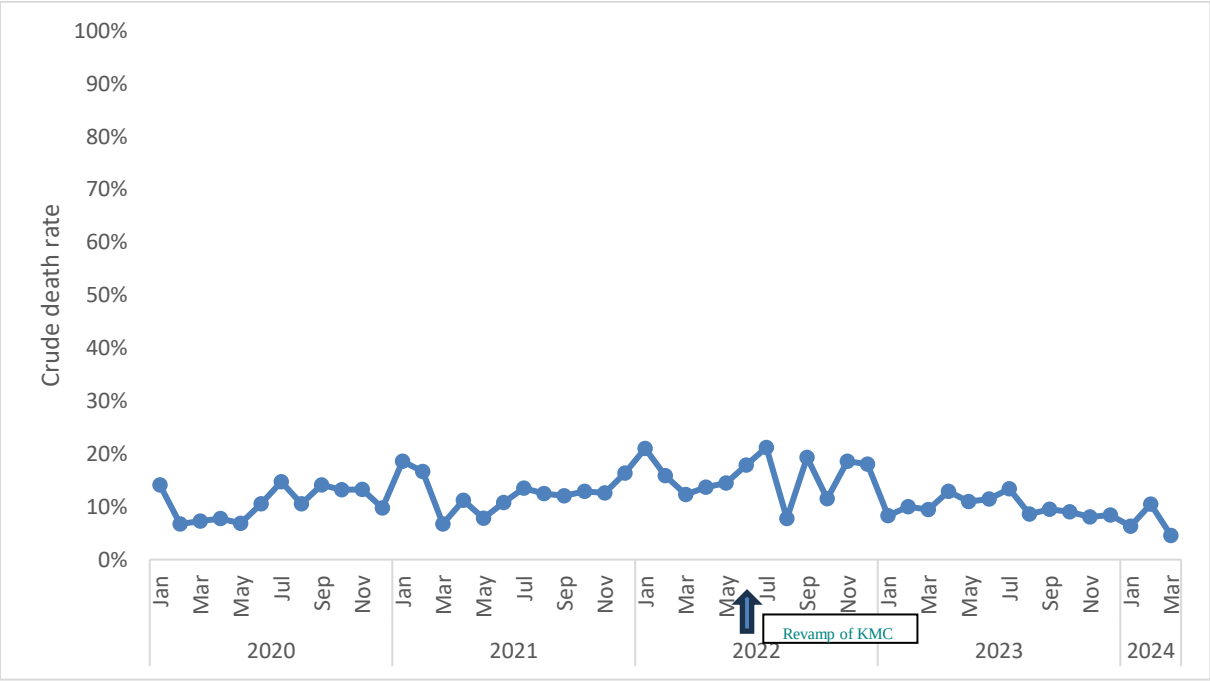

Figure 4: Trend in crude death rates by month.

Lessons learned

1. This case study demonstrates that interventions informed by CHAMPS findings, such as KMC, enhanced EmOC, and ETAT training, can effectively reduce neonatal mortality. The combined intervention approach in Siaya offers a successful model for improving neonatal and maternal health outcomes in similar settings.
2. The team learnt that with good KMC practice, there were good outcomes for babies born with low birth weight, hence a reduction in the management cost as they did not need to be put in an incubator to keep them warm.
3. We also learnt that through the KMC approach, the number of children dying from hypothermia greatly reduced.

Challenges:

1. Inadequate space (with limited bed capacity): With SCRH being a referral centre serving several other peripheral facilities, many mothers were assigned to the KMC unit leading to congestion, putting mother-infant pairs at risk of nosocomial/hospital-acquired infections.

2. Most women did not want to practice skin-to-skin care as the babies appeared small.
3. Also, there is a lack of knowledge of the importance of kangaroo care. The community engagement was targeted at health care workers and caregivers and focused on the importance of keeping the baby warm even if in transit due to the limited resources available, i.e. incubators for use.
4. Inadequate room heaters: Currently, only one room heater is assigned to the KMC room and this is insufficient to heat up the entire room.

Recommendations:

1. **Expand KMC Programs:** Scale up KMC programs to other health facilities within the county and beyond, ensuring that all facilities have the necessary infrastructure, such as KMC rooms and adequate equipment, such as warmers and incubators.
2. **Continuous Training:**
    - Conduct regular training and refresher courses for healthcare providers on managing obstetric emergencies, ensuring they are well-prepared to handle complications during childbirth.
    - Provide ongoing training for healthcare providers on the benefits and techniques of KMC to maintain high standards of care.
    - Continue and expand ETAT training for healthcare workers to improve their ability to assess and treat neonatal emergencies promptly and effectively.
3. **Adequate Resources:** Ensure that all healthcare facilities are equipped with the necessary resources and supplies, including medications, medical devices, and skilled personnel, to provide effective EmOC.
4. **Strengthen Supportive Supervision and Regular Monitoring**: Establish a routine for regular supportive supervision visits to healthcare facilities to ensure adherence to protocols and provide on-the-spot training and support.
5. **Utilize Data for Continuous Improvement and Data-Driven Decisions**: Use data from CHAMPS and other surveillance programs to guide public health actions and resource allocations, ensuring interventions are targeted and effective.

6. For health facilities considering initiating or reactivating KMC, the advice would be to actively engage the community, especially pregnant women and their birth companions, on KMC.
7. Worth noting is that KMC can be done at lower facilities like sub-county hospitals, health centres, and dispensaries. Not much is needed for KMC. Once this awareness is created, we won't need to admit many babies. Consequently, a large space won't be necessary because we will have fewer referrals at SCRH. In addition, KMC can be done at home.

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