**Full Title: Implementation of the caring for providers to improve patient experience (CPIPE) intervention in Migori County, Kenya: challenges, successes, and lessons**

Short Title: **CPIPE implementation in Kenya**

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**Abstract**

Key drivers of poor Person-Centered Maternal Care (PCMC)—respectful and responsive care—include provider stress and unconscious bias. The *Caring for Providers to Improve Patient Experience (CPIPE)* intervention, a 5-component intervention including provider training, peer support, mentorship, embedded champions, and leadership engagement, was successfully piloted over 6-months in two health facilities in Migori County. Didactic and interactive content to promote PCMC and address stress, burnout, difficult situations, and bias, was delivered during a 2-day training. Facility-based embedded champions then led monthly refreshers and facilitated peer support groups. Twenty-four mentors provided mentorship across various topics with paired mentees. We engaged facility and county leadership through a community advisory board (CAB). *CPIPE* increased provider awareness and commitment to avoid bias and provide PCMC to all women; increased awareness of techniques for managing stress and difficult situations; created a supportive workplace culture and facilitated advocacy with leadership to address sources of stress, provide mental health supports, and provide PCMC. Challenges included limited training time, hierarchical facility culture which hindered cross-cadre activities, varying levels of site engagement, competing demands, and leadership changes. *CPIPE* is an innovative and practical intervention which centers the experiences of the providers and the care of vulnerable women. The pilot success underscores the timeliness, relevance, and feasibility of similar interventions in resource-constrained settings. CPIPE advances the evidence base for interventions to improve patient and provider experiences of maternal care.

## Introduction

Despite progress, an estimated 800 pregnancy-related deaths occur daily-most in low- and middle-income countries (LMICs) and about two-thirds in sub-Saharan Africa (SSA).[1] Skilled care in health facilities is critical to improving maternal and neonatal outcomes. Yet, in SSA, many births do not occur in health facilities—with wide disparities, especially by socioeconomic status (SES). [2] The most recent Kenya Demographic and Health Survey (DHS) found that only a third of the poorest women delivered in health facilities, as compared to over 90% of the wealthiest women. [3]

Poor person-centered maternal care (PCMC) contributes to disparities in facility-based deliveries.[4,5] Further, where facility-based childbirth rates have increased, poor PCMC contributes to morbidity and mortality through delayed, inadequate, unnecessary, or harmful care.[6] PCMC, care that is respectful of and responsive to people's preferences, needs, and values,[7] is a priority in the global quality of maternal care discourse due to the prevalence of disrespectful, abusive, and neglectful treatment of women during childbirth.[8–11] Low SES women often have the worst experiences, which impacts their care seeking . [10–12] While studies have highlighted drivers of poor PCMC including inadequate provider knowledge, stress, burnout, and bias, there is limited research on interventions to improve PCMC in LMICs.[13] Further, past interventions have not explicitly addressed the drivers of inequities in PCMC.

To address this gap in evidence-based interventions to improve PCMC, we designed *"Caring for Providers to Improve Patient Experience" (CPIPE)* , an innovative and theory-driven intervention to address poor PCMC and center the needs of vulnerable women and providers. *CPIP*E's five 5 components include: provider training, peer support, mentorship, embedded champions, and leadership engagement. The training integrates content on PCMC, stress, burnout, and bias into emergency obstetric and neonatal care (EmONC) simulations. Providers manage stress, prevent burnout, and mitigate the effects of bias to advance high quality equitable care. The four remaining components create an enabling environment for change. *CPIPE* was informed by prior research,[14–20] the Ecological Perspective,[21] Social

Cognitive Theory,[22] and Trauma Informed System framework, [23] and designed through iterative research and stakeholder feedback described previously.[24] In this report, we describe the piloting of the intervention and highlight challenges and successes observed during implementation as well as lessons learnt.

**Pilot Intervention implementation**

*CPIPE* was piloted over 6-months (October 2021 to April 2022) in two health facilities in Migori County. The first facility, Migori County Referral Hospital (MCRH), is the referral hospital for the county, with a 225-bed capacity, an average of 28 doctors and 145 nurses and midwives: with over 4200 deliveries annually. The second, Kuria West Sub County Hospital (*Kehancha*), is an 84-bed facility with an average of 3 doctors, 25 nurses and midwives: with about 1300 births annually. Sites were selected with input from the CAB following formative work.

***Initial training***

The CPIPE training was conducted with providers from the two intervention facilities in October 2021. All providers from intervention facility maternity units were invited to facilitate facility culture change. To prevent gaps in patient care, facility leads formed two groups of providers who attended two separate 2-day trainings. The first day included didactic and interactive sessions on PCMC, stress and burnout, mindfulness, bias, and difficult situations. The second day applied these concepts using two simulations: (1) birth with non-responsive baby and (2) post-partum hemorrhage (training agenda in supplement). We utilized PRONTO International's high-fidelity simulations, where providers play the role of the patient, enabling them to engage with the patient perspective to advance PCMC.[25,26] Simulations were followed by a debrief on the patient and provider experience. Providers then developed individualized self-care plans to reduce stress, the impact of bias, and improve PCMC. Peer support and mentorship activities were introduced at the end of the second day. The training was attended by 28 providers from MCRH, 17 providers from Kehancha, and 15 CAB members inclusive of county health leaders.

***Embedded champions and refresher trainings***

Facilities nominated two embedded champions per site based on the nominee's commitment to maternity care and potential for leadership. Champions served as the point of contact for the facility, led activities including monthly refresher trainings and peer support groups, and were role models and change agents for intervention sustainability. We conducted a leadership orientation for the champions and developed materials for them to facilitate refreshers in their facilities. The initial 2-day training was followed by four refresher trainings. Our study team facilitated the first two refreshers, in November 2021 and January 2022, on peer support and mentorship; and the champions facilitated the other two on stress management and unconscious bias in March and April 2022. The refreshers included didactic and facilitated discussions using case studies. To facilitate ongoing learning, we created a *WhatsApp* messaging group for providers and study team to share resources and content. Weekly materials on PCMC, bias, stress management, mindfulness and self-care activities were shared. We also connected providers with two clinical psychologists for mental health support in the county.

***Peer support***

Following consultation with site-based teams, we facilitated formation of cadre-specific groups to openly share experiences. MCRH formed 4 peer groups: two groups of 7 and 8 nurses, respectively, one group for 3 doctors and 2 clinical psychologists, and a group for 5 support staff. Kehancha formed two support groups for 14 nurses (7 each), and a group for 4 support staff (no doctor in maternity unit during this period). Meetings were held monthly and led by a peer leader selected by each group. Groups engaged in stress management and teamwork activities including practicing breathing exercises, songs, and dance during meetings. In addition, they discussed issues such as experiences at work, supply chain shortages, delayed salaries, lack of proper toilet facilities, and challenges with night duty. Peer groups brainstormed, championed, and advocated for solutions with leadership.

***Mentorship***

We conducted a brief survey on mentoring capacity, needs, and preferences with providers and identified 24 mentor-mentee pairs. Mentors and mentees participated in an introductory session designed to facilitate effective mentorship relationships. Mentors also attended the embedded champions training to strengthen their role as supportive mentors. Mentor-mentee pairs were encouraged to meet at least monthly. Each pair met formally at least once a month, with additional informal meetings among some pairs. Mentorship topics included stress management, PCMC, unconscious bias as well as clinical topics such as neonatal resuscitation, post-partum hemorrhage management, and breastfeeding support. Some mentors provided experiential learning opportunities during their regular work in the maternity units, while others met mentees in their skills labs for simulations.

***Leadership engagement***

To promote sustainability, we engaged facility and county leadership and key stakeholders early and throughout the process. We formed a 15 member CAB, which included the County Director of Health, Deputy County Directors of Health (medical services and public health), County Reproductive Health Coordinator; facility and maternity unit heads; and clinical, support staff, and community representatives. The CAB meetings, held quarterly, were led by the CAB chair (the County Executive Committee Member for Health at project inception). Meeting dates, agendas, and venues were determined in consultation with CAB members. In addition, recognizing that our intervention is unable to address some issues including staff shortages, lack of drugs, supplies, and equipment, and infrastructural issues, we engaged leadership in discussions to address these broad systemic challenges.

**Challenges**

The study met its goals of (1) designing the CPIPE intervention, (2) piloting the intervention to assess feasibility, and (3) collecting data to assess acceptability and preliminary effectiveness, despite the

challenges of the COVID-19 pandemic. Nonetheless, there were some challenges we had to overcome during implementation.

1. ***Facilitating cross-cadre learning*:** While we endeavored to facilitate cross-cadre collaboration and teamwork among doctors, clinical officers, nurses, midwives, and support staff, differing levels of literacy and comprehension made mixing-cadre during trainings challenging. Some support staff struggled with some of the content, while some clinicians felt uncomfortable being in the same training with support staff.
2. ***Location, time, and timing***: Given budget limitations, we were unable to house trainees at the meeting venue; many arrived later than anticipated since they were traveling from afar. This delay limited time for applied skills and team building. A few nurses also attended the training fatigued following their night shifts, which negatively impacted their participation.
3. ***Varied momentum in intervention activities across sites***. While one facility was able to kick start peer support activities almost immediately, the first two peer support meetings in November and December 2021 at the referral facility were delayed. Activities resumed in January 2022 with nurses and support staff participating enthusiastically—even wishing the study period could be extended. However, due to competing demands, doctors, clinical officers, and clinical psychologists at the referral facility were not able to participate in peer support groups.
4. ***Mentorship capacity*:** Some mentors did not feel prepared for their role. While the study intended for mentoring to be self-driven, many had no previous mentorship experience or had only previously experienced structured clinical mentorship, thus, had similar expectations for this project. Clinical mentorship was also hindered by competing demands and the lack of a skills lab in one facility.
5. ***Leadership changes***: We experienced several leadership changes during the intervention. While we engaged various leaders within the county to facilitate buy in and promote sustainability, some were political appointees whose tenures changed during the intervention period. The study thus had to reiterate, reintroduce, and reorient new leaders to the project, impacting momentum.

6. ***Managing expectations***: Some providers initially had high expectations of the project, including expectations for large financial incentives to participate in intervention activities and expectations that the study will directly resolve health systems challenges. The study team often had to manage these requests and reiterate the position of the study, as well as advocate for systems issues to be managed with the county leadership.
7. ***Limited mental health resource*s:** Migori County has two trained clinical psychologists—both working in the referral hospital (one of the intervention sites), yet providers were not utilizing these services. Providers were ambivalent about accessing their support mainly due to privacy and confidentiality concerns, as services were provided in the same areas where patients and other providers may see or hear discussions. Further, psychologists were often busy with patient care due to the high patient-to-psychologist ratio. Finally, psychologists were not very accessible to providers from other sub counties, who found it difficult to travel far to seek support.

**Successes**

The project's nimbleness, including alignment with county-wide initiatives facilitated success in the following areas:

1. **High participation**: Due to the increased interest in the intervention and training, we trained 60 people (vs. the 40 initially planned). Refresher trainings revealed that providers took a keen interest in intervention activities. Due to the refresher training locations, other providers outside of the maternity unit were also exposed to the intervention. For example, one of the monthly refresher trainings attracted staff from other departments who actively participated in the training sharing their various stressful experiences. Providers also shared that they are aware of their biases and willing to work on their unconscious biases. For example, during one of the refresher sessions, providers acknowledged their preferential treatment of women of higher SES better and resolved to treat all mothers respectfully, regardless of their SES. Further, providers shared experiences of how they have applied stress management techniques, including breathing techniques to manage difficult situations.

2. **Supportive work environment**: Peer support meetings were perceived to be an outlet for providers who were suffering silently. Groups used music and dance for stress management, allowing providers to return to work feeling more invigorated. Providers were reported to be more open, closer to their peers, and successfully making space to address the stressors in their work. Further, peer support meetings allow the discussion of topics that may have been considered sensitive such as seeking mental health support. Providers' attitudes have reportedly shifted because of the peer support meetings, and this has reflected in the care for mothers.
8. **Increased agency and self-advocacy**: Providers reportedly feel more empowered to advocate for their rights and resources they need. For example, nurses and midwives were able to raise the issue of unavailable and uncommitted doctors on night calls, which was stressful for the nurses on duty. This prompted the replacement of one medical officer. They also advocated for a room for the doctors to spend the night in and help manage overnight emergencies, rather than being called in from their homes which affected timeliness of managing emergencies. Further, advocacy for lack of essential supplies led to discussions on supply chain management in the facility and provision of some essential commodities such as blood pressure machines, thermometer, and other non-pharmaceuticals. Additionally, support staff in the referral facility who had not received their salaries for 11 months, discussed their situation with leadership, and decided to walk off their jobs when unable to reach a collective bargain, which prompted action to pay them from a different budget allocation. This made the other intervention site to produce a way of paying their support staffs to avoid what was experienced in the referral facility.
9. **Increased advocacy for patients**: Providers also report advocating for the rights of patients following the training on respectful care. For example, one of the intervention sites had no toilet facility in the maternity unit, forcing mothers in labor or post-delivery to bathe or use the toilet outside in the open. Providers noted the lack of privacy, respect, or dignity for the mothers, and raised this issue with the facility in-charge. As a result, the facility is now in the process of digging and constructing proper toilet facilities. The county is also planning to hold open maternity days with the

assistance of the facility management team, to allow mothers to talk about the kind of care they receive from the health care providers.

10. **Mentorship enhancement**: Although the *CPIPE* mentorship program was not initially intended to be a clinical mentorship program, it helped resurrect clinical mentorship in the facility. For example, one of the intervention sites had a skills lab that was not operational because they lacked surgical towels. Given interest in using the lab to provide mentoring on clinical skills, the study purchased the surgical towels, which cost five thousand Kenya shillings, helping the lab become operational. Providers were able to mentor each other on handling difficult clinical cases using simulations, where they continued to focus on respectful maternity care. Nurses report being more confident to manage PPH, helping reduce stress among the nurses and reduced burnout among champions who previously bore the burden of managing such cases.
11. **Opportunity to engage with leadership**: The project has provided several opportunities for providers to engage with one another, and with county leadership on issues related to respectful care provision. Others credit the study for facilitated collaborative relationships with leaders, and a possibility of advocating for situations they previously thought were difficult as discussed.
12. **Facilitated system changes:** The leadership engagement strategy of CPIPE has led to county leadership taking steps to address some of the issues that have been uncovered during the intervention period. For example, discussions on high staff turnover, identified a major stressor, has motivated the county management team to reassess the policy on staffing transfers. Leadership is now conducting a staffing needs assessment and workload evaluation prior to staff being transferred to other facilities. This additional step will help reduce the frequency of transfers and consider facility-wide needs prior to making changes. Further, to address the high workload, especially among providers in the referral facility, county leadership discussed the concerns raised by the facility in charges and committed to provide resources and trainings at the lower-level facilities to increase their capacity to manage more cases that would otherwise be referred to the referral facility. Further, county leadership took steps to address delayed salaries, producing a temporary strategy of using money from a different budget line,

to pay support staff their back pay. A new policy is also being developed to have the support staff's contracts be issued by the public service board, which will be a permanent solution to the issue of delayed salaries at the county level. Finally, following discussions on the lack of monetary incentives at the maternity wards, the county health expenditure committee which is drafting a policy for monetary rewards to maternity staffs from the money generated from the Linda mama Program (a health insurance program by the Kenya government for pregnant women with a focus on those living in the slums and rural areas)[27] to sustain the interventions such as peer support groups.

13. **Mobilizing mental health supports**: *CPIPE* has created an increased awareness for mental health needs of providers at the county health management level. Discussions highlighted high rates of alcohol use, absconding of duties, and self-harm (including suicide) due high stress and the lack of mental health supports for providers. The County is thus developing a provider mental health strategy, where they are planning to train psychological counselors in different sub-counties and create friendly environments for providers to access mental health support.
14. **Sustainability:** CPIPE is a timely intervention that has elevated the importance of developing a strategy to better support health care workers in Migori to improve both provider and patient experience. The county leadership values the intervention, highlighting that soft skills like stress management and unconscious bias mitigation are critical gaps in health care systems. With guidance from the study's embedded champions, intervention strategies such as the refresher trainings, peer support, and mentorship are being integrated into the County's annual work plan. This will come with a budgetary allocation to support ongoing activities.

**Lessons Learned**

We highlight several lessons learned during the CPIPE Intervention that could benefit other program planners and implementers:

- Off-site and on-site trainings must be balanced to minimize patient-care interruptions and distractions. Offsite trainings are particularly helpful to energize providers, take them away from their normal settings, minimize distractions, and provide the environment for focused learning.

However, if the training location is too far out, it may be more efficient if providers are housed at the training location or provided with transportation to help ensure that they arrive on time. In the absence of these, having the training on health facility grounds if there is an appropriate conference facility may be efficient. Training decisions should thus be made in consultation with facility leadership.

- There is a need to balance bringing different cadres together and having separate trainings. While cross-cadre trainings promote integration and interaction across the different provider groups, some aspects of the training are impacted by differing levels of understanding and thus may not be conducive to mixed-cadre groups. Further, training in and of itself can end up being a source of stress or serve as a break from work stress, depending on how it is organized. Thus, it requires careful and context dependent planning in consultation with local stakeholders.
- Building and utilizing local capacity is critical. Our all- Kenyan training team included two Kenyan nurses (PRONTO International Master Trainers©), a psychiatrist and physician researcher, one masters-level and two bachelors-level researchers and implementors. Facility-level providers can also deliver refresher trainings and sustain the intervention given the right supports. This can be achieved through the embedded champions approach and contributes to the future sustainability of the intervention.
- Interactive group activities including music and dance conducted during peer support sessions, not only help in relieving stress but improved communication, participation, and connectedness.
- Programs need to anticipate leadership changes and plan for it. This can include having leaders who will be motivated to continue with their roles, even when their positions change, or who will commit to orienting new leaders taking up their role to assume their responsibilities on the CAB.
- Though many of the structural level stressors are beyond the scope of this intervention, low-cost solutions can have a significant impact. Further, structural level stressors can be addressed when prioritized by leadership, as illustrated in our successes.

- Finally, issues addressed by CPIPE such as stress, burnout, and unconscious bias impact all cadres and department, underscoring the intervention's utility in other units beyond maternal health

**Conclusion**

CPIPE, an innovative yet practical intervention to improve PCMC grounded in research and theory, was successfully piloted in Migori County. Despite the challenges during implementation, our nimble and adaptive approach addressed COVID-19-related challenges, political landscape changes, and competing demands from county and national-level priorities. The successes underscore the timeliness, relevance, and feasibility of similar interventions in resource-constrained settings. The lessons from this pilot are useful for future health systems interventions requiring wide-spread culture change to better advance patient outcomes.

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**Contributions**

BA contributed to the study implementation and led the writing. PA led the design and implementation of the study, conceived the manuscript, conducted the analysis, and the writing. MG, LO and EN supported in the writing of the manuscript. JK, IO, and JO contributed to the writing of the manuscript. All authors have read and approved the manuscript.

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## Competing interests

The authors declare no competing interest.

## Data Accessibility statement

As this is a process and implementation paper, the authors have no data to share.

## Tables

| **Table 1: CPIPE intervention strategies** |
|---|
| **1. Training**<br>● Person-centered maternity care<br>● Understanding stress & burnout and developing positive coping mechanisms<br>● Introduction to mindfulness<br>● Bias awareness & mitigation<br>● Dealing with difficult situations<br>● Emergency obstetric and neonatal care<br>● Teamwork and communication<br>● Mentorship and peer support |
| **2. Peer support groups**<br>Group peer support based on cadre to discuss issues, brainstorm solutions, and provide support to one another. |
| **3. Mentorship**<br>Mentor-mentee relationships that provide the opportunity to coach junior providers on professional development, work-life balance, clinical skills, career advancement, and other topics. Mentors develop their mentorship and leadership skills. |
| **4. Embedded champions**<br>To facilitate ongoing engagement and sustainability at the facility-level, we identified champions who lead activities at their facilities, including facilitating peer support groups and refresher trainings and serve as role models. |
| **5. Leadership engagement**<br>Engagement of county leadership at the onset of the project through a CAB, who advised on intervention adaptations e.g., format, content, length, and training group composition. Regular updates of the study and findings and discussing systemic gaps that impact provider stress and bias. |