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East Africa
Preterm Birth Initiative

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Piloting the Quality of Care Initiative for Maternal and Newborn Health: The Implementation Experiences of the Preterm Birth Initiative Trial in Eastern Uganda

Background

Maternal and newborn health indicators in Uganda remain poor despite increased utilization of institutional health services. For instance, neonatal mortality has barely changed over a decade, currently remaining at 27/1000 live births despite the increased facility delivery from 38% to 77% during the same period. Previous studies carried out in Eastern Uganda revealed limitations in availability of essential commodities, lack of skills for maternal and newborn health (MNH) care of the frontline health providers, staffing limitations particularly in the neonatal care unit, and structural challenges. The Preterm Birth Initiative (PTBi) project was designed to improve quality of MNH service provision by improving providers' evidence-based practices (EBP) in order to reduce preterm mortality through an integrated intervention package in six hospitals in the eastern Uganda region of Busoga.

Methods:

We conducted a quasi-experimental study from 2016 to 2018 with four intervention and two control hospitals in Busoga region in Uganda, as part of a larger cluster-randomized trial with facilities in Kenya implementing the same package. The study tested an intervention package that had four components: 1) data strengthening, 2) use of modified Safe Childbirth Checklist for EBP, 3) Simulation based training and mentorship, and 4) a Quality Improvement (QI) collaborative (Fig 1). Data strengthening and use of the modified version of the WHO Safe Childbirth Checklist (mSCC) were implemented in all the six hospitals, while simulation trainings and QI collaborative were in only four intervention hospitals. Our intervention package was developed based on recommendations in the literature that many preterm lives could be saved by improved uptake of existing evidence-based practices. We designed our package to give a strong foundation of data for clinical decision making and management and reinforcement of evidence based practices, strengthened by

Key messages

1. An integrated intervention package delivered in a regional network of six hospitals resulted in improved quality of care at birth which seems promising in reducing facility-based preterm mortality.

2. We learned that a comprehensive integrated approach to implementation with leadership strengthening to solve contextual problems was needed. To accelerate reduction in neonatal mortality, such a package should be scaled up to lower level facilities to address referrals, and to other parts of the country using a regional approach model.

improved provider skills and teamwork, paired with continuous quality improvement work by facility based teams. The interventions were deployed using an integrated approach – each building off the others as we believe it is important to reinforce practices from multiple perspectives. For example, PRONTO mentors participated in QI sessions to give input and direction about effective practices, and QI teams used the safe Childbirth Checklist and facility registers as data sources to track their progress, thus reinforcing the importance of quality data and how it can be used.
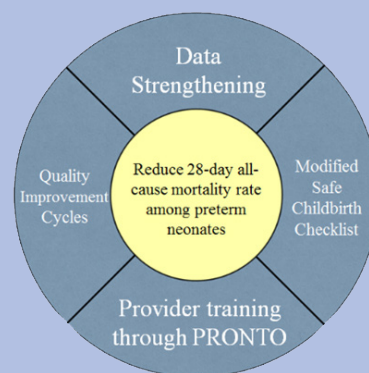
Fig 1: An integrated approach to QI under PTBi

Interventions

Data strengthening involved training of frontline health workers and records officers in quality data capture, indicator definition and standardization across the six study hospitals, and supported adherence to national guidelines on documentation in the registers and patient charts at the beginning of the intervention, and subsequently was repeated annually. The MoH Biostastician together with the study data team conducted these trainings.

During implementation, the study team abstracted and collated data on a monthly basis, summarised and gave feedback on performance to hospital staff and leaders on a quarterly basis. Data quality assessments were carried out bi-annually to validate the quality of data recorded by the routine hospital data systems.

Use of the Safe Childbirth Checklist, a WHO tool, modified by PTBi to cater for preterm care was started at the same time with data strengthening in all the six facilities. The checklist acts as a reminder to health service providers of the key/critical EBPs for maternal and newborn health. It also

provides prompts on the decision steps and treatment options to take in case of an identified complication.

The simulation-based training and clinical mentorships were conducted to reinforce the EBPs. Prior to the intervention, with support of PRONTO International, we conducted a training of trainers of a pool of 10 clinicians who eventually became master trainers of frontline service providers.

The master trainers comprised four obstetricians, two paediatricians, one neonatologist, one medical officer, one neonatal nurse and one comprehensive nurse. Half of the trainers were from the study hospitals (local trainers) to ensure continuity of mentorship even after the trainings. We had two main modular trainings each lasting two days. The trainings were followed with 4 sessions of clinical bedside mentorships conducted on a quarterly basis. A total of 200 health workers were trained.

The QI collaborative to identify and address systems bottlenecks

National level trainers/mentors hand over Pronto training kits to resident mentors

comprised of hospital quality teams from the 4 intervention facilities (control facilities were brought on board later after the study reached the required sample size). At the beginning of the intervention we supported formation of facility QI teams (QIT) in each hospital, orientation of the QITs and facilitators/QI mentors on processes and indicators to track, and leadership engagement for buy in.

The QI teams met twice per month to develop change ideas and plan the implementation with support of the study QI coach and clinical mentors. Process data on key indicators were collected, summarised and displayed by hospital teams on flip charts to

inform the facility meetings. The QI indicators included: 1) Gestation age estimation and documentation in patient charts, 2) use of antenatal corticosteroids (ACS) for eligible mothers with eminent preterm labour, 3) Use of a partograph to monitor labour, and 4) kangaroo mother Care (KMC) for stable preterm and low birth weight babies. We supported Learning Sessions where the various QITs met every 4 to 5 months to learn from each other on what works and as an opportunity for progressive leadership engagement to address the identified system bottlenecks.

Through the integrated approach, during clinical mentorship, we realised that monitoring of sick and preterm babies admitted in the special care unit was not adequately done. This warranted including monitoring of such babies as one of the QI indicators to track.

Outcome data were collected monthly from facility registers. Pre/post tests and video analysis of simulations were also recorded.

Preliminary Results

Across the four facilities participating in the QI collaborative, pre-discharge preterm mortality reduced from a baseline of 10/1000 live births to 8.3/1000 live births in eighteen months. Process data revealed improvements in EBPs: administration of ACS, use of a partograph, and KMC improved from 20% to 90%, 45% to 90%, and 60% to 89% respectively. Some of the change ideas that were implemented include: start-up and equipping of the triage area, identifying and allocating responsible midwives for the different tasks, peer support through reminders and mentorships, continuous medical education to address knowledge gaps, improved hand over of duty between shifts, and more leadership involvement and support.

Video analysis of the simulation trainings showed improvement in the providers' skills. For instance, management of a preterm baby following chorioamnionitis improved from 55% to 70% (Fig2). Average pre/post-test scores markedly improved from 48% to 70%. However, as quality of care improved there was increased utilization of the neonatal care units due to referrals with potential to compromise the quality of care. Midwives needed continued technical support for complicated cases, but medical officers lacked adequate skills and interest in neonatal care.

Lessons learnt from Implementation

1. Leadership engagement for stewardship and implementation support: Leadership engagement at various levels of the health system is very important in supporting/stewardship of the implementation of QI activities in the facilities and in addressing identified system bottlenecks to quality service provision. For instance, in one regional level hospital, the QIT was struggling in improving their indicators for almost a year and this was mostly attributed to

the changes that were made in leadership on the maternity ward. However, when there was stabilization in leadership, coupled with involvement of the principal nursing officer and the medical director we noticed marked improvements in those indicators (Fig 3). In this facility, the leaders also supported a general staff WhatsApp platform and daily (excluding weekends) morning staff meetings to ensure timely problem identification and responsiveness.

In one of the study districts, the leaders were able to redistribute antenatal corticosteroids from lower level facilities to the hospital where it was required most, while in other districts, the DHOs were able to provide a generator to maternity ward, and allocated a room closer to maternity ward to become the neonatal Special Care Unit.

A lesson learned, is that leadership engagement should happen at

the start of the QI initiative to enable buy-in of the leaders who eventually support the implementation of the QI strategies within their respective facilities.

2. **Learning Sessions for cross learning:** The periodic Learning Sessions were critical in enabling cross learning, faster learning, and creating a healthy competition among teams which resulted in better performance. We have learnt that although developing a change package is good, QIT teams need to be able to choose what works for them, and not just be given a list of what to do.

3. **An integrated approach enhances EBPs:** An integrated approach was very helpful in improving providers' skills and EBPs for maternal and newborn care, in addition to better data management and utilization. For instance, what the providers learnt during the simulation-based training, was reinforced with mSCC, and during the QI facility meetings with the support of the QI clinical mentors. Consequently, the providers' competencies and confidence in MNH care improved tremendously. However, we noticed that there is a need for continued technical support from paediatricians and or neonatal nurses for complicated cases at district hospitals.

4. **Sustainability:** In order to have sustainability of the QI activities within the facilities, there is need

to have local mentors (from within the health facilities and at regional level) who are able to provide continuous technical support. However, internal and external staff transfers were difficult to predict and disrupted the QI teams. There should be a mechanism of institutional support for ongoing efforts to minimise such transfers. We noticed that when technical support is withdrawn, the teams tend to relax in performance. Therefore, there should be plans for long-term support (to keep it fresh) but less intense for cost-effectiveness.

Fig 2: Evidence based practices following video analysis of the simulation-based training
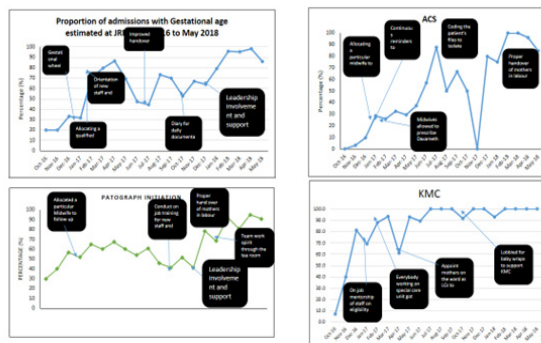
Fig 3: Process data illustrating performance in the regional level hospital

5. **Scale up of QI activities:** A regional approach may be the way to go in order to accelerate the scale up of QI initiative, and to reduce unnecessary referrals from some facilities to where there is improved quality of service provision. Handling a region at once enables the teams to have a shared objective, learn together, and work together to achieve it. In addition, there is improved communication among clinicians which is important in referral, as well as, improved pre-referral technical support that can be provided on phone.
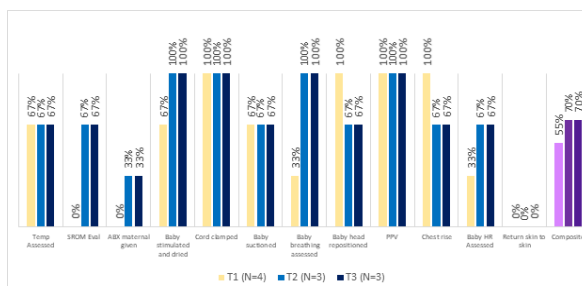
About PTBi-EA

The East Africa Preterm Birth Initiative (PTBi-EA) is working to reduce the number of preterm births and save the lives of preterm infants and their mothers, by improving quality of care and engaging in discovery research in regions of Uganda, Kenya and Rwanda. In Uganda the study sites include the Jinja Regional Referral Hospital, Iganga Hospital, Kamuli General Hospital, Bugiri Hospital, St Francis Hospital Buluba and Kamuli Mission Hospital.

PTBi-EA is a collaboration among the University of California San Francisco's Institute for Global Health Sciences; Kenya Medical Research Institute; Makerere University School of Public Health; University of Rwanda and the Rwanda Biomedical Center.

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