Programme iteration report January 2019

Baby Box Pilot

CHILD
.ORG

Report summary

Between June and December 2018, Child.org's Baby Box Programme delivered 483 specially-designed Baby Boxes to mothers with newborn babies living in informal settlements in Nairobi County, Kenya. Child.org worked closely with the Ministry of Health to provide new mothers with an incentive to access postnatal care services and a source of safe sleeping information to keep their babies safe during the day and at night.

The pilot saw an
81% increase
in women and babies accessing life changing services.

This Pilot saw a significant boost in the rates of women and babies receiving potentially life-saving postnatal care services. We also saw improvements to mothers' knowledge on how to keep their babies safe while they sleep.

The Boxes were provided alongside safe sleeping information for new mums, to help keep babies safe while they sleep, any time of day. To ensure access to the best available services, Child.org provided refresher training for nursing staff and community health volunteers on the importance of postnatal care and breastfeeding.

Child.org collected a wealth of data, on the use of the Box and on the general experience of mothers. We identified significant new opportunities to support mothers and babies in Kenya with our future maternal and neonatal programming.

This programme was funded by Child.org supporters during a Christmas fundraising campaign in 2017, which was matched by the Bush Hospital Foundation.

The Baby Boxes weren't designed to provide babies with the ONLY place to sleep; rather they were provided as an incentive to improve postnatal care uptake and a means to provide an option for safe sleeping in an environment where the universally acknowledged safest option, a bedside crib, isn't an option for most...if any.

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Results

Key areas of success

The Baby Box Pilot saw a range of successes across multiple aims, particularly around uptake of maternal health services and changes in knowledge about safe sleeping. The results from the range of surveys performed also highlighted a number of other opportunities for Child.org to impact positively on the lives of women and babies in Kenya.

- 96% of mothers accessed postnatal care services following the birth of their baby, compared to only 15% at baseline. **The project saw an 81% increase in women and babies accessing life changing services.**
- **Improved postnatal care uptake with the provision of the Baby Box meant that health problems were detected early.** Out of the 11% of mothers that told us a health problem had been identified during postnatal care, 22% were diagnosed with an umbilical cord infection. Cord stump infection is one of the causes of blood infections such as sepsis and tetanus. These contribute to 17% of newborn deaths in Kenya [1].
- **95% of mothers that received the Box are using it as a place for their baby/babies to sleep** either during the night or during the day.
- Parents are using the Boxes a lot more consistently during the day (93%) and only 2% are putting their baby to sleep in the Boxes at night. This is because co-sleeping is encouraged by medical professionals in Kenya to facilitate breastfeeding. Child.org did not discourage this practice in favour of the Boxes as a place to put baby to sleep at night.
- **43% of mothers know that the safest position for a baby to sleep is on their back**, compared with only 7% at baseline.
- **80% of newborn babies are being exclusively breastfed.**
- **80% of women and babies are sleeping under a mosquito net at night:** 71% at baseline, 80% at endline.
- 483 Boxes were given to families. Each included a mattress, two sheets, a cellular blanket and a mosquito net.

When we started designing the programme, the Child.org team knew from Baby Box projects in Europe that Boxes could be used successfully as an incentive for expectant mothers to access antenatal care and to deliver in medical facilities with skilled personnel. However, we couldn't find evidence of the same impact on access to postnatal services.

Our research told us that recent efforts to improve rates of pregnant women accessing antenatal care and delivering in facilities in Nairobi have seen positive change but the rates of postnatal care are still very low with 48% of women not receiving any postnatal care at all. Our baseline survey confirmed this - just 47% of women we interviewed had been seen for postnatal care within 48 hours of giving birth. Shockingly only 14% of women had received a follow up appointment within 7-14 days.

The project period saw significant improvements in access to healthcare services. Women provided with a Box had earlier postnatal checks, a higher chance of delivering in a facility and were more likely to be provided with the antenatal care booklet provided by the government (containing important information about their pregnancy and caring for a newborn).

- Postnatal care rates:
    - Percentage of newborns and mothers seen for postnatal care within 48 hours: 47% at baseline, 85% at endline
    - Percentage of newborns and mothers seen for postnatal care within 7-14 days: 14% at baseline, 77% at endline
    - Percentage of newborns and mothers seen for postnatal care after 14 days: 1% at baseline, 19% at endline
- Percentage of women delivering in a facility: 94% at baseline, 98% at endline
- Number of recently delivered mothers provided with the antenatal care booklet at the health facility: 69% at baseline, 93% at endline

What is postnatal care?
Postnatal care checks are simple checks for mother and baby that ensure both are recovering well after the birth. Mother has her blood pressure and temperature checked, and if necessary a physical examination to ensure her body is healing. Baby has weight, temperature and umbilical cord checks to ensure they are thriving and not susceptible to infection. The baby's vaccines for polio and tuberculosis are confirmed and may be given if they were missed at birth. All these checks are vital to spot danger signs of potentially life-threatening problems and to ensure the mother is breastfeeding her baby successfully.

Why postnatal care?
60% of maternal deaths in developing countries happen after delivery (Middleberg, 2003; Li et al, 1996 [2,3]). Postnatal care offers an opportunity for detection and intervention to save the lives of mothers. 24% of newborn deaths in Kenya are caused by infections- including blood infections, meningitis, tetanus, and pneumonia. These infections can be detected and treated during postnatal review. Reinforcement of proper umbilical cord care and use of antiseptics also helps to prevent these infections, cutting down the risk of death by 23% (Imdad, et al 2013 [4])

It was important to this project that women were not discouraged from co-sleeping with their babies, nor encouraged to put their baby to sleep in the Box if they didn't feel comfortable doing so. *(To understand the reasons for this, see Evidence Base for Baby Boxes, later in this report.)*

The Boxes were provided to new mums to give them an option of a safe place to put their baby to sleep during the day or night and as a vehicle through which to provide women with safe sleeping advice. Mothers were provided with an overview of how to use the Box safely when receiving the Box at their postnatal care visit and the lid of the Box had a diagram of how to put baby to sleep safely, along with more general safe sleeping recommendations.

The baseline survey told us that knowledge around safe sleeping practices was poor. 92% of women told us that they bedshare with their babies. Only 51% of the women interviewed had received any information about how to safely co-sleep with their baby. We learned that women were being recommended to put babies to sleep on their sides, rather than on their backs, as is globally recognised to be the safest position. Following the provision of guidance to mothers, information on the Boxes and training to health workers, we saw some impressive changes in knowledge of safe sleeping practices.

- Percentage of mothers who knew that putting a baby on their back is the correct way for a baby to sleep increased by 36% (7% at baseline, 43% at endline)
- Percentage of women who reported having received safe sleeping information increased by 36% (51% at baseline, 87% at endline)

The survey told us
92%
of women bedshare with their babies.

only
51%
had received information about how to safely co-sleep.

"

When Faith sees the Box she stares at it as if it was hers. She never gets tired of it! At times when I take her away from her Baby Box she actually cries!

I am very happy she has it.

"

Felistus,
mother of Faith

Key areas of learning

The pilot project was a huge exercise in learning for Child.org.

In particular, we were learning about the process of delivering a programme directly ourselves and we were providing interventions that rely on government services. The pilot project was an opportunity for Child.org to expand into Maternal Health Programming and we achieved huge value through learning and new partnerships.

Working with the Ministry of Health and getting direct experience of Maternal Health service delivery gave us insight into some of the existing challenges, which in some instances impacted our operations.

Existing service delivery

Child.org understood from the outset that there are gaps in the provision of maternal health services in Kenya, like most countries around the world. However, we took for granted that if we increased demand, by incentivising women to return to clinics, they would receive the care they are entitled to.

Service provision of postnatal care was limited in both clinics but in one in particular, there was little emphasis from staff on the delivery of postnatal care. This was witnessed early on by Child.org staff. We saw that when mothers returned for the Box following the birth of their baby, many attended clinic but did not get seen by a health worker.

Over time it became clear that the reasons for this were:

- **Understaffing** - nurses complained of being overworked and postnatal care was seen as less of a priority than delivery, antenatal care, family planning, and immunization clinics.
- **Internal politics** - there was a lot of back and forth about whose responsibility it was to issue services in the postnatal care clinic
- **Lack of pay** - many of the nurses stated that they were unwilling to participate in the delivery of these services without additional pay.

Child.org were either unwilling or unable to resolve each of these issues within the scope of this project, but we did report our findings to senior nursing staff at the Sub-County. As a result, specific personnel were identified to be responsible for delivering postnatal care in both clinics and Child.org were supported with offering training to nurses and Community Health Volunteers (CHVs) on postnatal care services.

Following this training, we saw a marked improvement in the delivery of services in both clinics, though those improvements were limited to a small number of health workers. For future iterations of this project, improvements to postnatal care provision and capacity building will need increased resource.

Community Health Volunteers

Kenya's Community Health Volunteer programme relies on unpaid volunteers. Our original design of this iteration of the Baby Box Programme was reliant on using Community Health Volunteers. We planned for these CHVs to identify women in the community and to advocate to them about the importance of postnatal care visits, in order to change health-seeking behaviour. We also planned for CHVs to perform follow up visits in homes, to improve referrals to clinics where necessary.

Very early on in our communication with the Community Health Volunteers it became clear that CHV participation in the programme would be costly because, to perform the duties involved, the CHVs expected to be paid.

The Baby Box Programme budget did not allow for this, so instead Child.org made alternative operational arrangements. However, we invested in the CHVs by providing training on the importance of postnatal care and how to support a mother to breastfeed. Interestingly, during this training there was some resistance about some of the evidence-based safe sleeping information that was intended to be cascaded to community members.

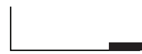
The issue of Community Health Volunteers requiring financial support is part of a wider problem around the role of CHVs in an urban environment in Kenya. The function of a CHV is vital and varied, requiring a huge amount of community interaction. The Government of Kenya is currently not paying CHVs but expecting them to deliver on a variety of outputs, particularly around collecting data on the health of community members. CHVs working in Nairobi City have to meet their own financial needs and therefore the majority of them have other commitments and struggle to deliver on the expected requirements of the role.

For future iterations of postnatal care and Baby Box programmes, Child.org may look into structuring the Community Health Volunteer role into a Community Health Worker role - with adequate compensation for the required time engaged in project activities. This would take place alongside advocacy to Nairobi City Council around the importance of investing in Health Workers based on outcomes achieved by doing so.

Mother and newborn outcomes

Pregnant women enrolled in Baby Box Programme

522



Loss of pregnancy

1 mother

Stillbirths

5 babies

Live births

516 mothers
525 babies

inc.9 sets of twins

Maternal deaths

1 mother

Newborn deaths

6 babies

Surviving newborns

519 babies

Received baby boxes

483 babies

Sadly this project saw the death of 12 babies and one mother. One mother had a miscarriage after enrollment, five babies were stillborn, and six died shortly after birth. One mother died after delivery. From what we know of these cases, many of these deaths could have been prevented with better access to better healthcare for mother and baby.

Although we know we weren't able to impact the quality of care within the scope of this project, it was very sad to know that better outcomes for the mother and babies could have been achieved in different circumstances.

Baby losses are a taboo topic in Kenya. Child.org are informally contributing to building networks of counsellors to support mothers with such loss.

Neonatal mortality rates in Kenya are the same as we saw on this programme. As this wasn't an original indicator we have no plans to research this potential impact but, funds allowing, this is something we might choose to follow up on.

For any new iteration of a Baby Box Programme we would hope to impact on all of these indicators over a longer period of time in a particular region.

Sarah

A CASE STUDY

“

I don’t know which baby to feed first because they both cry at the same time.

”

Nine of the mothers we registered to receive Baby Boxes had twins, and none of them were aware that they were expecting two babies until they were born. One of these mothers was Sarah, who works as a vendor. She never had a scan during her pregnancy as it was too expensive for her. Since the twins have been born, she has had to give up working, she receives no support from the babies’ father and currently relies on money from her mother and relatives to provide for her family.

Sarah’s twins were born very small. Branice was born underweight at 1.6kg and Broiyne was slightly bigger at 2kg. To complicate matters further, both were born with tongue-tie, making breastfeeding very difficult.

This has meant extra costs for Sarah, who has been buying supplements for them both. During a home visit by Child.org, Sarah told us that she was not producing enough milk for the two of them and that they were always crying. Sarah was not shown how to breastfeed at the clinic, so had to figure it out herself.

During our visit, a Community Health Volunteer was able to give Sarah extra breastfeeding advice and support.

Sarah said that Broiyne and Branice seem to be really happy and comfortable in their Baby Boxes. They help them to sleep well and Sarah is very pleased that they have a mosquito net because they didn’t have one before.

Programme design and delivery

All Child.org programme iterations are designed with two sets of aims. There are immediate aims to improve the lives of women and children through the delivery of a specific iteration of a programme, and wider programmatic development aims that have a broader focus.

The programming development aims are designed to help us to enhance our broader programming strategy around maternal and neonatal health. They help us to improve the design and delivery of the next iterations of this programme and to develop spin-off programmes based on our learning.

Immediate aims

The focus of the Baby Box Pilot was to assess the Box's potential for impacting on wider maternal health challenges, whilst also learning about whether the Box might be effective in keeping babies safe from harm whilst asleep in the Kenyan context:

- To improve the uptake of postnatal care services in clinics serving women from informal settlement regions in Nairobi
- To provide new mothers with information and tools to improve opportunities of safe sleeping for newborn babies

Programme development aims

As our first piece of work in maternal and neonatal health, the Baby Box Pilot was designed to provide many wider benefits to Child.org as an organisation and to our programming team, beyond the immediate aims:

- To initiate maternal health programming for Child.org
- To learn about potential opportunities for Child.org to make a significant constructive contribution to maternal and neonatal health programming in Kenya
- To assess the efficacy of the Baby Box as an incentive to access services from a government health facility in Kenya
- To assess the potential impact and value of the Box itself in the Kenyan context to determine whether a Box could be a useful intervention for Kenyan mums and babies

Our approach

As outlined above, the project had two key aims; to improve uptake of postnatal care services and to improve mothers' access to information on safe sleeping for infants. This was because postnatal care was identified as an area for improvement within Nairobi county and Kenya as a whole and we found little research into safe infant sleeping in Kenya with no recommendations on counselling on safe sleeping for mothers of newborns (see Evidence Base later in this report).

We designed a simple process to engage expectant mothers with the programme and to provide them with a Baby Box after delivery:

1. At 7 months/third trimester, each mother received a Baby Box voucher along with a hat for her baby during an antenatal check at the clinic by one of the Child.org team
2. The mother delivered her baby in the same health facility or notified that facility if she gave birth elsewhere
3. The mother visited the clinic to exchange her voucher for a Baby Box and have her postnatal care check-up between one and two weeks after delivery. Upon receipt of the Box, the mother was given instructions on how to use the Box safely and guided through the safe sleeping advice provided on the lid.

The project design had four key elements that were focused on achieving the two project aims:

1. **The Box**
2. **Partnership**
3. **Training**
4. **Learning**

1.

The Box

Much time went into researching the possible contents of the Box itself in the design phase of this project. Initially, Child.org expected to include a wide range of contents to support the new mothers into parenthood. However, given our limited funds and as we clarified our immediate aims, we decided to simplify the incentive and to focus on the value of the Box itself. We agreed that we needed to understand and demonstrate the effectiveness of the Box itself, rather than the contents, on the impact of our project aims.

We therefore decided to simplify the provision of the Box. This would help us assess whether the Box alone would impact on mother's attendance to postnatal care services, and on the efficacy of the Box for health promotion information.

The Box specifications were based on those from existing programmes in Finland and Scotland, and the Child.org team conducted thorough research on the procurement of the basic contents of the Box as a sleeping place.

The total provision of the Box included:

- The Box itself, with printed safe sleeping guidance on the lid
- Waterproof mattress
- Two cotton sheets
- One cellular blanket
- One mosquito net to fit the Box
- A baby hat

Child.org had originally considered supplying Boxes only to adolescent mothers. However, we were working under time and budget constraints. To reach around 500 teenage mothers within the time-frame would have involved additional costs, as the mums would be spread across several more clinics. To ensure we were reaching the right number of mums within budget, the team decided that we would register any women presenting at the clinic in the third trimester of her pregnancy.

Upon attending antenatal care at this stage, each mum was provided with a voucher for a Box and a baby hat to use at birth. We initially registered 478 mothers, reserving 22 of our 500 Boxes in case any of the mothers had multiple births. This turned out to be prudent because nine mothers in the project had twins! Only one of these mums had a scan, and her scan was inaccurate - so none of those mothers knew they were expecting more than one baby!

The design of the Box itself was done with a view to being child-friendly and specific to Kenya. Although the printing of the Box added considerable cost, Child.org felt the cost was worth the expense, as it allowed for a design with safe sleeping guidance for mothers to refer to at home.

The Child.org creative team in the UK felt that if the Box was beautiful this would encourage mums to use it. This was backed up by feedback from an early focus group, where the Child.org Kenyan programming team showed a basic prototype Box (with minimal design) to a group of adolescent mothers. Notes from the focus group recorded that: "*When we showed the girls the prototype of the Box, they first looked shocked, mentioning that it looked like a sanduku/coffin. They stated that they would like a Box with different colours and a range of pictures such as butterflies and teddy bears or dolls.*" Child.org therefore worked with illustrator Jaqueline Fryers to create a design that was cost-effective in black and white but made the Box feel more special than a normal cardboard box.

2.

Partnership

For effective delivery of this programme it was essential to work closely with the Kenyan Ministry of Health to reach the most vulnerable women and to create a responsible approach with a view to learning about how we might work towards long term change in maternal health services in Nairobi.

Authorisation was provided to the project from Nairobi City County and we worked closely with a Monitoring and Evaluation Specialist at Nairobi City County. This specialist provided input directly into the design of the Monitoring and Evaluation processes, to ensure that the government could share data and learnings from the project.

Child.org provided personnel in both of the clinics, Westlands and Kangemi. These personnel were there to register women and deliver Boxes on a daily basis and to undertake all surveys and data collection activities. Child.org also provided both clinics with a blood pressure monitor and a digital thermometer specifically for use in postnatal checks as these were found to be lacking outside of antenatal and delivery services. The facilities provided storage for some of the Boxes and oversight from the clinical officers in charge.

Initially it was expected that Community Health Volunteers would be an integral part of the process of handing out Boxes and following up with new mothers but the cost implications of engaging these health volunteers became prohibitive. Instead, almost all interaction took place in the health facilities except for the mothers that didn't come for a postnatal care appointment.

There were a range of reasons for some of

"*I put a warm towel on my breast to try to get milk to come.*"

Nunez's mother **Simida** didn't receive any advice in the clinic about breastfeeding, she found it painful and kept trying different techniques to get milk to come.

After the Child.org-led training session, Community Health Volunteer Ammey was able to offer Simida more advice and showed her how to hand-express milk when she visited their home.

our registered women not attending postnatal care visits at the recommended time. Some reported that they were in pain, some viewed the queues as being too long and others did not have someone to assist them to carry the Baby Box home. Other mothers mentioned that the hospital was too far away and they had not recovered, some were turned away by the nurses and did not show up again.

In addition, women confused postnatal care with family planning and were reluctant to come back, despite assurance that it was only a check up. There was also an issue of fearing HIV testing among some women. (Most receive screening during antenatal clinics but if not this can happen postnatally.) There were also women who did not see the relevance of having a postnatal check up and felt their first appointment at six weeks for the family planning appointment was the most important.

For mothers who had health concerns or had been turned away, Child.org appointed two recently-qualified nurses to visit these mothers at home to ensure that they and their babies were checked. The outcome of this was very positive but the implications to logistics and reaching the mothers became a challenge. With any kind of scale-up of this programme it's recognised that this approach wouldn't be feasible.

3.

Training

To strengthen the service delivery of postnatal care at both clinics, Child.org hosted a training event in August 2018. A total of 15 health workers attended the training at the Child.org office. These included eight nurses (six from the clinics and two appointed to deliver the home visits); four community health volunteers; and three community health extension workers (supervisors to the volunteers).

The group was split between nurses and community health workers, and both were trained on postnatal checks, breastfeeding, and safe sleeping and using the Boxes, in sessions targeted to their roles. The postnatal care sessions were delivered by a Senior Nursing Officer from Nairobi County and the breastfeeding session was delivered by a qualified nurse and accredited Lactation Consultant. Child.org delivered the session on safe sleeping and using the Baby Box.

The content provided an essential overview of what postnatal checks involve, the importance of the checks and the frequency of contact with mothers post-birth. Nurses were given copies of the updated guidelines on postnatal care (2016) to take away with them. The Community Health Volunteers were reminded of vital danger signs and when referral to a health facility is necessary.

The breastfeeding session covered the importance and benefits of breastmilk to mother and baby, how to maintain supply, and how to guide a mother through positioning and attaching a baby at the breast. Participants were given demonstrations on how to hand express to cascade this knowledge to women in the community.

For the safe sleeping session, guidelines were borrowed from Unicef UK, the Center for Disease Control and Prevention (CDC), the National Health Service (NHS), the National Institutes for Health (NIH) and the Lullaby Trust which offer regulations on how to reduce the risk of sudden infant death syndrome.

In this session, the team was guided through safe co-sleeping practices and the use of the Baby Box as well as its contents and the safety measures put in place. It was emphasised that Baby Box use was to be encouraged during the day only, except where safe sleeping guidance could not be followed or where the mother was particularly vulnerable. It was emphasised that if the mother was not comfortable using the Box then it should be clear that they may choose not to use it.

Within two weeks of the training session Child.org noticed changes in postnatal care provision:

- There was significant improvement in the delivery of postnatal care services being offered at Kangemi Health Center as the team began offering all women that returned for the Box a full postnatal check
- Child.org witnessed the teaching from the training in action at both clinics, by both nursing staff and Community Health Volunteers. Specifically the team has seen breastfeeding support (expressing) and strengthened postnatal checks being delivered.

Comments from the participants on the training day:

“

I liked the postnatal care because its during that time the mortality rates are high and I have learnt the assessments so that I can help mothers and babies.

Everybody who works in a health facility should have the same knowledge to help mothers in the community.

Thanks and for the training please bring more refreshers so that we can be able to help our community.

Good session on SIDS.

The whole session was educative, especially the breastfeeding session .

I like very much how the Baby Box is convenient to use.

”

4.

Data

As with all of Child.org's programmes, the Baby Box Pilot needed to provide us with learning; about the effectiveness of our work alongside a greater understanding of the needs and opportunities within maternal health programming.

The project design included multiple surveys to inform us of the situation in the region we identified, the perception of the interventions we presented and the change they made. We conducted three key surveys within a six month period: the baseline, the midterm and the end line evaluations.

We also engaged with the Monitoring and Evaluation department from the Nairobi County Government to help inform us of the Ministry of Health's processes and to assist us in developing project indicators that aligned to the ministry's own. This ensured we could share findings easily and contribute to the Ministry of Health's own objectives in Maternal Health. The department also shared their knowledge and experience of the digital data collection tool used by development partners; Kobo Toolbox. This tool allows for easy data collection, sharing and analysis and has been adopted by the Child.org Programming Team across multiple programmes as a result.

For the **baseline survey**, we hired Research Assistants to work with Community Health Volunteers from the local health facilities. Together, they surveyed 205 women with infants below 12 months in their homes. The questions focused on households, family, babies' sleeping habits, women's experiences in antenatal care, delivery and postnatal care. The surveys were conducted at home to ensure privacy for the women.

A **midline survey** of 78 women was conducted alongside the delivery of Boxes. This was an effort to gain an understanding of the perception of the Boxes and to help us iterate on ongoing activities if necessary. Women were selected at random and visited by Child.org and Community Health Volunteers after having a Box for at least one month. This exercise provided confidence that the Boxes had been well received: 95% recipients had told us they were using the Box, and staff were able to verify that use through their visit to the household.

The **endline survey** consisted of interviews with 82 women. We had hoped to meet more but were met with budget and logistical constraints. (For example, many women who had babies above three months old had returned to work.) This survey was based on the baseline and allowed us to measure the changes that had occurred during the pilot period, by comparing the results of the women that had been engaged on the programme to those who had delivered in the same region before the programme was introduced.

When Child.org went to **Faith's** home for the survey, baby Tallia was in pride of place in her baby box in the middle of the room, with the mosquito net at the bottom ready to be used and the blanket keeping her warm.

"*It has helped me a lot, especially the mosquito net from preventing diseases by malaria.*"

Gentrix, mother of twins.

What did it cost?

The Baby Box pilot was funded by individual donors through a digital fundraising campaign in the UK and a matched donation from the Bush Hospital Foundation through a partnership with Dr Michael Marks. This amount was topped up with Child.org reserves to meet the total cost.

The total project spend was **£28,170**. This was slightly over budget due to the investment in collecting data to inform learning for the Child.org programming team.

Stacy was the first mother to receive a voucher for the baby box. She was back to collect the box swiftly too, as Kaycee was born one month prematurely.

Stacy and Kaycee had to spend a week in hospital after she was born, as she was having breathing difficulties, but at six weeks both were home and doing well.

Stacy said the baby box will really help as she will have a safe place to put Kaycee when she is cleaning or washing utensils at home, but she will still be close to her.

She told us that the Kaycee's father had urged her to seek an abortion, but Stacy didn't agree, she says that Kaycee is a gift.

Location

Informal settlements in Nairobi County, Kenya

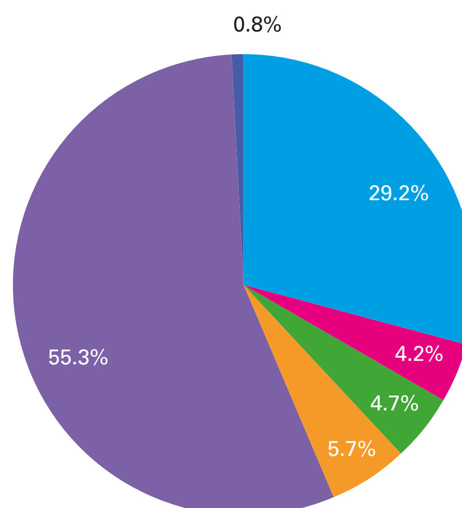
Spending summary

Despite going slightly over the original budget, spending on this iteration of the Baby Box programme went well considering how much was achieved.

The biggest cost was expenditure on staff time. This includes spending on all activities undertaken over the course of the year; research, design and planning the project; project delivery, time spent visiting clinics, meeting women to provide them with vouchers and Boxes; and evaluating our work through the various surveys and data collection exercises.

The fundraising campaign raised £6,543 from Child.org supporters and was matched with a £6,000 donation from the Bush Hospital Foundation. The additional £15,627 was paid out of Child.org reserves to ensure that Child.org maximised the opportunity this project provided for wider learning around Maternal and Neonatal Health programming in Nairobi.

The box	£5.03
The mattress	£3.46
One blanket	£2.23
Two sheets	£2.94
Mosquito net	£1.92
Baby hat	£0.80
Total cost of the box per child	**£16.38**



Spending by activity

Baby box and contents
£8,220
Includes spending on the costs of the Box printing and production and the contents; the mattresses, cellular blankets, sheets, mosquito nets and baby hats.

Warehouse and logistics
£1,197
Payment for the storage of the Boxes and weekly delivery of Boxes to the health facilities.

Planning, training and workshops
£1,334
Includes costs of training for health workers on postnatal care as well as training for the Child.org team and temporary researchers on project activities and the use of the digital data collection tool.

Monitoring and evaluation
£1,610
Spending on surveys and data collection (excluding the cost of staff time).

Staff salaries
£15,576
Includes cost to Child.org of project research, design, development and delivery of all activities associated with the Baby Box Pilot.

Admin costs
£233
Included spending on printing and airtime.

Background

Who are Child.org?

Child.org is an international Non-Governmental Organisation (NGO) with offices in London, UK and Nairobi, Kenya. We look for innovative solutions to problems faced by children in Kenya and beyond. We are passionate about reducing the barriers that children face to education, health and safety.

Child.org has a community-led approach; we work closely with communities to ensure our work creates lasting change and helping to reduce the impacts of poverty on as many people as possible. Every programme that we design at Child.org has two aims. It should improve the lives of children for the long term. It should also teach us how to work better; we're dedicated to collecting evidence and testing ideas.

Our founders are medical professionals and our board comprises experts in Global Child Health and paediatric and neonatal medicine.

Having worked with primary school-aged children in Kenya for over a decade, Child.org decided to address the needs of younger children and babies, utilising the skills on the board and those of the programming team. We looked for opportunities around maternal and neonatal health, finding that a partner of Child.org's had done some research into Baby Boxes in Nairobi but hadn't taken the project any further. We agreed to move the research forward as a starting point to expand our portfolio of work in maternal and neonatal health programming.

Evidence base for Baby Boxes

What is a Baby Box?

A Baby Box is an inexpensive alternative to a crib made with cardboard material. The concept originated from Finland in the 1930s initially targeting women affected by poverty in order to increase attendance of antenatal care sessions and skilled delivery.

The program was extremely popular and since the intervention was introduced, the infant mortality rate in Finland has decreased from 65/1000 to 2.4/1000 (BBC, 2013)[5]. Of course this success cannot solely be attributed to the Boxes; they were utilised as an engaging and useful intervention for mothers whilst further investments were made into maternal health which ultimately led to better health outcomes. That said, they have proved an effective vehicle through which to provide potentially life-saving equipment to new mothers, improved uptake of maternal health services and to disseminate vital health information.

Baby Boxes are now given as incentives in Scotland, some states in the U.S, parts of South Africa and Mexico among other countries, but there are few projects in developing countries, and where they are, little data is being collected on their efficacy in a low-income setting.

> “*Neema is happier when she's in the Box.*”

Harriet, mother of Neema, told us she is grateful to be able to put Neema in the Box when she is cooking.

What did we want to learn through the pilot?

Prior to the start of the programme we knew that we wanted to assess the efficacy of the Box on access to vital maternal health services. We undertook significant research to assess three main areas of understanding before the pilot was designed:

1. Where were maternal services a particular challenge for women in Nairobi?
2. Which services were most in need of improvement?
3. What value could the box have in and of itself?

Where did we want to work?

About 62% of the population in Nairobi county reside in urban informal settlements , known as 'slums'[6]. In Nairobi, coverage of services in informal settlements is poor with most mothers relying on substandard and unlicensed clinics. The infant mortality rate in poor households is 75/1000 as compared to the rate of 19/1000 in rich households. A mother from a slum is over three times more likely to die through complications in childbirth than a mother from a richer household in Nairobi[7].

Child.org researched maternal child health indicators

across all informal settlement regions in Nairobi to assess where the need was the greatest. The data indicated that despite predominantly being an affluent area, the maternal health provision in Westlands was particularly poor. The neonatal death rate in Kenya as a whole is 22/1000 [8] but in Westlands that figure is significantly higher at over 27/1000 [9]. The under 5 mortality rate is nearly double the national figure; 52/1000 in Nairobi compared to 101/1000 in Westlands. The infant mortality rate in the sub county was also 58.5/1000 which was the highest in informal settlements in Nairobi.

With the programme initially aiming to impact on antenatal care and skilled deliveries, research conducted in Westlands indicated that 69.3% had attended four or more antenatal care visits and this seemed like a possible area of improvement. In addition 80% of women delivered in a facility but only 67% of babies in Westlands were fully immunized after birth. Forty-eight percent of children under 3 had a cough which is at times indicative of pneumonia and only 78% of mothers took their children to the hospital when presenting with these symptoms. Only 32.3% of babies below 6 months were taken to a hospital if they had a cough.

Nurses at Kangemi would mention that pneumonia contributed to infant deaths. 35% of babies under 3 also reported having fevers with only 63% seeking medical care [9]. In addition the adolescent birth rate was 137/1000 [10] as compared to 96/1000 nationally. The program initially planned to target young mothers [11].

The data consistently demonstrated that women and babies in Westlands needed improved access to services.

It was agreed, based on the data available and the proximity to Child.org (having significant implications on the project budget) that the two key health facilities serving the slum populations in Westlands, Westlands Health Centre and Kangemi Health Centre, would be the locations for the pilot.

What service provision did we want to improve?

We knew, based on all the evidence from the Baby Box projects across the world, that we wanted to use the Box as an incentive. The original plan was to follow the Finnish example of improving uptake of antenatal care and to increase the rates of babies delivered in health facilities.

Our data demonstrated that Kenya has made significant improvements to these indicators and although there are still problems with the quality of care, performance for **access** to these services were significantly better than for postnatal care.

Attendance of postnatal care is poor in Kenya despite it being crucial in the prevention of maternal and neonatal deaths; only 53% of women nationally attended the first postnatal care sessions within the first 48 hours[11]. 48% of women in Kenya do not attend postnatal care

sessions[12].

A lack of access to postnatal care can lead to major challenges for mother and baby. Without access to a health practitioner, mothers often lack knowledge on the danger signs, resulting in receiving slow treatment.

Our baseline survey reinforced this data as we found that the new mothers we surveyed had little idea of what postnatal care should involve, understanding that it simply referred to the provision of immunisations for their baby, rather than vital, life-saving checks for both mother and baby. Upon further discussion, we learned that only 47% were seen within 48 hours after delivery, and only 14% were checked within 7-14 days after delivery.

Based on these indicators it was decided that we would provide the Box to mothers returning for their follow-up postnatal checks within (but not limited to) the 7-14 days post-birth, to incentivise mothers to return to the clinics.

What value is there in a Box as a cot?

One of the key unknowns about Baby Boxes is how valuable they actually are as a sleeping space for a baby. There is some scepticism about the safety of cardboard Boxes being used in place of a crib, bassinet or moses basket and the advice from infant sleep experts recommends that Baby Boxes are not used as the primary sleeping place for infants.

“

It is not possible for Baby Boxes to fully comply with safety standards, as current British and EU safety standards for nursery furniture only exist for traditional cots, cribs and bassinets and there is currently no specific standard for the use of a cardboard box as a sleeping place for an infant.

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Lullaby Trust

This is understandable for babies sleeping in environments where access to an evidenced safe sleeping space is realistic, in a European context where safety standards exist. In Kenya, very few mothers living in slum settings have access to a crib, a bassinet or a moses basket. In our baseline survey only one woman out of 205 had a crib for her baby to sleep in. In Kenya, women are encouraged to co-sleep with their babies to facilitate breastfeeding.

We looked further into studies on safe sleeping and sudden infant death (SIDs) and found that there had been no prior studies conducted in Kenya. Child.org realised that there was a gap in safe-sleeping practices in Kenya, with a lack of data being an issue especially with regards to Sudden Infant Death Syndrome (SIDs). In Kenya, we learned that 92% of new mothers co-sleep with their infant, and only 51% had received information about how to co-sleep safely. We investigated knowledge around evidenced safe-practices and found a significant lack of knowledge from mothers and healthcare practitioners around safe sleep.

The team agreed that a Baby Box could be a valuable tool to provide safe sleeping information to new mothers and healthcare practitioners. The Box was designed to provide information but to not contradict current advice to mothers about co-sleeping with their baby. Instead, the Boxes were provided to mothers with the recommendation to use them during the day and at night where safe co-sleeping practices cannot be met.

What's next?

Having learned so much from the Baby Box Pilot, Child.org are currently reviewing the opportunities presented.

Postnatal care

Considering the significant gaps we experienced in the provision of postnatal care across the regions of our operations, we're keen to keen to increase the scope of our potential impact on postnatal care rates in Kenya. This would need to be integrated to other maternal health service provision, therefore looking at improving access to antenatal care and safe delivery too, with particular focus on postnatal care provision. We're exploring ways to do this and speaking to Nairobi City County Health staff about where we could add best value.

Postnatal depression

We also want to capture more data on the mental health of new mothers. We conducted a small survey of women using the Edinburgh Postnatal Depression Scale during the endline evaluation and found that 36% of mothers were found to have symptoms of depression. Mental Health is a much-hidden topic in Kenya and postnatal depression is not discussed with mothers at any time during pre and postnatal care.

Safe sleeping

We want to address the deficit of data regarding safe sleeping for infants living in informal settlement environments in Nairobi and beyond, through academic study of safe sleeping studies in collaboration with universities in the UK and in Kenya. There is huge scope to find out more about whether SIDs really is leading to more baby deaths in Kenya, and assessing what interventions could save more lives.

What can you do?

For further information please don't hesitate in getting in touch with the team to discuss the programme.

To request any of our research on Baby Boxes, please email **programming@child.org**.

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Unrestricted funds allow us to develop and build our programming team, enabling Child.org to invest in the design and development of programmes like the Baby Box Pilot, designed to impact large numbers of women and children in Kenya and Sierra Leone.

To donate, please visit **child.org/donate**.

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As our portfolio of Maternal and Neonatal Health project portfolio grows, we're looking for partners from a wide range of sectors and fields of expertise.

If you think you could complement or add value to future MNH programming with us, please email our Head of Programming, Martina Gant at **marti@child.org**.

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