CAMEROON
KMC DEVELOPMENT
IMPACT BOND
2018 – 2021

END OF PROGRAMME REPORT

SEPTEMBER 2021

Fondation kangourou Cameroun

République du Cameroun
Ministère de la Santé Publique

Grand Challenges Canada
Grands Défis Canada

NUTRITION INTERNATIONAL
Nourish Life

GLOBAL FINANCING FACILITY
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Introduction

In December 2018, the Cameroon Ministry of Public Health, Global Financing Facility for Women, Children and Adolescents (GFF), Grand Challenges Canada, Nutrition International and the Fondation Kangourou Cameroun, with the support of the Fundación Canguro Colombia, launched the Cameroon Kangaroo Mother Care (KMC) Development Impact Bond (DIB).

Programme delivery started in February 2019 with the DIB aiming to reduce morbidity and mortality among premature and low-birth weight infants in five regions of Cameroon by rolling-out quality KMC in 10 hospitals. DIB design, performance management and sustainability support were provided by the specialist non-profit, Social Finance Ltd.

As the DIB comes to a close, after two and a half years of service delivery, this document provides an overview of what the DIB achieved, the lessons we learnt and what might come next.

What is the KMC Development Impact Bond?

The Cameroon Kangaroo Mother Care Development Impact Bond is a pay-for-results programme that aims to enable pre-term and low birthweight babies to survive and thrive. The DIB supports KMC delivery in 10 hospitals across Cameroon with DIB-funded training and support to public clinicians provided by the Fondation Kangourou Cameroun. Service delivery was pre-financed with investment from Grand Challenges Canada, with outcomes payments made, based on independently verified programme results, by the Ministry of Public Health and Nutrition International.

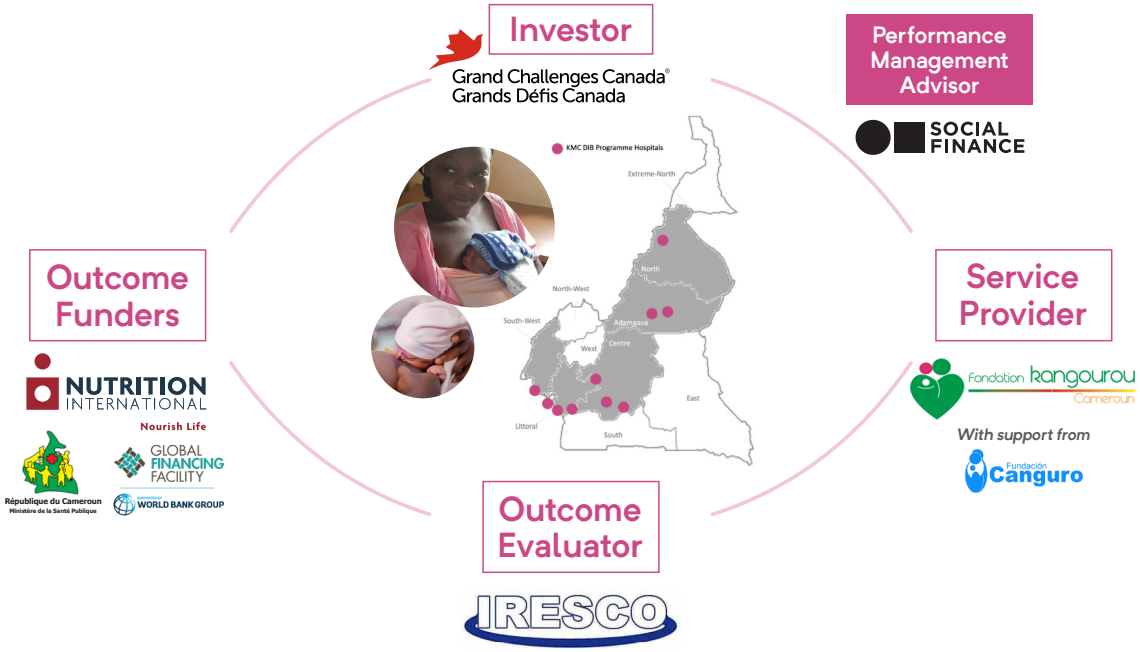
Contractual programme objectives, linked to outcome payments, focused on three areas:

- The number of hospitals appropriately equipped and trained to deliver quality KMC;
- The number of babies receiving quality KMC at programme hospitals; and

- The number of KMC babies with appropriate nutrition and weight gain at 40 weeks gestational age.

The programme also aimed to embed KMC expertise within the public health system through the certification of three additional hospitals as KMC Centres of Excellence and the creation of a pool of qualified KMC trainers among public sector clinicians in Cameroon.

Figure 1: The Cameroon KMC DIB stakeholders



Setting the Scene

THE CHALLENGE: IMPROVING NEONATAL SURVIVAL IN CAMEROON

Low birthweight and pre-term births are the leading cause of death among children under the age of five worldwide, contributing to 60-80% of the 2.8 million newborn deaths each year[1], and about two thirds of infant deaths before the age of 12 months[2].

[1] Lawn JE, Mwansa-Kambafwile J, Horta BL, Barros FC, Cousens S. 'Kangaroo mother care' to prevent neonatal deaths due to preterm birth complications. Int J Epidemiol. 2010;39 Suppl 1(Suppl 1):i144-i154. doi:10.1093/ije/dyq031

[2] Guyer B, MacDorman MF, Martin JA, Peters KD, Strobino DM. Annual summary of vital statistics--1997. Pediatrics 1998;102(6):1333-49.

Low birthweight, defined as weight at birth of less than 2,500g irrespective of gestational age, has an adverse effect on child survival and development, and may even be an important risk factor for adult diseases[3]. One in every seven newborns worldwide was born with low birth weight in 2015[4]. While Africa is home to 16% of the world's population[5], a quarter of the 20.5 million low birthweight babies in 2015 were born on the African continent[6].

Cameroon has a high neonatal mortality rate of 26.1 deaths per 1,000 live births[7], compared to the OECD average of 4.1[8]. Infant mortality before 12 months is 57 per 1,000 live births[9]. Every year, 20,000 newborn babies die in Cameroon many of whom are pre-term or low birth weight[10].

KANGAROO MOTHER CARE: AN EVIDENCE-BASED, LOW RESOURCE INTERVENTION

Kangaroo Mother Care (KMC) is an evidence-based, World Health Organization (WHO) recommended health practice for babies born early or small (pre-term or low birth weight).

KMC promotes extended periods of skin-to-skin contact between babies and caregivers (kangaroo position), and exclusive breastfeeding (kangaroo nutrition). It also seeks to minimise the time infants spend in hospital before discharge and promotes close follow-up of mothers and babies, once they return home, to monitor and support healthy development (kangaroo discharge).

[3] Barker DJ. The fetal and infant origins of disease. European Journal of Clinical Investigation 1995;25(7):457-63.

[4] The Lancet Global Health, ISSN: 2214-109X, Vol: 7, Issue: 7, Page: e849-e860, 2019

[5] ""Overall total population" – World Population Prospects: The 2019 Revision" (xslx). population.un.org (custom data acquired via website). United Nations Department of Economic and Social Affairs, Population Division. Retrieved 9 November 2019.[6] The Lancet Global Health, ISSN: 2214-109X, Vol: 7, Issue: 7, Page: e849-e860, 2019.

[6] United Nations Children's Fund (UNICEF), World Health Organization (WHO). UNICEF-WHO Low birthweight estimates: Levels and trends 2000–2015. Geneva: World Health Organization; 2019 Licence: CC BY-NC-SA 3.0 IGO.

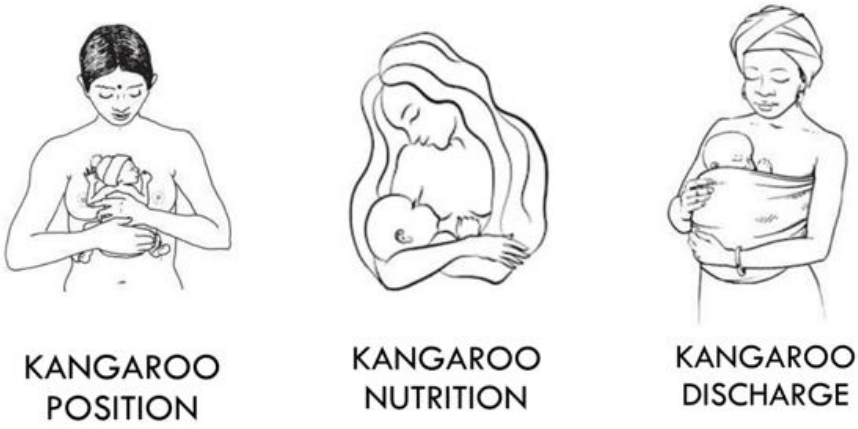
[7] 2019 Estimates developed by the UN Inter-agency Group for Child Mortality Estimation (UNICEF, WHO, World Bank, UN DESA Population Division) at childmortality.org.

[8] OECD (2021), Infant mortality rates (indicator). doi: 10.1787/83dea506-en (Accessed on 06 July 2021)

[9] Ibid

[10] United Nations Children's Fund (UNICEF). Maternal and Newborn Health Disparities Cameroon, 2018, https://data.unicef.org/wp-content/uploads/country_profiles/Cameroon/Maternal%20and%20newborn%20health%20country%20profiles/country%20profile_CMR.pdf

Figure 2: The three pillars of quality KMC



Research has shown that KMC offers greater protection against newborn mortality than traditional incubator care[11]. The approach has been demonstrated to reduce infant mortality and morbidity significantly across a wide range of countries. The approach is well suited to low resource environments. In 2016, a review of 21 studies (>3,000 infants) concluded that KMC is an effective and safe alternative to conventional neonatal care for low birth weight babies[12]. The study also found that KMC increased weight, length, and head circumference gain, breastfeeding at discharge at 40 to 41 weeks gestational age, and that severe infections reduced from 18% to <5%, even at 6 months old[13].

A 2016 pilot of KMC in Cameroon showed promising results in lowering mortality rates among pre-term and low birth weight babies in both neonatal intensive care units and KMC wards[14].

[11] Charpak N, Tessier R, Ruiz JG, Hernandez JT, Uriza F, Villegas J, Nadeau L, Mercier C, Maheu F, Marin J, Cortes D, Gallego JM, Maldonado D. Twenty-year Follow-up of Kangaroo Mother Care Versus Traditional Care. Pediatrics. 2017 Jan;139(1):e20162063. doi: 10.1542/peds.2016-2063. Epub 2016 Dec 12. PMID: 27965377.

[12] Conde-Agudelo A, Díaz-Rossello JL. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. Cochrane Database of Systematic Reviews 2016, Issue 8. Art. No.: CD002771. DOI: 10.1002/14651858.CD002771.pub4

[13] Ibid

[14] Fundación Canguro Colombia – Dr. Natalie Charpak in conversation, 9th August 2021.

- Image 1: Thukral, Anu & Chawla, Deepak & Agarwal, Ramesh & Deorari, Ashok & Paul, Vinod. (2008). Kangaroo mother care-an alternative to conventional care. Indian journal of pediatrics. 75. 497-503. 10.1007/s12098-008-0077-7.
- Image 2: Royalty free vector image,
- Image 3: Kangaroo Care, pp. 76,79. WHO/IMCI. Management of the child with a serious infection or severe malnutrition WHO/FCH/CAH/00.

THE CAMEROON KMC DIB

The Cameroon KMC DIB was designed to equip 10 hospitals across five regions of Cameroon to promote and support high quality KMC to improve neonatal outcomes for pre-term and low birth weight babies. The DIB funded improvements to hospital facilities, particularly access to clean water and sanitation, in addition to training and mentoring neonatal clinicians.

To ensure the long term sustainability of programme impact the DIB funded a train-the-trainer approach to rolling out and embedding KMC expertise and practice within the Cameroonian healthcare system. The aim was to demonstrate that this proven method for improving outcomes for low birth weight and pre-term babies could be integrated into hospitals in Cameroon and deliver outcomes at scale.

It was anticipated that 1,520 babies would benefit from KMC over the course of the DIB – February 2019 to September 2021, with a target of 741 babies receiving quality care[15].

A mother and her baby getting ready to go home from hospital

[15] Following a six month extension, this target was increased to 951 babies.

Why a Development Impact Bond?

Development Impact Bonds (DIBs) are an innovative way of financing international development programmes. At their heart they are pay-for-results structures that aim to improve value for money by tying donor and government payments more closely to programme outcomes. Outcome-based, as opposed to input- or activity-based, contracts can also drive cost effectiveness by enabling and encouraging adaptive service delivery.

Unlike other pay-for-results structures, Impact Bonds harness impact investment to pre-fund the delivery of services before outcomes payments are made. Investors are repaid if, and only if, services deliver contracted outcomes.

KMC DIB stakeholders were aligned around the shared objective of reducing morbidity and mortality among pre-term and low birth weight newborns in Cameroon by rolling out KMC, but their reasons for using a DIB structure differed.

FOR THE GOVERNMENT OF CAMEROON, THE MAJORITY OUTCOMES FUNDER

The Cameroon Ministry of Public Health's ambition was to scale up KMC to reduce neonatal mortality. The Ministry was excited by the potential of the DIB to test and refine a model of KMC that would work for a range of hospitals across Cameroon. The Ministry used funding from the multi-donor Global Financing Facility Trust Fund – housed at the World Bank – to cover 80% of contractual outcomes payments.

The pay-for-results DIB structure created a high level of confidence within the Ministry that public funding would be well used. The DIB complemented the Ministry's existing Performance Based Financing programme for strengthening hospitals and health centres across the country.

> ***"The Government of Cameroon has identified KMC as a promising route to improving maternal and newborn health in the country. It has included KMC in its Health Sector Strategy 2016-2027, and the KMC DIB has paved the way for KMC to be scaled across the whole country."***
>
> **Dr. Martina Baye** – Coordinator of the National Multisector Programme to Combat Maternal, Newborn & Child Mortality in Cameroon, Cameroon Ministry of Public Health

FOR THE FONDATION KANGOUROU CAMEROUN, THE IMPLEMENTER

The Fondation Kangourou Cameroun (FKC) was keen to demonstrate that the KMC approach could be effective at scale and in regions with diverse socio-cultural contexts. KMC had previously been piloted in only five hospitals in Cameroon, with funding from Grand Challenges Canada and technical support from the Fundación Canguro Colombia.

To be successful in supporting KMC at scale, KFC needed more flexibility than a traditional grant would offer to test innovations and adapt delivery to diverse regional and hospital contexts.

> ***"The adaptive management approach adopted in the KMC DIB programme delivery was enabled by the DIB structure and built around the different the needs, context and vulnerabilities (in newborn care). We were able to test innovations and make necessary alterations in the programme delivery that facilitated the improvement in the quality of KMC and increased the likelihood of a system change."***
>
> **Hortance Manjo** – Country Programme Director, Fondation Kangourou Cameroun

FOR GRAND CHALLENGES CANADA, THE INVESTOR

Grand Challenges Canada is a long time champion of Kangaroo Mother Care, having previously funded KMC pilots and evaluations in Colombia, Mali, India and Cameroon.

The Cameroon KMC DIB enabled Grand Challenges Canada to transition from grant funder to impact investor. Taking on the financial risk, by using outcomes-based investment to pre-fund service delivery, was aligned with Grand Challenges Canada's strategy of empowering innovators to address global health challenges. It also allowed Grand Challenges Canada to model an innovative approach to funding better outcomes for maternal and child health.

> ***"This Development Impact Bond has proven to be an exciting innovative financing mechanism to improve newborn health outcomes and to scale an evidence based intervention, Kangaroo Mother Care. The success of the DIB was anchored by the active engagement and financial commitment from the Ministry of Public Health - Cameroon and partners, Nutrition International and the Global Financing Facility. The partners came together because of the intersection between social finance and health outcomes."***
>
> **Karlee Silver** – Co-CEO, Grand Challenges Canada

A clinician helping a mother breastfeed her baby

FOR NUTRITION INTERNATIONAL, THE CO-OUTCOMES FUNDER

Nutrition International was interested in the potential of pay-for-results to incentivise a focus on exclusive breastfeeding and appropriate weight gain for pre-term and low birth weight infants as KMC was scaled-up in Cameroon.

Nutrition International used funding from their Nutrition Leverage and Influence for Transformation (NLIFT) programme to cover 20% of contractual outcomes payments. They also funded quarterly independent evaluations of the contractual metrics which formed the basis for outcomes payments throughout the DIB.

> ***"Supporting, promoting and protecting exclusive breastfeeding is a key component of quality KMC. Breastfeeding has many health benefits for both the mother and infant. We know supporting mothers to successfully breastfeed their low birth weight and / or pre-term baby, along with early and continuous skin-to-skin contact will improve the immediate and longer-term nutrition, health and well-being status of their baby, and have a significant impact on neonatal and infant mortality levels in Cameroon."***
>
> **Jennifer Busch-Hallen** - Senior Technical Advisor, Maternal and Neonatal Nutrition Nutrition International

FOR SOCIAL FINANCE, THE PERFORMANCE MANAGEMENT ADVISOR

As a specialist in outcomes-based contracting, innovative finance and impact bonds, Social Finance was keen to see how a train-the-trainer model could deliver better outcomes in public health.

Social Finance was contracted by Grand Challenges Canada to lead the design and contracting of the Cameroon KMC DIB. As Performance Management Advisor Social Finance also supported the Fondation Kangourou Cameroun to effectively deliver programme outcomes through technical advice and mentoring around data-driven service delivery, adaptive financial management and effective programme governance. In 2021, Social Finance led a multi-stakeholder learning exercise to capture insights for rolling out KMC at scale in Cameroon, and for outcomes-based delivery of public health outcomes more broadly.

> ***"The KMC DIB has demonstrated the value of adaptive, data-driven service delivery in driving better outcomes for pre-term and low birth weight babies in Cameroon. It has been fantastic to see how Government, hospital clinicians and the Fondation Kangourou Cameroun have worked together to adapt service delivery to respond to challenges with a view to improving newborn outcomes in programme hospitals."***
>
> **Louise Savell** – Director, Social Finance

What was achieved?

HEALTH SYSTEM STRENGTHENING

10
HOSPITALS WERE EQUIPPED TO DELIVER QUALITY KMC

47
NEONATAL CLINICIANS (DOCTORS AND NURSES) WERE TRAINED TO DELIVER QUALITY KMC

9
CLINICIANS WERE TRAINED TO TRAIN OTHERS TO DELIVER QUALITY KMC

121
COMMUNITY HEALTH WORKERS WERE TRAINED TO SUPPORT KMC HOSPITAL TRANSFERS[16]

NEONATAL OUTCOMES

1221

BABIES RECEIVED QUALITY KMC IN PROGRAMME HOSPITALS (28% ABOVE THE DIB TARGET OF 951 BABIES[17])

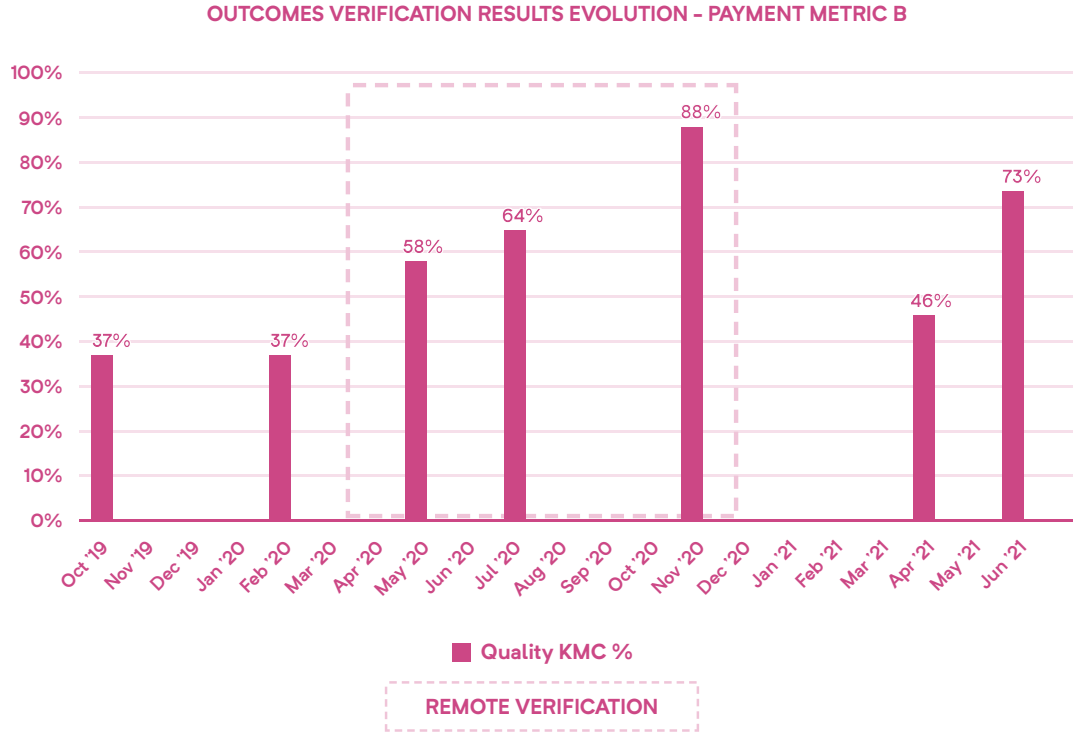
80%

OF KMC BABIES WERE EXCLUSIVELY BREASTFED AT POINT OF DISCHARGE FROM HOSPITAL

80%

OF BABIES HAD APPROPRIATE WEIGHT GAIN AT 40 WEEKS GESTATIONAL AGE[18]

Figure 3: % of babies receiving quality KMC per verification cycle (independently verified results) [19]



[16] KMC hospital transfers aim to improve the condition of pre-term and low birth weight babies born in the community at point of arrival at hospital by facilitating skin-to-skin care while babies are in transit to hospital.

[17] The initial target for the number of babies receiving quality KMC was 741 based on 27 months of service delivery. However, following a six month extension, this target was increased to 951 babies. An additional 70 babies received KMC care at HGOPED and CHU hospitals, but we were unable to verify whether they received quality KMC in the final verification round.

[18] Of KMC babies returning for follow-up appointments between 39-41 weeks gestational age.

[19] Due to Covid restrictions, outcomes verification was carried out remotely in April, July and November 2020. During this time is was not possible to assess whether babies were being discharged appropriately. Outcomes appear to drop in April 2021 when in-person verification resumed, but these results include the first set of results from [3] programme hospitals which impacted the overall total. By June 2021 all programme hospitals were delivering well.

FUNDING

- $3.1 million dollars (USD) of programme outcomes delivered
- $2.43 million dollars (USD) of outcomes funding paid by Ministry of Public Health and Nutrition International (maximum outcomes payment cap)
- Full repayment of outcomes-based investment and risk premium to Grand Challenges Canada
- Performance-based bonus received by Fondation Kangourou Cameroun

What we learnt about scaling-up KMC

- **An active role for government is vital** – Beyond their role as outcomes funder, the Cameroon Ministry of Public Health also facilitated hospital engagement, coordination with other health system strengthening programmes and the allocation of clinical equipment and staff to programme hospitals. Their involvement also supported sustainability planning – see *'What comes next?'* below.
- **Adapting service delivery to local contexts is key** – Cultural sensitivities around female modesty required adaptations to the practice of skin-to-skin care and breastfeeding in Northern regions of Cameroon. Practical considerations, like the need for mothers to leave hospital to get food and medicines, or to leave the neonatal ward to shower, also had to be accommodated in all hospitals. In hospitals where neonatal care was not free for patients, financial incentives to encourage parents to allow their babies to stay in hospital until discharge is medically appropriate, would have been helpful. Where babies are commonly born in the community, training Community Health Workers to support the use of skin-to-skin during the transfer of babies to hospital, seemed to significantly improve newborn outcomes. The DIB demonstrated that flexible funding can support operational adaptation to improve outcomes.
- **Multiple carers are needed to provide skin-to-skin care** – The benefits of KMC are known to increase with extended periods of skin-to-skin contact. We applied the rule of thumb: as much as possible, as soon as possible, however this can be a challenge for mothers to achieve on their own, particularly if

mothers need to leave the hospital to purchase food and medicines. We found it helpful to ensure clinicians engaged and trained other caregivers in KMC whenever possible, for example fathers, aunts and grandmothers, as well as mothers.

- **Turnover of clinical staff impacts service delivery** -Turnover of KMC-trained clinicians was a challenge to ensuring consistency of programme delivery. Over the course of the programme, 40% of KMC-trained doctors relocated to non-programme hospitals, compared to only 7% of KMC-trained nurses. As a result, we found it helpful to ensure that KMC nurses were trained to train new clinical staff in KMC. Staff were also able to visit established KMC units at other hospitals to embed their training and were provided with supportive supervision by KFC staff.

What we learnt about outcomes-based approaches to health

- **Regular evaluation enables rapid feedback loops** – While frequent outcome verification felt like a strain for the first couple of cycles, the quarterly payment metric evaluation process quickly became a rich source of data for refining and improving programme delivery.

- **Engaged cross-sector governance supports adaptation** – Quarterly Steering Committee meetings – involving outcome funders, investors, the lead service provider and performance management advisor – enabled contractual elements to be adapted quickly when unforeseen circumstances occurred. A good example of this was the payment metric verification process, which needed to be adapted when in-person hospital visits became unfeasible during the Covid-19 pandemic in 2020. Decisions noted in signed Steering Committee minutes also had the force of contractual variations, saving considerably on legal time and costs.

- **Key delivery staff need an adaptive mindset as well as specific skills** – A strong commitment to using data to inform and improve service delivery is critically important for staff at all levels, and in both clinical and management roles, to effectively deliver an outcomes-based contract.

- **A focus on outcomes creates clear priorities** – it is an old truism that 'you get what you pay for' and that played out in the Cameroon KMC DIB. The DIB hit maximum outcomes payments for the three contractual payment metrics, but made slower progress towards the non-remunerated system-change objective of creating three new KMC Centres of Excellence. Progress towards new Centres of Excellence was hampered by non-DIB hospital infrastructure projects, high clinician turnover within hospitals, and the COVID 19 pandemic. The programme did however manage to train nine new KMC trainers within the public health system.

What comes next? Sustaining impact beyond a DIB

In the final 12 months of the Cameroon KMC DIB, contractual stakeholders turned their attention to how to both sustain and scale Kangaroo Mother Care in Cameroon and beyond following the end of the DIB.

To inform this planning, the Investor, Grand Challenges Canada, commissioned the Performance Management Advisor, Social Finance, to undertake a two-part, 360 degree stakeholder consultation. This captured lessons from the delivery of KMC in Cameroon at scale, and lessons from outcomes-based delivery of KMC as a health programme.

What emerged was a two part strategy for Cameroon:

- The first component involved fully transitioning the operational delivery of KMC – including data capture and analysis, and KMC equipment procurement – to programme hospitals.
- The second component involved the Service Provider, Fondation Kangourou Cameroun, working in partnership with the Ministry of Public Health to:
    - Embed KMC in the National Strategic Plan for Maternal and Child Health;
    - Explore opportunities for creating ongoing financial incentives for KMC within the broader Performance Based Financing programme for health system strengthening; and

- Embed KMC training into mainstream clinician training and support curricula.

As there was no systematic evaluation of the impact of KMC roll-out on neonatal morbidity and mortality for low birth weight and pre-term babies, the DIB did not contribute to the broader evidence base for KMC as a methodology in its own right. However, indicative data from programme hospitals suggests lower mortality rates among babies receiving quality KMC care, and babies that were safely transferred to hospital in the KMC position.

KMC mothers also reported high levels of satisfaction with the approach, citing improvements in confidence and connectedness when caring for their infants. Beyond the direct medical benefits, clinicians trained in KMC believed the KMC practice also discouraged early hospital discharge against medical advice by reducing the costs of hospital care for families compared with more expensive incubator-based care.

Emerging evidence suggests that starting KMC immediately after birth for pre-term and low birthweight babies can have significant effects on neonatal survival. A WHO study, published in May 2021, found that starting Kangaroo Mother Care soon after birth improves the survival of babies with birth weight less than 1800 grams by 25%, when compared to the current recommendation of starting KMC after stabilisation. This shift has the potential to save up to 150,000 more lives each year[20].

Outcomes based approaches also have potential to support the successful introduction and roll out of KMC in other contexts. As demonstrated in the Cameroon KMC DIB, this flexible, data driven approach to programme delivery is well suited to adapting to changing contexts and ensuring the delivery of quality KMC within public health systems.

ACKNOWLEDGEMENTS

This report was written and prepared by Louise Savell and Chloe Eddleston of Social Finance Ltd, with funding from Grand Challenges Canada as part of their commitment to sustaining the impact of the Cameroon KMC DIB. All images used with consent,

[20] WHO Immediate KMC Study Group. Impact of continuous Kangaroo Mother Care initiated immediately after birth (iKMC) on survival of newborns with birth weight between 1.0 to < 1.8kg: study protocol for a randomized controlled trial. Trials 21, 280 (2020). https://doi.org/10.1186/s13063-020-4101-1

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END OF PROGRAMME REPORT

Mothers and their children who had participated in the KMC programme returning to Laquintinie Hospital to celebrate World Prematurity Day.

SEPTEMBER 2021