



IMPROVING MATERNAL & NEONATAL HEALTH IN ORO PROVINCE

A review of KTF's maternal health initiatives including training for healthcare workers, provision of mother/baby gifts as incentives, distribution of birthing kits, and awareness raising.

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Case Study
2024

Fast Facts



A woman in PNG is **35** times more likely to die in childbirth than her neighbour in Australia

Oro Province is ranked **17th out of 22** provinces for health outcomes



21 out of every 1,000 children in PNG die within the first 28 days of life



47%+ of Aid Posts are closed in Oro Province*

In 2023, there was a **300% increase** in maternal deaths in Oro Province

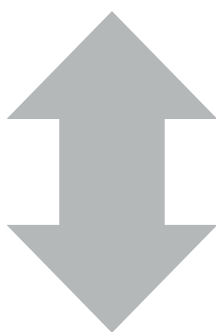


Only **24%** of mothers give birth in health facilities in Oro Province



Only **34%** of mothers receive antenatal care in Oro Province

*NPHA (2020)



70% increase in the rate of births in our healthcare facilities since 2021

506% increase in the number of mothers accessing antenatal care in our health facilities since 2021

415% increase in the number of people accessing family planning services in our health facilities since 2021

KTF's Health Program - Maternal and Neonatal Initiatives

- Training for healthcare workers
- Staffing of 16 healthcare workers and operation of 14 aid posts
- Awareness-raising and Health Patrols
- Family Planning Services
- Mother-baby gift incentives (Pikinini Packs)
- Distribution of birthing kits

365% increase in pre-natal care in Sanananda Aid Post since Pikinini Pack distribution began

201% increase in post-natal care at Kokoda Memorial Hospital since Pikinini Pack distribution began

540% increase in the number of supervised births at Sanananda Aid Post since Pikinini Pack distribution began

Maternal and Newborn Health in PNG



Complex health challenges in PNG necessitate innovative and effective solutions.

Papua New Guinea is one of the most culturally, ethnically and linguistically diverse countries in the world, with over 800 languages and 1,000 distinct ethnic groups. A resilient and determined nation, the strengths of PNG lie with its people who care deeply about their community and villages. PNG has a population of 10 million with the vast majority (85%) of people living in extremely remote and rural areas. Though known for its rich diversity, PNG faces a highly complex set of challenges, including

entrenched and widespread health challenges, shaped by a range of unique social, cultural and political determinants. One priority health issue in PNG is the current state of Maternal and Newborn Health (MNH). **PNG has one of the highest maternal mortality ratios (MMR) and neonatal mortality ratio (NMR) in the Asia Pacific region.** Likely underestimated, approximately 215 women die per 100,000 live births, making women in PNG 35 times more likely to die during childbirth than in Australia. In



SDG 3: Good Health and Well-being

emphasises the importance of ensuring healthy lives and promoting well-being for all, placing a significant focus on reducing maternal and newborn mortality to improve overall health outcomes.

terms of NMR, for every 1,000 live births, 21 children die within the first 28 days. The national stillbirth rate is also significantly high, affecting up to 39 babies per 1,000 births. In addition to these figures, many more women and newborns survive but suffer severe and lifelong morbidity.

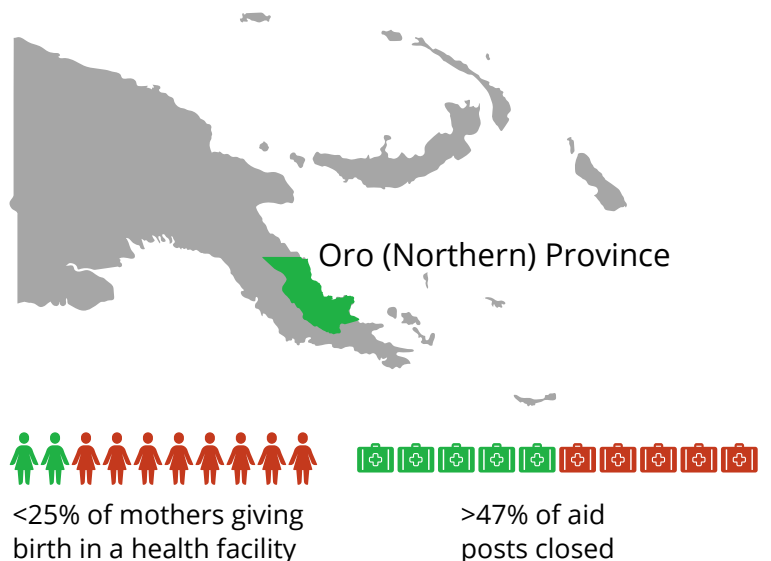
Contrary to other developing countries in the region, where maternal and neonatal health has improved, rates in PNG remain stagnant. The primary causes of poor maternal health include pregnancy-related complications such as obstetric haemorrhage and sepsis, communicable diseases like HIV and malaria, and non-communicable diseases such as cardiovascular conditions. Poor neonatal health is mainly due to intrapartum-related deaths, including asphyxia, complications from prematurity, and neonatal infections, all of which are preventable and treatable. Factors associated with poor MNH outcomes in PNG include limited access to health facilities in rural and remote communities, non-operational or under-resourced health facilities, and low-quality provision of healthcare during labour and birth. Additionally, attitudinal barriers such as gender-related issues, lack of privacy and confidentiality, and embarrassment discourage women from accessing health services. Education is also a significant factor, as women with higher levels of education are more likely to understand the importance of MNH, identify disease symptoms, take preventive measures, and seek appropriate healthcare, resulting in a higher probability of using MNH facilities compared to those with limited or no education.

Women's and children's survival, health and well-being are essential to eradicating extreme poverty, eliminating gender disparity and promoting development and resilience in PNG. As global efforts to curb child mortality rates due to diseases such as HIV, malaria, pneumonia and measles have been highly successful over the last two decades, recent attention has now shifted towards maternal and newborn health. The Gates Foundation (2024) has identified this as a major opportunity for improving the global health of children and will focus efforts on implementing interventions that keep women healthy before and throughout pregnancy so they can deliver and raise healthy children. This includes ensuring mothers meet sufficient nutrition requirements, that birth attendants are trained to respond to postpartum haemorrhage, and antibiotics are available to treat sepsis.



Situation Analysis: Oro Province

Oro (Northern) Province scores below average for health indicators, ranking 17th out of 22 provinces. Recent data (2019) indicates that at least 47% of Aid Posts, the main health access points for a substantial proportion of the population, are closed. Only 24% of mothers give birth in a health facility, well below the national average of 36%, with the Sohe District of Oro Province extremely below average at only 9%. Additionally, only 34% of mothers in the province receive antenatal care throughout pregnancy, also well behind the national average of 51%, and with Sohe District again lower at 25%. In 2023, there was a 300% increase in maternal deaths in Oro (from 5 in 2022 to 20 in 2023).



Provincial Profile Oro (Northern) Province

Maternal, newborn health and family planning

Level	Province/District	Skilled birth assistance	Antenatal care provision
District	Ijivitari	39%	41%
	Sohe	9%	25%
Province	Oro	24%	34%
National	PNG	36%	51%

Recent data also points to additional concerning trends. The rate of new acceptors of family planning decreased from 6% in 2022 to 4.7% in 2023, a 22% decline. Alarming, the percentage of supervised deliveries also decreased, from 30.8% in 2022 to 28.5% in 2023. These patterns allude to the challenges facing the the provincial health care system and its ability to ensure comprehensive reproductive health care and maternal support.

Oro Province has outlined its priorities for improving maternal and newborn health, which include:

- ✓ Improving rural and hospital health services
- ✓ Increasing the number of healthcare providers
- ✓ Ensuring women have access to and give birth in a health facility
- ✓ Increasing family planning options

KTF's Health Program

The Kokoda Track Foundation (KTF) understands maternal and neonatal health (MNH) are mutually dependent. Essential MNH interventions and the implementation of localised solutions to address the main remediable issues are critical for improving the health outcomes of mothers and their babies, preventing the most common causes of maternal and neonatal mortality. **Over the last five years, KTF has made considerable efforts to improve MNH outcomes, primarily through our Healthy Communities (HC) project which provides access to primary health care for over 108,000 people in remote and rural areas across Oro Province.** KTF continues to improve MNH outcomes by delivering support to the National Provincial Health Authority via the operation of 14 Aid Posts. Qualified and skilled community health workers (CHWs) are posted in health facilities and supported with salaries, resources, training, and logistical support for health service delivery, outreach patrols and general management of the facilities.

KTF's health initiatives are closely aligned with the UN SDGs and the objectives and outcomes of the PNG National Health Plan 2021-2030. KTF recognises that supporting the government to create an efficient health system by improving the skills of health workers is the most effective and sustainable approach to delivering health.

The outcomes our Health Program aims to achieve are ambitious and will only be achieved through long-term investment in the training, posting, resourcing and support of community health workers – the cornerstone of the PNG rural and remote healthcare system.

The HC Project has a strong focus on sexual, reproductive, maternal and neonatal health, providing access to family planning services and pre- and post-natal support for women, and their newborns and families. Supporting and facilitating professional development training is also a key facet of the project, with almost all of KTF's CHWs having attended some form of maternal and neonatal health training. In June 2022, KTF supported the delivery of a MNH training workshop with a focus on responding to birthing complications such as obstructed labour and postpartum haemorrhaging and neonatal resuscitation. This vital training has empowered CHWs with the knowledge and skills needed to provide life-saving interventions in remote areas located too far from the support of hospitals. KTF has also implemented targeted initiatives to improve MNH via the previous 'Bebi na Mama' project which provided further training for healthcare workers in MNH. This training has been instrumental in improving maternal and neonatal morbidity rates, as evidenced by numerous reports healthcare workers have relayed to KTF.

MAGGIE CHW, Kokoda Memorial Hospital



"A mother from Kovello Village was rushed to the facility in a wheelbarrow presenting with a footling breech after an unsuccessful home birth. After 2 hours a very large baby was delivered, though during delivery meconium-stained amniotic fluid was noted and the baby was delivered unconscious and not breathing. A quick response was required and through the use of a penguin suction device and our skills the baby was resuscitated. I know without the maternal and newborn care training, we wouldn't be able to manage these situations. The training has provided the CHWs with the skills and knowledge to manage any birthing complications we are faced with."

Evidenced-Based Incentivisation Initiative

The Government of PNG, through its National Health Plan (2021-2030), has recognised that improving access and incentivisation for supervised delivery leads to increased postpartum care for both newborns and mothers, thereby mitigating morbidity and mortality rates. A critical aspect emphasised within this framework is the pressing need to increase the rate of antenatal care (ANC) access throughout pregnancy, which saw a decline nationwide between 2014 and 2018. Notably, there is a pronounced correlation between ANC utilisation and the choice of delivery setting, as evidenced by statistics: only 17% of mothers who delivered in a health facility had not obtained antenatal care throughout pregnancy, compared to 57% of women who delivered outside of a health facility. This demonstrates a potential intrinsic link between antenatal care uptake and the likelihood of delivering within a healthcare facility.

A recent initiative and study conducted by Dr. Barry Kirby and Prof. Glen Mola in Milne Bay Province demonstrated the positive impact that the distribution of 'mother and baby gifts' (MBGs) can have on improving the rate of supervised births. The research noted several factors for why many women do not deliver at local health centres, which include because they feel 'shy' at presenting in an impoverished state and not having baby's clothes, and the state of health centres associated as poor. To overcome this, women were offered MBGs at the time of delivery, which was found to subsequently increase the rate of supervised birth in all health centres surveyed. These MBGs were reasonably low cost and included cotton nappies, a blanket, sanitary supplies for the mother, and baby clothes wrapped in a plastic baby bath as well as approximately \$5AUD as reimbursement for the cost of a health centre delivery and money for food while the mother is away from her village. In June 2015, a peer-reviewed article published in the Australian and New Zealand Journal of Obstetrics and Gynaecology found the use of Dr. Kirby's "mother and baby gifts" had resulted in an 80% increase in the number of expectant mothers receiving medical assistance

during labour and maternal morbidity decreasing by a staggering 78% since the intervention began.

In light of these findings, in KTF 2023 began the distribution of 'Pikinini Packs' aimed at improving MNH outcomes through increasing antenatal visits and the rate of supervised births in KTF aid posts. New mothers receive maternal packs, consisting of a baby bath, baby singlet, baby cap, soap, towels, baby blanket, nappies, nappy fasteners, lap-lap (sarong), rice and tinned fish. Not only are these packs an incentive for mothers to attend health facilities, but they also provide vital supplementary maternal support and care for newborns, ensuring mothers and babies survive and thrive during this critical period.

Early indications suggest that the Pikinini Packs are achieving positive outcomes. To date, 100 packs have been distributed to new mothers residing in the catchment villages surrounding Kokoda, Sanananda and Hariko communities. Data suggests the Pikinini Packs have resulted in increases in the number and rate of supervised deliveries at Sananada and Kokoda Hospital health facilities (baseline Hariko data not available for comparison). In comparing the birth-assisted data before and after Pikinini Pack distribution, a 540% increase in assisted births at health facilities was evidenced at Sanananda Aid Post and a 51% increase was observed at Kokoda Memorial Hospital.



Table 1. Numbers of supervised deliveries at health facilities over a 9-month period before and after commencement of the Pikinini Packs.

Health Facility	Pre-Pikinini Packs	Post-Pikinini Packs	% Change
Sanananda Aid Post	5	32	+540%
Kokoda Memorial Hospital	81	122	+51%

Table 2. Rate of supervised deliveries at health facilities instead of supervised in homes over a 9 month period before and after commencement of the Pikinini Packs.

Health Facility	Pre-Pikinini Packs	Post-Pikinini Packs	% Change
Sanananda Aid Post	31%	52%	+68%
Kokoda Memorial Hospital	91%*	98%	+8%

*Rates of births supervised in aid posts versus homes for Kokoda Memorial were already significantly higher than most aid posts and national/provincial averages. This is likely due to the well-regarded reputation of the hospital's services and facilities compared to rural/remote aid posts, which are often believed to lack qualified birth attendants and suitable facilities.

This data presented corresponds with Dr. Barry Kirby's findings, indicating a relatively inexpensive intervention, such as providing women with practical mother and baby gifts, positively influences the rate of supervised birth in all health facilities. Demonstrating appropriately designed 'incentives' can be an effective tool to engage mothers and families to attend local health facilities for supervised births.



Pikinini Packs include a baby bath, baby singlet, baby cap, soap, towels, baby blanket, nappies, nappy fasteners, lap-lap (sarong), rice and tinned fish.

Qualitative reports from healthcare workers further support these findings. CHWs have reported unanimously that the Pikinini Packs have been extremely successful, encouraging mothers to deliver their babies in aid posts.

"I have experienced a gradual increase in the number of babies - from 5 to 10 per week. The distribution of free Pikinini Packs encourages a lot of mothers to deliver at the health care facility instead of at home.

The packs are a useful tool due to encouraging delivery at the aid post, assists the unfortunate mothers who can not afford items, having access at aid posts to free health record books for both mother and newborn, and reduces numbers of unplanned pregnancies."



THOMAS

CHW, Kokoda
Memorial Hospital

"Yes, the number of mothers giving birth at aid posts is higher than in homes because delivering at homes is not safe for the mothers and the health of their babies. At home there are no sterile instruments to help cut the cord."



NOREEN

VHA, Sanananda
Aid Post

"Yes, the distribution of Pikinini Packs has encouraged more women to give birth in the aid posts. The items were very useful which sometimes saves the income of the woman and her family. I have received a lot of good feedback. In a village setting, some women are not able to purchase the items the Pikinini Pack has. These have made it easier for them. They are excited and praise KTF for the service provided."



VANESSA

CHW, Sanananda
Aid Post

The Pikinini Pack initiative has also had an impact on the number of women accessing antenatal care, with significant improvements in post-natal care recipient numbers. This is significant because it demonstrates the initiative's effectiveness in encouraging women to seek and continue with essential maternal health services, ultimately leading to better health outcomes for both mothers and babies.

Pre-natal care recipient numbers have drastically improved for Sanananda, although numbers dipped for Kokoda Memorial Hospital, with the reasons for this discrepancy currently unclear. The increase in post-natal care numbers may be due to the fact that mothers, having already received an incentive, may have

seen the value first-hand in attending the health facility for care. This suggests that providing mothers with incentives earlier in their pregnancy may lead to further uptake in the utilisation of services.

KTF also compared these trends to data from KTF-supported aid posts that did not receive Pikinini Packs as incentives. These aid posts had similar rates of births and antenatal care to Sanananda Aid Post before the incentive was introduced, and their rates remained steady afterward, unlike the positive trends demonstrated at Sanananda. This likely indicates that the positive increases observed can indeed be attributed to the use of Pikinini Packs as incentives.

Table 3. Total number of mothers receiving pre-natal care over a 9-month period before and after commencement of the Pikinini Packs.

Health Facility	Pre-Pikinni Packs	Post-Pikinni Packs	% Change
Sanananda Aid Post	20	93	+365%
Kokoda Memorial Hospital	703	427	-39%

Table 4. Total number of mothers receiving post-natal care over a 9-month period before and after commencement of the Pikinini Packs.

Health Facility	Pre-Pikinni Packs	Post-Pikinni Packs	% Change
Sanananda Aid Post	17	44	+159%
Kokoda Memorial Hospital	79	238	+201%

"A lot of mothers are now accessing pre-and post-natal care, unlike previous years. Because when Pikinini Pack was introduced most of the mothers were unregistered, flooding to deliver at the facility with complications. So I decided to make changes. Mothers who came for prenatal care receive Pikinini Pack after delivery in the facility, not for home births. Now I am able to issue a Health Book to mothers for prenatal care and a Health Book for babies and during postnatal care. The Pikinini packs help me with data collection and encouraging pre- and post-natal care unlike in previous years."



MAGGIE CHW, Kokoda Memorial Hospital

In addition to the Pikinini Packs, in 2023 KTF distributed 1,000 biodegradable birthing kits to health workers for situations where the mother is unable to reach a health facility for delivery. **The birthing kits are a first-line resource for women birthing in remote regions of developing countries such as PNG. Infection (such as sepsis) acquired during or directly after childbirth, is one of the leading causes of newborn and maternal death.** Good hygiene is critical in eliminating infection during and after childbirth. By providing a clean birthing kit, mothers giving birth at home have access to resources to reduce their exposure to disease and infection. These kits include a biodegradable black plastic sheet, soap, gloves, string, scalpel blades, and gauze squares. The use of gloves also stops the spread of HIV and other communicable diseases.

"[Birthing kits] will help mothers who come from very far away remote places where they don't have health facilities and cannot afford the items. For mothers that are illiterate and need more awareness [on birth hygiene], the birthing kits help encourage safe deliveries."

-Thomas, CHW at Kokoda Memorial Hospital

"Yes, birthing kits are helpful to the facility that is a remote setting. It can improve hygiene during childbirth and reduce risks for the health worker to prevent them getting infected with HIV or Hepatitis B."

- Maggie, CHW at Kokoda Memorial Hospital

The positive impacts of KTF's MNH initiatives are evident, with several key indicators showing improvement. In 2021, the proportion of babies born in KTF health facilities under the supervision of healthcare workers was 44%. In 2023, this rate increased by 70%, with 255 (75%) babies born in supported health facilities as opposed to in homes. Of these, 19% of births had complications that required interventions from trained healthcare workers. These rates are considerably higher compared to the health facility birth rate in Oro Province of 24% and the PNG national rate of 36%. Quality healthcare provided by health facilities during pre-natal and maternal periods helps prevent the most common causes of maternal and newborn morbidity and mortality.

KTF-supported healthcare workers' awareness-raising about access to their family planning clinics has resulted in increased attendance. In 2021, 361 people accessed these services. In 2023, over 1,860 people visited family planning clinics to receive advice on sexual and reproductive health and to obtain contraceptives. Health facilities provided 311 contraceptive implants, 642 contraceptive injections, and 150 contraceptive pills and distributed over 2,500 packs of condoms.

Similarly, we have seen increases in the number of mothers accessing pre and post-natal care, from 374 in 2021 to 2,268 in 2023, a 506% increase.

“ **More mothers are accessing pre- and postnatal care compared to previous years due to health promotion and awareness being carried out in remote areas regarding the importance of family planning services and the distribution of Pikinini Packs at the health facilities.** ”
- CHW at Kokoda Memorial Hospital

By implementing a series of targeted initiatives such as awareness raising, family planning services, Pikinini Packs, and Birthing Kits, the project aims to comprehensively and holistically address maternal and newborn health outcomes. These significant increases in the utilisation of these services will undoubtedly have a positive impact on a wide range of outcomes, resulting in healthier pregnancies, safer deliveries, and overall improved well-being for both mothers and their babies.



Recommendations

KTF's maternal health initiatives have demonstrated the potential for significant improvements in maternal and neonatal health in Oro Province. By combining incentivisation with well-developed, holistic health support, including training for healthcare workers, operating aid posts, and supporting the National Provincial Health Authority and health patrols, KTF has implemented an innovative and effective approach. This strategy, similar to other mother-baby gift initiatives, shows promising potential in addressing the critical needs of the region. These efforts are essential in Oro Province, given the dire situation of the healthcare system and the alarming statistics surrounding birthing and maternal and neonatal health. The following recommendations aim to further enhance the incentivisation initiative:



Continue the Pikinini Pack initiative

Maintain and expand the number of packs made available to sustain and build on their positive impacts.



Roll-Out to All Aid Posts

Extend the program to all of KTF's aid posts to ensure wider access, particularly for those living in the most remote regions.



Implement a 3-Stage Incentivisation Program

Provide resources to mothers during pregnancy, at birth, and post-natally to improve utilisation rates and encourage continuous engagement.



Contact us for more

Dr Genevieve Nelson

CEO

AUS +61 412 869 210

PNG +675 7068 7647

gen.nelson@kokodatrackfoundation.org

Papua New Guinea

Level 7, MRDC Haus
Corner of Musgrave St & Champion Pde
Port Moresby NCD

Australia

Level 1, 274 Darling St
Balmain NSW 2041

Kokoda Track Foundation Ltd

ABN 45 103 660 948

IPA 3-70160

