



KAKAMEGA COUNTY



HEALTHCARE INNOVATIONS





Nairobi, August 2022

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KAKAMEGA COUNTY INNOVATIONS REPORT [Innovations in Healthcare: Kakamega County]

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ABOUT OPEN PHENCES HUB



Public Private Healthcare Engagement and Collaboration Enhanced through Stronger Systems (PHENCES) is a 'think-and-do' Hub housed within Strathmore University Business School, established to strengthen engagement and collaboration between the public and private health sector, as well as partnerships with the wider ecosystem and other sectors.

Part of our mandate is identifying the most promising innovations in counties and promoting conversations on how these can be taken up and scaled through the public and private sectors. We purpose to understand the ecosystem, identifying critically intersecting sectors and actors, isolating health challenges, innovations and other multi-sectoral resources needed to meet these challenges.

We support the development of an enabling environment allowing for the alignment of resources towards supporting promising innovations to improve health service delivery..

..... identifying the most promising innovations in counties and promoting conversations on how these can be taken up and scaled through the public and private sectors



FOREWORD



Counties across Kenya are working towards universal healthcare. Increasingly, they are recognizing the value of combining strengths and capacities of both the public and non-public sectors, yet information on the latter is often scanty or missing altogether. At the same time, there is a tendency towards reduced development assistance for health, which means that Kenya (like most other low- and middle-income countries) will need to identify alternative sources of resources (human, financial, technological, and physical). All these factors underscore the importance of encouraging public private sector engagement, collaboration, and partnership.

Effective engagement requires good information on what is happening outside of the formal government systems. It is for these reasons that the Open Phences Hub is undertaking to map tech and non-tech innovations being implemented/been implemented within the counties of Kenya.

Limited resources amidst boundless need create a huge demand for innovation. But these are unlikely to have meaningful impact, if policy leadership fail to appreciate their existence, role and impact, and therefore, consider them as resources during planning and budgeting.

This 'Kakamega County innovations' report presents a summary of county information (general and healthcare information), selected healthcare indicators and county innovations (description and distribution). It has been prepared for a diverse audience. Anyone working/having interest in healthcare space and related sectors including health management teams, health facility managers, practitioners, health service users, persons working in health financing institutions, innovators, communities and community-based organizations. It was also developed to help healthcare managers appreciate the diversity of ideas and resources available within and outside of their jurisdictions. Finally, it was developed for health providers and investors to understand innovations, who they are targeted at, how they work, and what their (perceived and measured) impacts are for adoption and/or scaling.

The Open Phences team developed this document in recognition (a) the gap in the healthcare system on the low awareness of health system users on existing innovations and their potential impact, excessive fragmentation and duplication of innovations that serves similar functions but don't speak/connect with each other resulting in small scale innovators and ideas which have low probability of scaling (b) county management teams do not have a one resource where they can access information about the available health infrastructure, mortality and morbidity indicators and health service utilization indicators (that is updated on a regular basis).

The document was developed by Paul Waswa, Dan Makuba and Francis Wafula, with input from the broader Open Phences team that includes Noelle Orata, Elizabeth Gitau, Muriithi Njogu, Brenda Bunyasi, Annette Murunga, Cornelius Kiptoo, Irene Khayoni, Eric Tama, Peter Nguhiu and Lyndon Marani. Funding was provided by the Open Phences Hub.

Paul Waswa
Lead Project Analyst

Table of Contents

1

Definition of Terms.....1

2

County Information.....2

3

Product Innovations.....9

4

Business Model Innovations.....16

INTRODUCTION

Definition of Terms

Dominant economic activity - This is the economic activity that contributes the highest gross value added to the county GCP

Gini coefficient - The Gini coefficient is a statistical measure of economic inequality in a population. The coefficient measures the dispersion of income or distribution of wealth among the members of a population.

Age dependency ratio- This is the proportion of the population (age 0-14 and 65+ years) that is dependent on the working population (age 15-64 years).

Old-Age Dependency Ratio- This is the population aged 65 years and above relative to the total number of persons aged 15-64 years.

Child Dependency Ratio - This is the number of children aged below 15 years relative to the total number of persons aged 15-64 years.

Total fertility Rates - The average number of children a woman would have throughout her childbearing years (15-49).

Child Immunization (Fully Immunized) - This is the proportion of fully immunized children from 0 to 59 months.

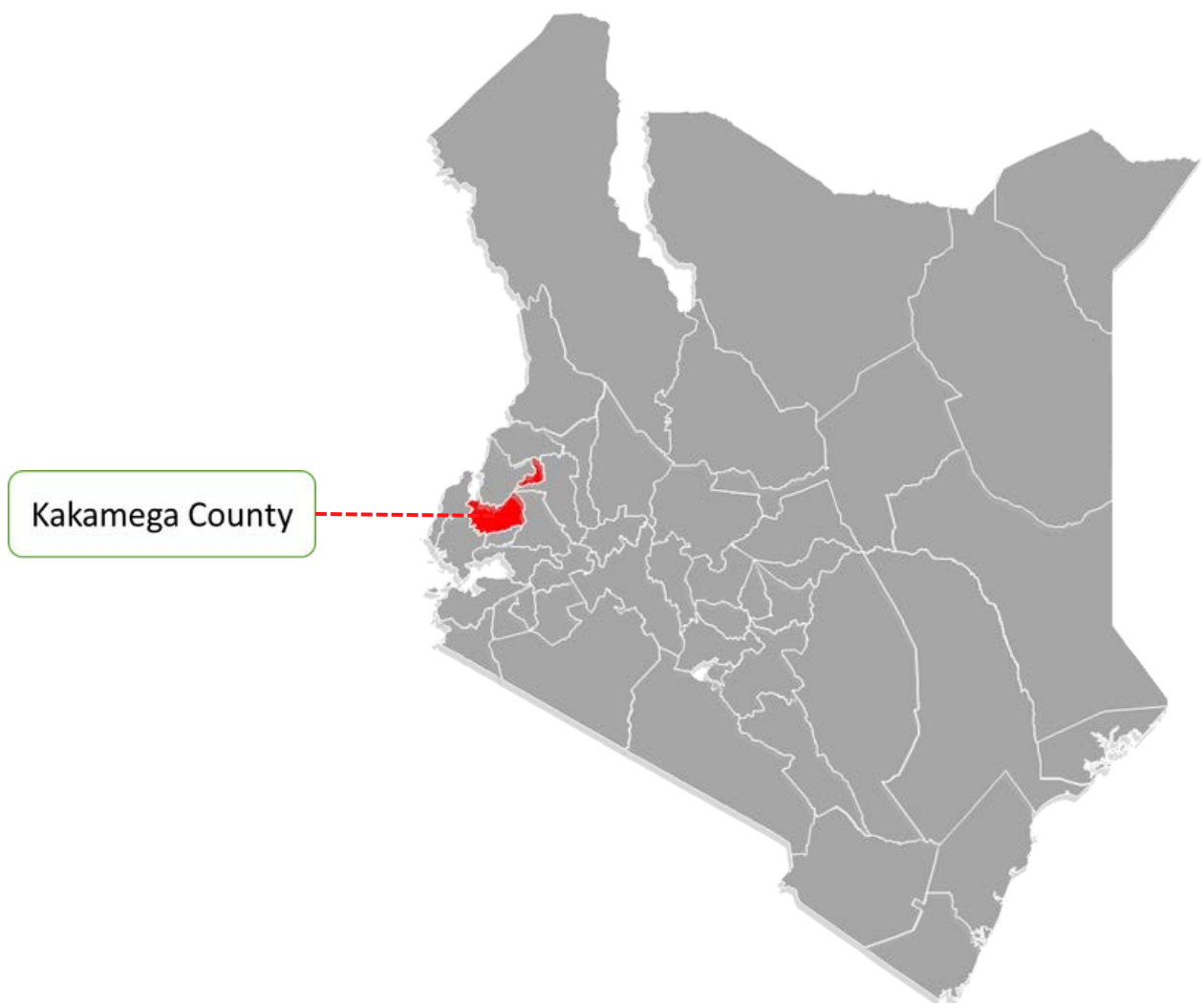
Rural Access Index - Measures the proportion of the rural population that can access an all-weather road within two kilometres.

County Information

Overview

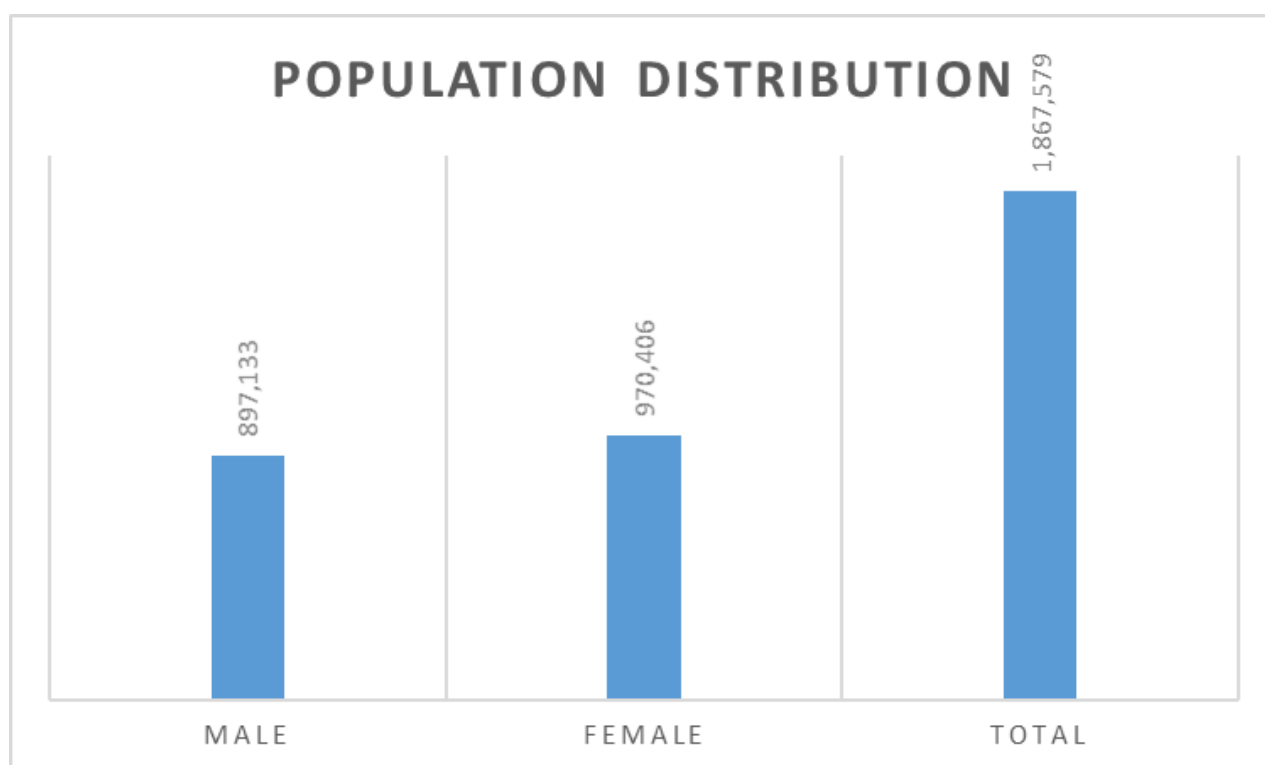
Kakamega County is located in the Western part of Kenya. The term Kakamega comes from a local dialect which means 'pinch', which was used to describe the way the European colonists used to eat the staple food of the residence of this town.

The county borders Vihiga County to the South, Siaya County to the West, Bungoma and Trans Nzoia Counties to the North and Nandi and Uasin Gishu Counties to the East. It covers an area of 3,051.3 KM² and is the second populous county after Nairobi with the largest rural population. It comprises of 12 Sub-counties, 60 wards, 187 Village Units and 400 Community Areas.



Demographic Features

The major economic activities in Kakamega is farming. Other economic activities include fishing, small scale gold mining and the strategic location of the town enables the residence to participate in trade with their partners in nearby towns such as Bungoma to the north, Trans Nzoia to the north east, Uasin Gishu and Nandi counties to the east, Vihiga county to the south, Siaya county to the south west and finally Busia to the West(CIDP 2018 - 2022).



Majority of the residents in Kakamega county live in rural areas. The total rural population is 1,682,239 while urban population is 185,340.

Kakamega North is the most populated sub-county with a total population of 238,330. The least populated sub-county is Matete with a total population of 66,172.

4.9

Average household
size

619

The population density per square kilometre.

OTHER FEATURES

FEATURE	COUNTY ESTIMATE	NATIONAL
Gini coefficient	32.1	40.4
Age dependency ratio	95.2	81.6
Old age dependency ratio	8.0	6.9
Child dependency ratio	87.1	74.7
Human development index	0.555	0.575
Rural Access Index - %	81	62.9
Population owning mobile phones (%)	40.9	47.3
Population accessing internet (%)	9.1	22.6

Source: County Fact Sheet 2019

Distribution of Income

Kakamega county has a Gini coefficient of 32.1 (0.321). Whereas the Gini coefficient of 0 represents perfect equality where everyone has the same income, the score of 0.321 implies that there is a significant income gap in the population. The income disparity is less than the national average.

Human Development

Kisumu county has a HDI of 0.555, which below the national score of 0.575. This is a summary measure of average achievement in the following key areas: a long and healthy life, being knowledgeable and having a decent standard of living. Thus the county's achievement is below the national average.

HEALTH INFORMATION

The Kakamega County Health system is organized in accordance with the Kenya Essential package of health (KEPH) level structure from the household level to primary health care level to hospital level offering referral and specialized services.

Infrastructure

The county has 1 level 5 facility, 19 level 4 facilities, 83 level 3 facilities and 250 level 2 facilities (KMFL 2022).

The total bed capacity in the county for all the public and private facilities is 3,949 with the public sector having 2,338 beds while the private hospitals have 197 beds. The bed capacity in the mission/NGO health facilities is 1,414 (CIDP 2018-2022).

In terms of distance to the nearest health facility, it takes 51.1 per cent of the population about 5km to the nearest health centre while 32.2 per cent take between 1.1 and 4.9 km to the nearest facility. Further, 16.7 per cent of the population however travel a distance of less than one kilometre.

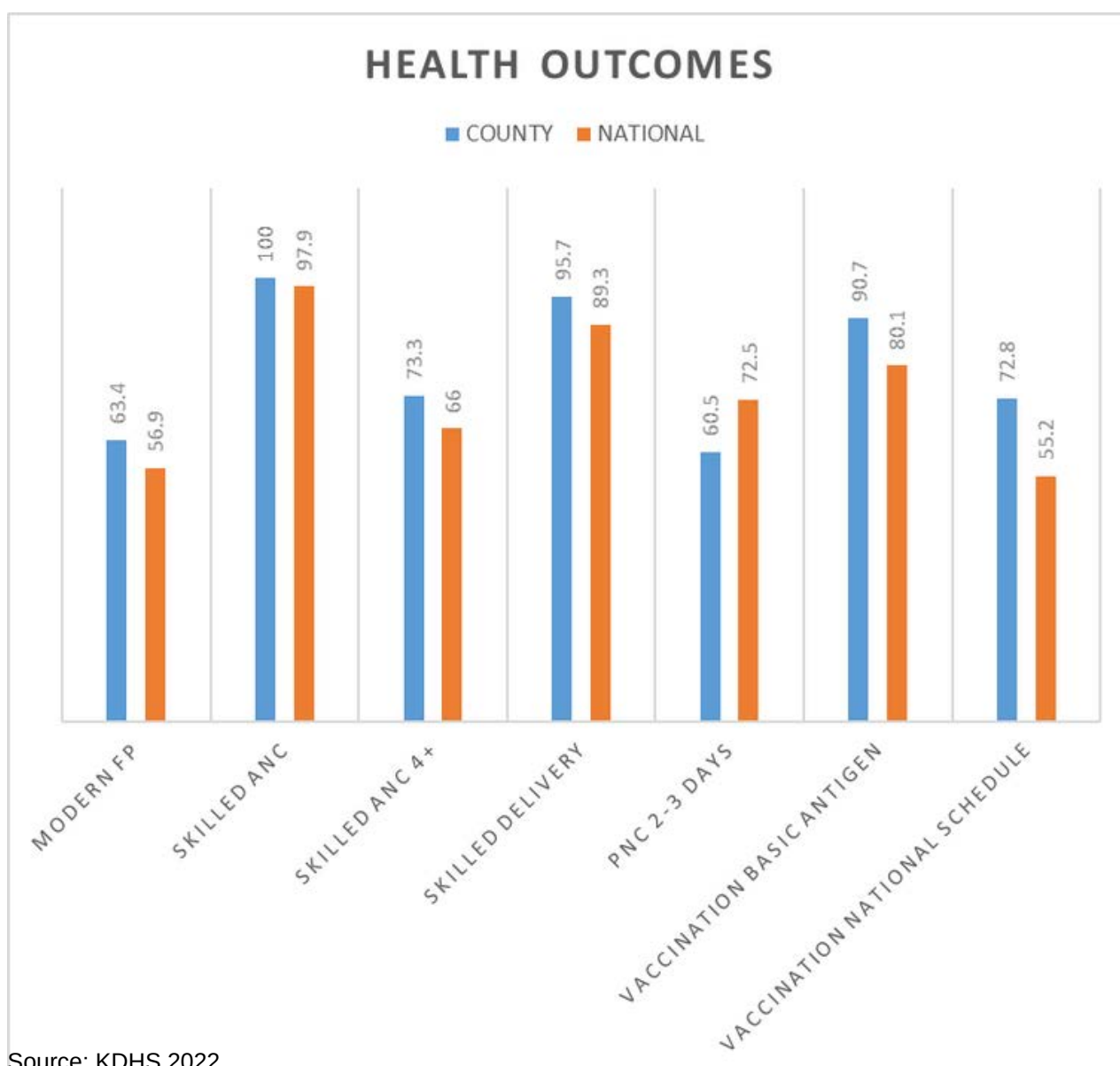
51.1

The Percentage of the population that travel about 5 kilometres to the nearest health facility.

Workforce

The doctor population ratio stands at 1:34,916 while the nurse patient ratio is 1:2,658 (CIDP 2018 - 2022). The county has a core health workforce density of 10/10000 of the population (County fact sheet, 2019).

HEALTH SERVICE OUTPUTS



Source: KDHS 2022

Contraceptive use

The modern methods include male and female sterilization, injectables, intrauterine devices, contraceptive pills, implants, female and male condoms, emergency contraception, the standard days method and the lactational amenorrhea method. The county has a score of 63.9% coverage above the the national score. The county currently has an unmet need for contraceptives 13.4% (KDHS, 2022) among married women.

Antenatal Care (ANC)

ANC care provided by a skilled provider is important for monitoring pregnancy, reducing mortality and morbidity risks for the mother and child during pregnancy, delivery and post-delivery. The ANC coverage in the county is at 100%. Those who do four or more ANC visits are 73.3%. This implies that there is either a high rate of dropout after the first ANC visit due to loss of follow-up or there is late timing for the first ANC visit thus unable to complete at least 4 visits.

OTHER HEALTH OUTCOMES

INDICATOR	OUTCOME	NATIONAL
people living with HIV	50,844	1,517,708
Skilled Delivery (%)	95.7	89.3
Total fertility rate	3.1	3.4
Infant mortality rate	37.3	35.5
Under-5 mortality rate	60.2	52.0
Maternal mortality rate	279/100,000	355/100,000
Households accessing safe drinking water (%)	72.3	58.8
Health insurance coverage(%)	14.8	21.3

Source: County Fact Sheet, 2019

INNOVATIONS IMPLEMENTED IN THE COUNTY

According to WHO, health innovation is defined as a new or improved solution with the transformative ability to accelerate positive health impact. Innovations can be classified using different schemas. In this report we classify the healthcare innovations either as Product or Business model.



Product Innovations

They include new products or technologies or upward improvements on the existing ones either holistically or adding new features to meet customers needs in a novel way. Even though the risk of adding new features can be similar to launching a new product. Those which are new technologies/products are called radical innovations while those that are as a result of improving existing products are incremental innovations.



Business Model Innovations

These are innovations developed by enhancing advantage and value creation by making simultaneous and mutually supportive changes both to an organization's value proposition to clients and to its underlying operating model. successful business model innovations implement a holistic approach through integration of different business components into well organised systems

Product Innovations

JACARANDA HEALTH

EMONC MENTORSHIP

Target Geography

Urban, Peri-urban, Rural

**Target Population**

Healthcare Workers

Health Focus Area

Reproductive, Maternal, Neonatal, Child and Adolescent Health

The Need

Close to 60% of deliveries in Kenya occur at health facilities, but the quality of maternal care in the country remains inconsistent. With over 6000 women dying annually during child birth, low quality of clinical care and inequitable access to quality maternal care are major drivers of poor maternal and newborn health outcomes.

The Innovative solution

EmONC mentorship is an on-the-job training program on essential elements of quality maternal and newborn care that Jacaranda Health has adapted into the public sector. Jacaranda's mentorship team has contributed to the development of a national EmONC mentorship package for providers across the country, incorporating learnings and best practices.

Addressing the need

The approach includes developing integrated training materials adapted for the public facility context, creating a network of public sector nurse champions or mentors, moving training from classrooms to facilities where deliveries take place, and incorporating simulations to ensure that critical, practical life-saving skills are correctly applied.

The program has also developed a standardized toolkit that enables the trained mentors to guide trainees at their assigned facility towards continuous quality improvement.

PROMPTS



Target Geography

Urban, Peri-urban, Rural

Target Population

Women of Reproductive age

Health Focus Area

Reproductive, Maternal, Neonatal, Child and Adolescent Health

The Need

Maternal mortality ratio of 355 deaths per 100000 live births in Kenya. Newborn deaths contribute to almost half of all deaths of children under 5 years and younger in Kenya. Most of these deaths are either preterm deliveries or complications occurring at child birth (intrapartum). In an audit of deaths that occurred in 2014, delays in care-seeking was identified by the national committee that it contributed to 30% of maternal deaths. Empowering women with knowledge about pregnancy complications is critical to enable them seek care at the right time and place.

Innovative Solution

PROMPTS is a digital health platform offering free targeted two-way messaging and a help desk service to new and expectant mothers regarding pregnancy and newborn health-related questions. It empowers women to seek care at the right time and place, with women receiving personalized health messaging via the platform at different stages of their pregnancies. The personalized messages include: critical information on health, tips on financial planning for delivery, newborn nutrition, family planning and immunization.

The SMS are customized in both English and Kiswahili to fit the consumer base. Local languages are also being considered for the future.



BEHAVIORAL NUDGE APPROACHES TO ADDRESS SYSTEMIC GAPS IN THE POST-NATAL CONTINUUM

Target Geography

Urban, Peri-urban, Rural

Target Population

Women of Reproductive age

Health Focus Area

Reproductive, Maternal, Neonatal, Child and Adolescent Health

The Need

Kenya continues to have large gaps in the quality and continuity of postpartum maternal care. Half of mothers report receiving no postnatal care within 48 hours after childbirth, while 90% of women have unmet needs for family planning at 3 months postpartum. Low uptake of postnatal care and family planning services are major contributors to poor MNCH outcomes.

The Innovation

Jacaranda Health designed, deployed, and evaluated the effectiveness of an SMS postpartum checklist. The checklist was comprised of SMS messages that asked women to check for danger signs and “nudged” them to return for postnatal and family planning care. The web-based postpartum questionnaire sent via SMS which will trigger automated referrals to seek facility care and phone calls if certain danger signs are present.



This tool aims to increase the uptake of postpartum care and post-partum family planning to improve health outcomes for mothers and children in Kenya. The innovation has added new features including messages targeting antenatal care.

BLOOD TRACKER

Cutting Operational Bottlenecks through Real Time Tracking



Target Geography

Urban, Peri-urban, Rural

Target Population

General Population

Health Focus Area

Essential Commodities, Supply chain

The Need

Frontline health providers across Kenya were struggling to find ready supplies of blood, always making calls to different facilities with hope to get enough units of the right blood type and product to deal with the emergency needs of the patient. This has often led to wastage of lots of time sometimes leading to preventable deaths.

The Innovation

It was against this that Jacaranda saw it useful to develop a tool, easy to use that could help streamline the process of identifying blood sources. This gave birth to a simple tool whereby blood unit managers could input the blood availability in their facilities, and healthcare providers easily track the nearest available blood by type and units.

Through a dashboard, healthcare providers are able to track where the blood stock is being used and for what reason, able to see different blood products available and requests for blood by time, status and approval.

Apart from helping to manage the blood processes, Jacaranda health also engages in blood drives to ensure its availability. Plans are underway to partner Rescue.Co with The Blood Tracker to ensure faster and efficient transportation of blood to facilities in need.



RESCUE.CO



Target Geography

Urban, Peri-urban, Rural

Target Population

General Population

Health Focus Area

Referral network

The Need

Kakamega county has had challenges with referral systems for patients from the community to health facility as well as from peripheral facilities to higher level facilities. This challenges have led to preventable death to occur especially with maternal health.

The Innovative Solution

Jacaranda health partnered with Rescue.co to map all the ambulances both in public and private sector in the county. Having all the ambulances in a single database, enables one to call and get the services in the shortest time possible. This led to the achievement of the lead time from home to hospital of 40 minutes.



These chain of ambulances are complemented by a number of motorcycles and personal automobiles for areas with poor road network. The ambulance services are offered for free.

Plans are underway to partner Rescue.Co with The Blood Tracker to ensure faster and efficient transportation of blood to facilities in need.

In other counties Rescue.Co provides multiple services outside of emergency medical rescue services. These include roadside rescue and assistance, 24-hour comprehensive assistance, security services and corporate services. This is done in partnership with multiple organizations such as Glovo, Bolt, Wheels for Life, Sendy, KK Security, BM Security, Rusinga Schools amongst others.

EMPOWER HEALTH



Target Geography

Urban, Peri-urban, Rural

Target Population

General Population

Health Focus Area

Non-communicable diseases (NCDs)

The Need

The burden of non-communicable diseases (NCDs) is increasing in sub-Saharan Africa. In Kenya, it is estimated that approximately 24% of the adult population has hypertension, with only 4% having their blood pressure adequately controlled.

The Innovation

Together with other partners, Medtronic LABS developed a technology-enabled model of care with patients at the center, but with the larger system in mind. It takes a population health approach to chronic disease: screen, diagnose, risk-stratify, manage, and improve clinical outcomes for patients as early as possible and as efficiently as possible.



The Empower Health model consists of a mobile device, an automated blood pressure machine, a glucometer, and a novel proprietary software application – combined in a unique platform for efficient screening and longitudinal management of a patient cohort. Leveraging the model, physicians provide patients with tailored management plans.

Patients can access regular blood pressure and blood glucose checks at community-partner locations or at home where they receive real-time feedback on their measurements. On the mobile application, clinicians can view patient data, provide direct patient feedback on their conditions via SMS, and write electronic prescriptions – accessible through participating pharmacies.

ESM-UBT



Target Geography

Urban, Peri-Urban, Rural

Target Population

Women of Reproductive Age

Health Focus Area

Reproductive, Maternal, Neonatal, Child and Adolescent Health

The Need

Among the leading and common causes of maternal deaths in Kenya is postpartum hemorrhage (PPH).

The innovative solution

Every Second Matters for Mothers and Babies-Uterine Balloon Tamponade (ESM-UBT) an innovative device to help control postpartum hemorrhage (PPH) especially in resource constrained settings.



Business Model Innovations

SERVICE DELIVERY REDESIGN(SDR)



Target Geography

Urban, Peri-urban, Rural

Target Population

Women of Reproductive Age

Health Focus Area

Reproductive, Maternal, Newborn, child and Adolescent health

The Need

Despite increased utilization of facilities for childbirth, decline in maternal and neonatal mortality and morbidity has stagnated. Main challenge arises from the fact that most deliveries occur in facilities that cannot handle complications, which present without warning and require rapid, highly expert care and a compounding slow non-functioning emergency referral system.

The Innovative Solution

Because of the unpredictable nature of birth complications, hospitals or birthing centers with access to surgical and sick newborn care within 30 minutes are the best option for all deliveries. SDR is a systemic reform that rationalizes the health system such that high quality services are provided at the right level, by the right provider and at the right time to optimize outcomes. For maternal and newborn health (MNH), SDR means restructuring health systems so that all women deliver in hospitals providing the full scope of obstetric and neonatal care for complications—e.g., Caesarean section, blood transfusion and care for sick mothers and newborns—or in nearby affiliated birthing facilities, while lower level facilities provide quality antenatal, postnatal, and newborn care.

There are five programmatic considerations for MNH service delivery redesign:

- Strengthening all level IV, V and VI facilities to offer CEmONC services
- Boost Primary Health Care facilities to offer antenatal and postnatal services
- Improving access to care; reliable transportation, maternity waiting homes and removal of financial barriers
- Educating women and families on rationale of redesign to raise demand for higher-level maternity care
- Policy update and alignment with redesign strategy

HUMAN CENTRE DESIGN (THINKPLACE-INNOVATION LABS)

Target Geography

Urban, Peri-urban, Rural

Target Population

General Population

Health Focus Area

General Health



The Need

The government and organizations that support healthcare and health systems may come up with solutions to solve challenges only for very little impact to be realized. This may be attributed to solutions that may not suit the healthcare provider, community members nor facilities. Suitability may be dependent on multiple factors such as culture, religion, environment and education level. These may be difficult to consider especially in the background of varied communities.

The Innovative Solution

Universal Health Care can be achieved with provision of services that are scientifically and socially acceptable to the community. Jacaranda Health came up with an information hub that houses all ideas from community, healthcare providers and facilities called ThinkPlace Lab.

Before an innovative solution is implemented, it is filtered through the expectations and needs of all the members that provide or use the service. Suggestions are also embedded into the implementation phase. This inclusion of the society in the innovative process leads to increased utilization of services within the community.



BODA BODA DRIVERS

Target Geography

Urban, Peri-Urban, Rural

Target Population

Women of Reproductive Age

Health Focus Area

Reproductive, Maternal, Neonatal, Child and Adolescent Health; Referral network

The Need

Lack of access to healthcare services in areas with poor transport system. Expectant mothers are not able to reach the health facilities at the time of need/ required time.

The Innovation

Boda boda drivers (ambulances) were introduced to ferry pregnant mothers to health facilities. At each mother's ANC visit, they receive the number of a boda boda rider. This has addressed the noted transport and distance bottlenecks in Maternal and neonatal health (MNH) referral system.



LEA MIMBA PREGNANCY CLUBS

(A Group Based Model for Antenatal Care in Kakamega County, Kenya)



Target Geography

Rural

Target Population

Women of Reproductive Age

Health Focus Area

Reproductive, Maternal, Neonatal, Child and Adolescent Health

The Need

Pregnancy and childbirth can be a stressful, isolating, and often dangerous time for women and their newborns. Kakamega County in western Kenya has high levels of maternal deaths and lower than average coverage of essential maternal and newborn health services, including antenatal care (ANC). Only 45% of women receive at least four antenatal visits, and slightly less than half (47%) deliver with a skilled birth attendant compared to the national average of 61%. Women, and in particular adolescents, face a range of barriers when accessing care during pregnancy, including negative attitudes of clinic staff, long waiting times, and costs for services and transportation. In addition, the traditional one-on-one ANC model does not meet women's needs for counseling and support and for social connections with other women.

The Innovation

Management Sciences for Health (MSH) an innovative service delivery model for ANC that is more responsive to women's needs for social support without overburdening health care providers. Lea Mimba that brought women at similar stages of pregnancy together with a health provider.



They shared experiences, learnt essential health information and self-care practices, supported each other socially and emotionally, and developed a sense of community. Women met over the course of their pregnancy (seven visits) with the same women and health provider.

MOMCARE HEALTH INSURANCE



Target Geography

Urban, Peri-urban, Rural

Target Population

Women of reproductive Age

Health Focus Area

Healthcare Financing/Insurance

The Need

Financial and healthcare barriers cause many pregnant women to attend their first Antenatal Care visit too late. This leads to unnecessary complications and high mortality for the mother and child during the pregnancy term.

The Innovation

The MomCare Programme by PharmAccess aim to Increase uptake of quality Maternal, Newborn and Child Health services on the Patient Journey from pregnancy through birth to postnatal care. It is a health insurance program targeting pregnant women and their newborns. The MomCare package complements existing government care funding to ensure access to an entire quality care journey.



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