



# NAKURU COUNTY

## HEALTHCARE INNOVATIONS





Nairobi, August 2022

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NAKURU COUNTY INNOVATIONS REPORT [Innovations in Healthcare: Nakuru County]

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Suggested citation: Open Phences (2022). Innovations in Healthcare: Nakuru County. Open Phences Hub. Nairobi. Kenya

# 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 'Nakuru 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**

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## 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.

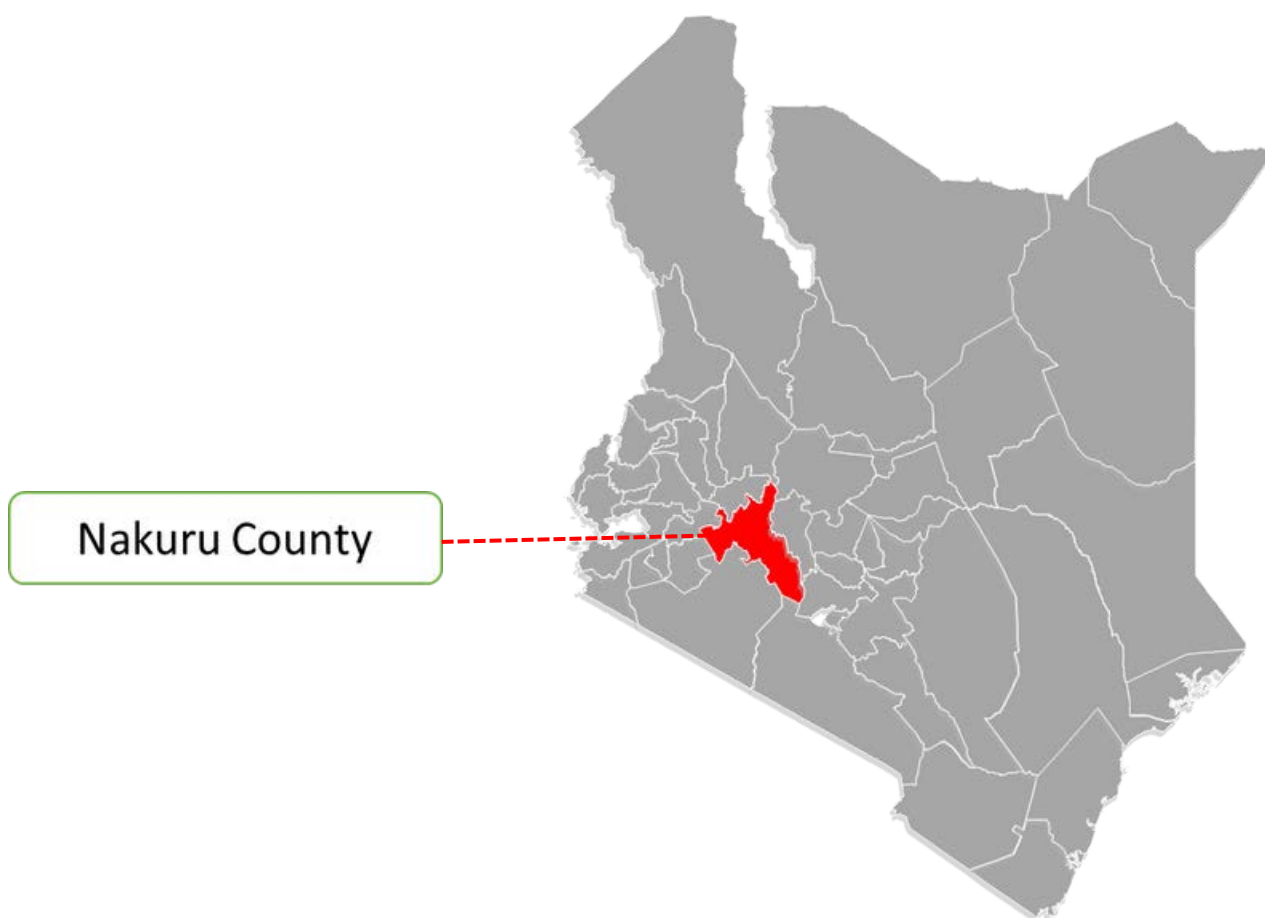
# County Information

## Overview

Nakuru county is one of the 47 counties of the Republic of Kenya as provided for in the Constitution of Kenya 2010. The name Nakuru means 'a dusty place' in the Maasai language-in reference to frequent whirlwinds that engulf the area with clouds of dust. The County covers an area of approximately 7,498.8 Km<sup>2</sup>.

It is located in the Rift Valley and it borders seven Counties; Laikipia to the north-east, Kericho to the West, Narok to the south-west, Kajiado to the South, Baringo to the North, Nyandarua to the East and Bomet to the West.

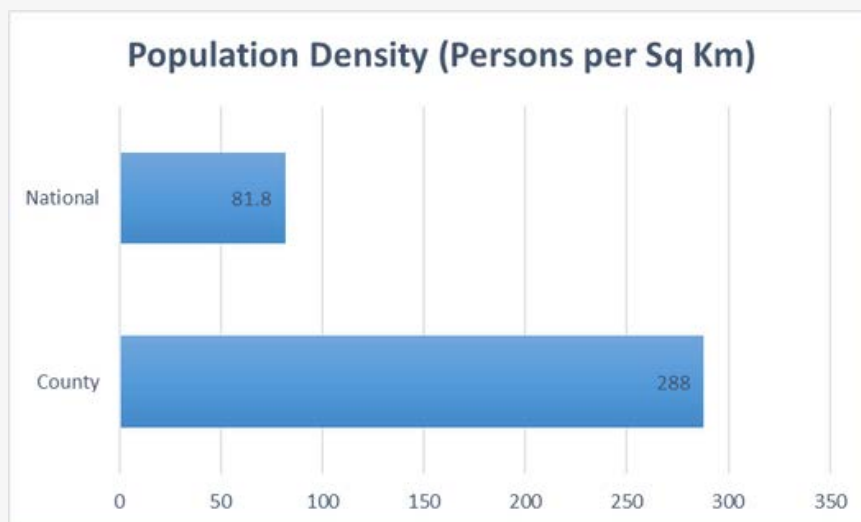
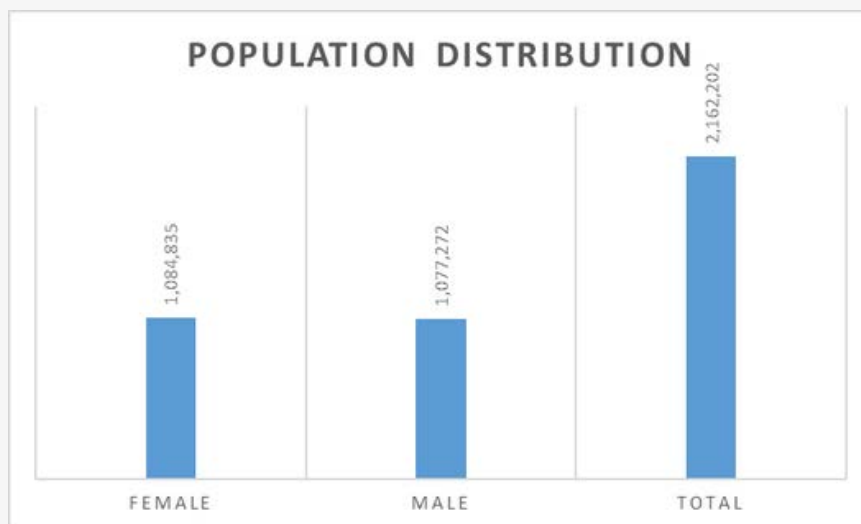
The County has 11 sub-counties/constituencies namely; Naivasha, Nakuru Town West, Nakuru Town East, Kuresoi South, Kuresoi North, Molo, Rongai, Subukia, Njoro, Gilgil and Bahati. There are 55 wards in the County. The County is divided into eleven administrative Sub-Counties namely; Nakuru East, Nakuru West, Naivasha, Molo, Njoro, Kuresoi North, Kuresoi South, Rongai, Bahati, Subukia and Gilgil.



# DEMOGRAPHIC FEATURES

The County is among the most cosmopolitan in the country. The dominant communities include; Kikuyu and Kalenjin. Other communities present in the County include; Luo, Luhya, Maasai, Kamba, Meru among others.

The major economic activities include; agriculture, tourism and financial services. Nakuru is an agricultural rich County whose background was shaped by the early white settlement schemes.



*Kenya National Population and Housing Census, 2019*



## OTHER FEATURES

FEATURE	COUNTY ESTIMATE	NATIONAL
Gini coefficient	38.1	40.4
Age dependency ratio	85.5	81.6
Old age dependency ratio	7.1	6.9
Child dependency ratio	78.5	74.7
Human development index	0.555	0.575
Rural Access Index - %	95	62.9
Population owning mobile phones (%)	69.1	47.3
Population accessing internet (%)	43	22.6

Source: County Fact Sheet 2019

### **Distribution of Income**

Nakuru county has a Gini coefficient of 38.1 (0.381). Whereas the gini coefficient of 0 represents perfect equality where everyone has the same income, the score of 0.381 implies that there is a significant income gap in the population. Though the disparity is still lower than the national average.

### **Human Development**

Nakuru county has a HDI of 0.555, slightly 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.

# Healthcare Information



## Infrastructure

The county has 1 level 5 facility, 47 level 3 facilities and 498 level 2 facilities. The distribution by ownership is as follows, 212 government facilities, 350 private for profit facilities, 17 non-governmental organization facilities, and 50 faith based organisation facilities (KMHFL, 2022).

At community level, the county has 249 functional community units offering level-one health services (CIDP 2018-2022).

## Workforce

Nakuru county has a core health workforce density of 19.3 per 10000 of the population (KHHFA, 2018).



## Morbidity



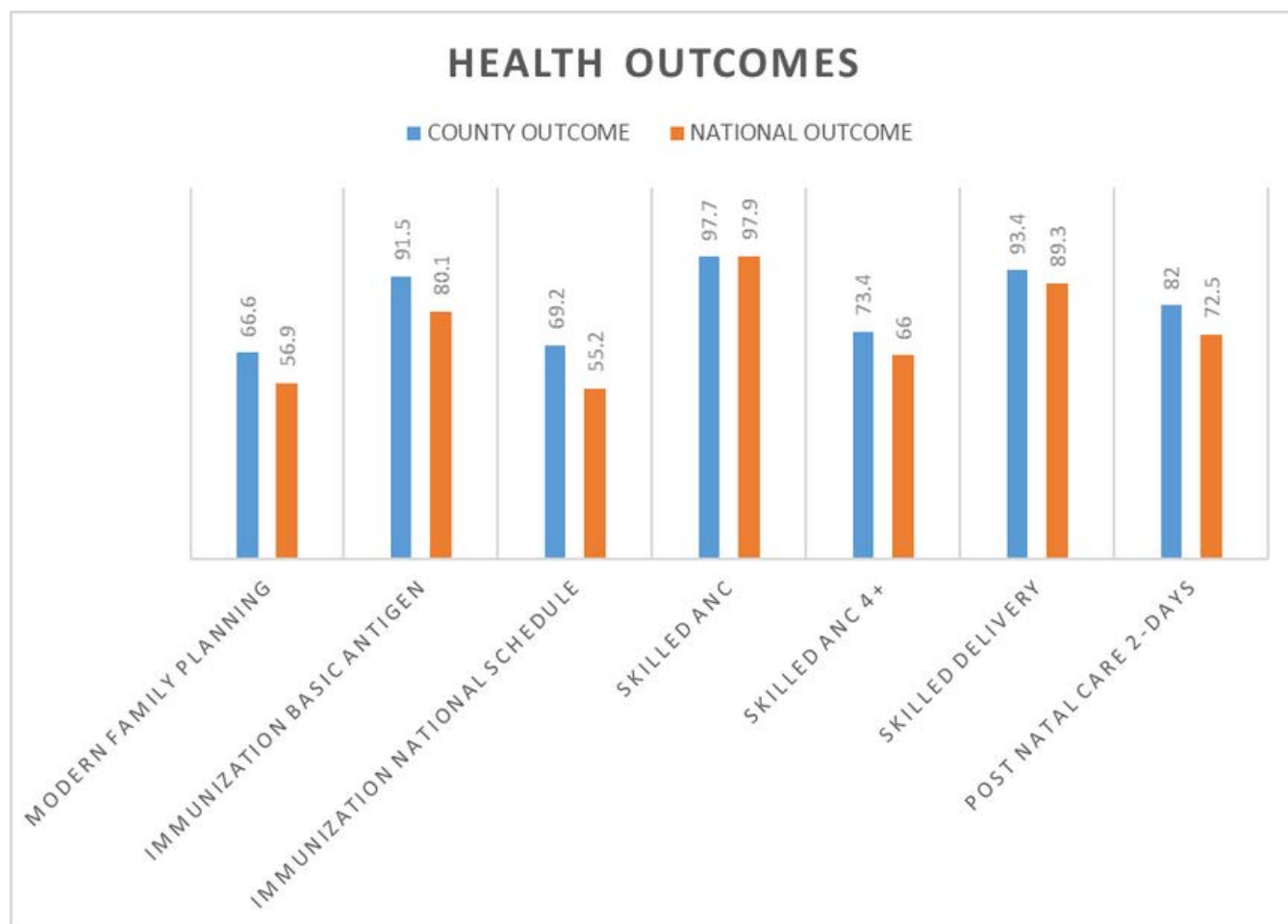
The five most common diseases are; upper respiratory infections which has a prevalence rate of 438/1000, this is followed by skin diseases with a prevalence rate of 89/1000, diarrheal diseases with a prevalence rate of 63/1000, pneumonia with a prevalence rate of 41/1000 and arthritis with a prevalence rate of 30/1000 (KDHS 2014). Other high prevalent morbidity cases include urinary tract infections, suspected malaria, eye infection and hypertension (CIDP 2018-2022).

## Nutrition

The county has 19 percent of children under five years are stunted, 5 percent wasted and 10 percent underweight (KDHS 2014).



# 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. Despite Nakuru county having a score of contraceptive use above the national score, there is still an unmet need for family planning of 8.3% (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 97.7%. Those who do four or more ANC visits are 73.4%. 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.

### **Delivery and Post-natal Care**

According to KDHS 2022, delivery by a skilled provider increases with education, household wealth and also place of residence(rural or urban). Those in urban areas are more likely to be delivered by a skilled attendant. Similar results are observed for post-natal care 2-3 days after delivery.

### **Immunization Coverage**

Basic antigen coverage entails one dose of BCG, three doses of polio (excluding OPV given at birth), three doses of DPT and one dose of measles. This stands at 91.5%.

A child of age 12-35 months considered fully vaccinated according to national schedule should have received all basic antigens, a birth dose of OPV, a dose of IPV, three doses of pneumococcal vaccine, two doses of rotavirus vaccine and a second dose of MR vaccine. The score is 69.2%.

In both cases, there is a significant percentage of children under 5 years who don't get full immunization. This puts them at risk of contracting illnesses. Vividly, there is a significant dropout between basic antigen coverage and receiving full immunization according to national schedule.

## **OTHER HEALTH OUTCOMES**

<b>INDICATOR</b>	<b>COUNTY OUTCOME</b>	<b>NATIONAL</b>
people living with HIV	171,510	1,517,708
Total fertility rate	2.5	3.4
Infant mortality rate	35.7/1,000	35.5/1,000
Under-5 mortality rate	57.7/1,000	52/1,000
Maternal mortality rate	326/100,000	355/100,000
Households accessing safe drinking water (%)	82.4	58.8
Health insurance coverage(%)	40.7	21.3

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## 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

## ResAppDx



### Target Geography

Urban | Peri-Urban | Rural

### Target Population

General Population

### Health Focus Area

Communicable Diseases

### The Innovation

Kenya-based diagnostics start-up Ilara Health in collaboration with ResApp Health, an Australian health-tech company, offer ResAppDx, a smartphone app for diagnosing acute respiratory diseases, to partner clinics and clients in Kenya. The partnership improves diagnostics capabilities of Ilara Health's 250 partner clinics across Kenya

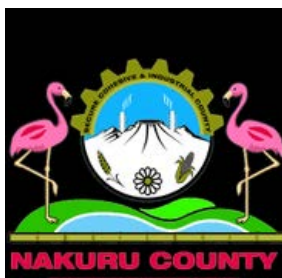
Ilara Health powers existing primary care facilities with next-generation point of care diagnostic tools to bridge the diagnostic gap across sub-Saharan Africa.

ResAppDx is ResApp's acute respiratory diagnostic test that uses machine-learning technology to analyse signatures in cough sounds to diagnose respiratory disease using a smartphone's inbuilt microphone.

ResAppDx is also approved as a medical device in Kenya.



# Afya Moja Digital Health Passport



## Target Geography

Urban | Peri-Urban | Rural

## Target Population

General Population

## Health Focus Area

Health Data, Electronic medical records

## The Innovation

Safaricom partnered with Nakuru county and other partners to improve health services through an integrated electronic medical records named Afya Moja.

Afya Moja is a simple mobile based digital health passport that receives and securely stores patient information. It allows the users to access a copy of their own information and the ability to share it with trusted health providers. It allows doctors upon consent to have access to patients' medical backgrounds and therefore respond effectively to their needs.

This solution empowers consumers and providers of healthcare services and provides a mechanism to collect, store, own, access, control and review health information. Hence this reduces duplication and erroneous data. It provides medical practitioners with relevant patient information in a timely manner, thus enabling them make evidence-based patient management decisions particularly for continuity of care, and reduce cases of misdiagnosis thus saving patients unnecessary costs.

# 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 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.



# MediCapt



Physicians for  
Human Rights

## Target Geography

Urban | Peri-urban | Rural

## Target Population

General Population

## Health Focus Area

Sexual, Reproductive Health and Rights

## The Need

Every year, tens of thousands of adults and children experience sexual and gender-based violence (SGBV) in conflict zones worldwide. It is used to intimidate populations, control civilians, accelerate forced displacement, aid “ethnic cleansing,” and disrupt community norms.

SGBV constitutes an ongoing humanitarian crisis and serves to further isolate already marginalized populations. Too often, survivors of SGBV are unable to access justice because of lack of evidence – perpetuating a culture of impunity for crimes of sexual violence.

## The Innovation

MediCapt is a mobile application created by physicians for human rights (PHR) to help clinicians securely document forensic medical evidence of sexual violence. The app was created through a participatory, collaborative design process with PHR’s partners in Kenya and the Democratic Republic of the Congo to ensure the final product addressed their specific needs and challenges.



MediCapt promotes a survivor-centered approach by standardizing methods of evidence collection, reducing errors in documentation, and ensuring more complete collection of evidence to support prosecutions. The tablet-based application enables clinicians to document assault cases digitally, capture photographs of injuries sustained, and store and transmit information across different sectors securely.

# Tibu Health



## Target Geography

Urban | Peri-Urban

## Target Population

General Population

## Health Focus Area

General Healthcare

## The Innovation

Kenyan health-tech startup TIBU Health raised a seed round from Blue Haven Initiative and Kepple Africa Ventures to scale its nascent operations. TIBU Health's digital platform offers patients on-demand access to healthcare workers who can provide in-person treatment to patients at their preferred location and time.



# Elephant Hospital Management System

## Target Geography

Urban | Peri-Urban | Rural

## Target Population

General Population

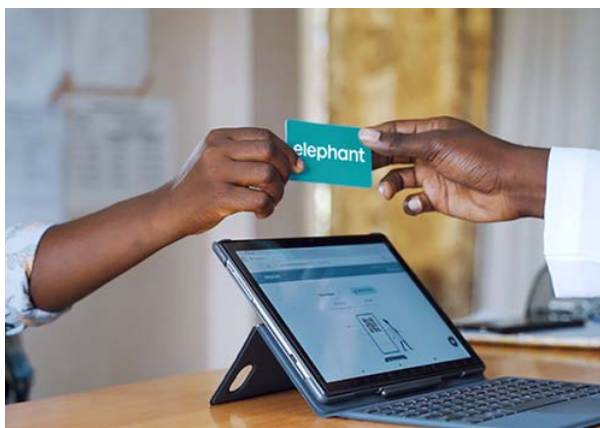
## Health Focus Area

Health Data, Hospital and Inventory management

## The Innovation

The Elephant system provides a holistic solution for facilities. This is because it:

1. empowers patients with secure access to their eHealth records via elephant card.
2. automates care, reporting, stock and billing management integratable through web API.
3. Analytics dashboard that provide real time actionable data for tracking and decision making.



The patient registers at a facility and receive an Elephant card, a secure, scannable digital health record, which they can access on any device. by scanning the card, clinicians can easily pull up a patient's history.

# MyDawa



## Target Geography

Urban | Peri-Urban

## Target Population

General Population

## Health Focus Area

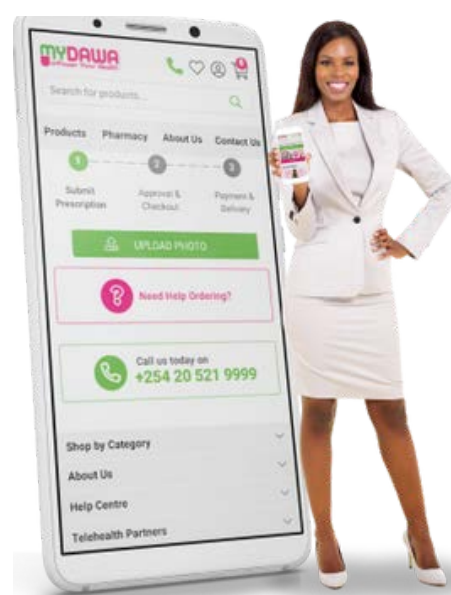
Health | Beauty | Nutrition | Medical Devices

## The Innovation

MYDAWA is a new and innovative service that allows anyone buy wide range of high quality medication and wellness products affordably and conveniently from your mobile phone. Kenya is one of the country's in Africa with the highest internet penetration. This has given an immense opportunity to leverage in order to create a value-based system that ensures healthcare is affordable, of the highest quality, patient-centric and convenient.

MYDAWA, an online health platform has a main objective of promoting better health outcomes for all. MYDAWA is anchored on four pillars, privacy for the customers as products have tamper-proof seal, convenience through its free delivery of medication and other wellness products, affordability and quality.

It also ensures better pharmacovigilance as it tackles the issue of counterfeit drugs/products in the market since the entire supply chain process is tracked and one has the option of authenticating the products.



It has employed pharmaceutical technologists who are tasked to deliver medication at patients doorstep. They also offer counseling services and respond to any questions patients may have of their medication or illness. For patients with chronic illnesses, their prescriptions can be refilled monthly or quarterly in time also acting as a reminder thus increasing medication adherence.

# CROSS-BORDER ELECTRONIC MEDICAL RECORDS (EMR) FOR HEALTHCARE DELIVERY FOR UNDERSERVED MOBILE POPULATIONS IN AFRICA

## Target Geography

Urban | Peri-Urban | Rural

## Target Population

General Population

## Health Focus Area

Health Data, Electronic medical records



North Star Alliance piloted a cross-border Electronic Medical Record designed to improve access to sexual and reproductive health and rights (SRHR) services by facilitating continuity of care for underserved mobile populations (long-distance truck drivers and sex workers) in two North Star Blue Box clinics in Mai Mahiu, Kenya and Malaba, Uganda.

This aims to increase awareness of and access to SRHR services by mobile populations on the border between Kenya and Uganda.

# Business Model Innovations

## Carepay



### **Target Geography**

Urban | Peri-urban | Rural

### **Target Population**

General Population

### **Health Focus Area**

Healthcare Financing/Insurance

### **The Need**

Because Kenya faces a low insurance penetration due to various reasons, people are forced to pay large out-of-pocket rates for services at facilities.

### **The Innovation**

Through a partnership with Safaricom, PharmAccess, National health insurance scheme in Kenya, Carepay developed M-TIBA, which directs health funds from the public and private funders directly to patients on their mobile fund. These funds are restricted to conditional spending at selected healthcare providers, which helps to address the issue of fraud.

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