

# BUNGOMA COUNTY

## HEALTHCARE INNOVATIONS





Nairobi, August 2022

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BUNGOMA COUNTY INNOVATIONS REPORT [Innovations in Healthcare: Bungoma County]

Prepared by:  
The Open Phences Hub  
P.O. Box 2433 – 00202  
Nairobi.

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## 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 taking place within the counties in 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 '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) 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  
Project Lead Analyst

## **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

Bungoma county is situated within the Lake victoria Basin. It has a land size of 3032.4 square kilometres. It borders the republic of Uganda to the North west, Trans-Nzoia County to the North-East, Kakamega County to the East and South East, and Busia County to the West and South West.

Bungoma County is divided into 12 Sub-Counties, 45 Wards and 236 Village Units

The dominant economic activities in this county is agriculture, forestry and fishing.

# Demographic Features

Bungoma county has a total population of 1,670,570 persons. The male population is 812,146 against the female population of 858,389. The population density is 552 persons per square kilometre.

## OTHER FEATURES

| FEATURE                             | ESTIMATE |
|-------------------------------------|----------|
| Gini coefficient                    | 37.6     |
| Age dependency ratio                | 104      |
| Old age dependency ratio            | 6.7      |
| Child dependency ratio              | 97.3     |
| Human development index             | 0.555    |
| Rural Access Index - %              | 82       |
| Population owning mobile phones (%) | 36.8     |
| Population accessing internet (%)   | 7.7      |

# Health Information

## Health Infrastructure

The Bungoma 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. The health facilities are distributed as follows; 20 level IV facilities, 43 level III facilities and 205 level II facilities.

## Health personnel

The county health worker force is at 9/10000 of the population

## Morbidity

The top 5 diseases in the County as per the DHIS, 2017 are: Malaria, Anaemia, Pneumonia, Diarrhoea and Peptic Ulcers.

## Health outcomes

| INDICATOR                                    | OUTCOME     | YEAR      |
|--|-------------|-----------|
| Child immunization(%)                        | 84.4        | 2019      |
| people living with HIV                       | 30,091      | 2019      |
| Delivery at health facility(%)               | 88.9        | 2019      |
| Total fertility rate                         | 3.6         | 2019      |
| Infant mortality rate                        | 30.5        | 2019      |
| Under-5 mortality rate                       | 49.2        | 2019      |
| Maternal mortality rate                      | 238/100,000 | 2019      |
| Households accessing safe drinking water (%) | 83.6        | 2019      |
| Health insurance coverage(%)                 | 6.5         | 2015/2016 |

# Tech-Innovations

## New-born Telemedicine



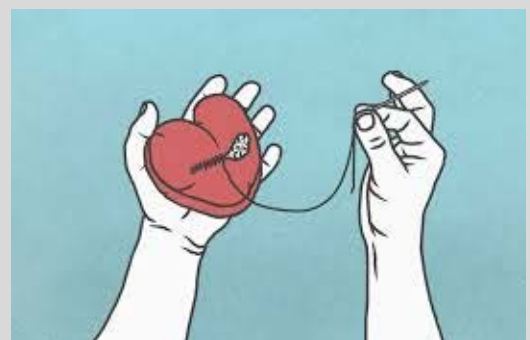
Bungoma county has only one pediatrician in the entire county. To curb the shortage and also avert the process of training specialists that is time consuming and costly, Mount Kenya University in collaboration with County government of Bungoma launched a telemedicine application.



The application is mobile phone based and has features that virtually link clinicians in the remotest areas of Bungoma County to a pool of specialised consultants. A parallel effort is also ongoing to provide continuous mentorship to the front line providers of newborn care. Paediatric trainers from Kenya Paediatrics Association (KPA) and MKU have partnered with the County in the provision of continuous training.

## EMPOWERING ADOLESCENTS IN RURAL KENYA: BUILDING RESILIENCE TO IPV USING AN INNOVATIVE DIGITAL RELATIONSHIP TOOLKIT AND INTEGRATED APPROACHES

The project piloted a multilevel approach to prevent intimate partner violence (IPV) and promote mental health among at-risk rural adolescent youths (15-24 years) in Bungoma County, Kenya. A digital relationship toolkit allows youth seeking services in health facilities and community-based organizations (CBOs) to self-assess their risk of IPV, generate personalized relationship strength and weakness profiles, and set messaging preferences.



The project adopted the WHO recommended package of care for interpersonal group therapy for IPV and conduct group therapy sessions with participants. A government-CBO-academic partnership engagement model for IPV prevention and response were established by building the capacity of government and CBOs to monitor IPV, map existing resources and monitor intervention effectiveness.



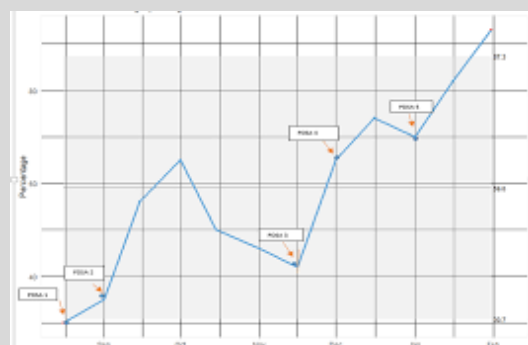
# Electronic Partograph



In Kenya, the number of women that die from pregnancy and birth-related causes is still high, despite increased investments to ensure that maternal health services are improved and that more women receive skilled assistance at birth.

The partograph is a useful tool in managing labour and - when correctly used - can help birth attendants detect abnormal labour progression and make timely decision on interventions.

Save the Children worked with software developers to develop an Android-based application for an electronic version of the standardised world health organization (WHO) partograph, using open source software to ensure it would be easy and cost-effective for use in many facilities.



The final product was in two versions – a mobile-based and a web-based version to allow for user flexibility. It enabled the user to systematically enter data that was automatically populated into a graphical format. It had an in-built alert system which was triggered by entry of any clinical parameters beyond the predefined normal range for each client. These alerts enabled the health worker to effectively monitor labor and take critical decisions if a problem arose.

# Jacaranda health

## Midwife mentorship program



### 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.

### The RMNCAH 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.

### 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

### RMNCAH Need

Maternal mortality ratio of 342 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.



# Triggerise

## The Need

Our health ecosystem is diverse, and there was need to have a platform through which each player within the health ecosystem can be identified with what they do.

## The Innovation

They connect across supply and demand, building an ecosystem of partners, local services and communities to deliver joined-up health services on the ground. The platforms connect the members' needs to existing local providers, by building ecosystems of local health services, community organizations and micro-entrepreneurs using tools such as reminders, follow-ups, subsidies and instant rewards to motivate members. Currently connection is primarily adolescent girls and young mothers to a variety of sexual and reproductive health services and Antenatal care from local providers.



**PREP N' BOUNCE: FAMILY PLANNING AND UNSAFE ABORTIONS PREVENTION STRATEGY THROUGH INNOVATIVELY AVAILING EMERGENCY CONTRACEPTION TO ADOLESCENTS AND YOUNG MOTHERS IN RURAL KENYA.**

The "PrEP N' Bounce" is a family planning and unsafe abortions prevention strategy through innovatively availing emergency contraception to adolescents and young mothers. This project developed and tested a culturally appropriate over-the-counter emergency contraception (EC) delivery model to reduce unwanted pregnancy and prevent unsafe abortion in adolescent girls and young women (17-24 yrs) in rural Bungoma County, Kenya. An integrated platform was created where adolescent girls and young women can access education and information on how to negotiate/avoid dangerous sexual behavior and request EC via a telephone/SMS hotline. Pharmacists enrolled in the program received automated messages when requests for over-the-counter EC are made through the platform and will use an anonymous motorcycle dispatcher to deliver EC package to a location of the beneficiary's choosing. A tiered payment system is established based on the socio-economic status of the beneficiary as determined by a pre-programmed wealth index questionnaire on the app. The app is also integrated with Kenya's popular M-Pesa payment platform to ensure safe and secure payment

## STIMUKIT: A PEER SOCIAL MARKETING INTERVENTION IN EARLY CHILD STIMULATION FOR ADOLESCENT MOTHERS IN BUNGOMA

This project provides sustainable home-based child stimulation training and child nutrition to vulnerable adolescent mothers, using a peer-led social marketing model championed by adolescent mothers who will be trained on the use of social marketing that is popular with adolescents. Appropriate child stimulation activities will be designed and shared on social networks, and toys will be bundled with infant food and sold to the mothers during home visits.



Primary outcomes anticipated include improved cognitive development in 3,600 children, along with improved socio-economic status of the adolescent mothers.

## REWARD 'N' CONQUER: MOTORCYCLE ACCIDENT PREVENTION MODEL

Road accidents are the world's most common cause of injury-related fatalities in the developing world, with Kenya being among those countries with the biggest problem.

The waiver of import tax on motorcycles has led to an increase in the use of motorcycles to ferry passengers, called 'bodaboda'.

This has led to an unprecedented increase in RTC (road traffic collisions) in Kenya.

Most of the accidents are due to untrained riders; accidents can result in severe head injuries, due the lack of helmets and poorly trained first responders.

Implemented in Bungoma County in Kenya, the 'Reward N Conquer' model aimed at reducing death rates and traumatic brain injuries stemming from motorcycle accidents by addressing road safety knowledge gaps among local motorcycle taxi riders.

An interactive phone app with games was developed as a fun and easy reminder for motorcyclists to stay safe.

The app 'BodaRush' is transferable to any developing country.

The program also worked through the Kenya Red Cross, Bungoma Networks, to improve emergency first response at the scene of accidents.

# Non-Tech Innovations

## Bodaboda Ambulances

In Cheptais Sub-county, motorcycle riders transport expectant mothers to the health facility to deliver babies. This has boosted the number of skilled delivery in the health facilities reducing the number of maternal and newborns deaths.

The Initiative is known as the bodaboda ambulance and was launched by the Chebyuk Community unit (Linked to Kopsiro Health Centre).



This was after it was realized that many women were delivering at home under the help of traditional birth attendants because they could not easily access the dispensary due to bad roads and the hilly terrain.

## EVERY SECOND MATTERS FOR MOTHERS AND BABIES-UTERINE BALLOON TAMPONADE (ESM-UBT)

Organization: Massachusetts General hospital (MGH)

Partners: Kisumu Medical and Education Trust (KMET), the Center for Maternal Health Innovation (CMHI), and the Kenya Obstetrical and Gynecological society.

### The RMNCAH 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.

## Kangaroo Mother Care

The causes of infant deaths in the neonatal period include complications due to prematurity (birth under 37 weeks' pregnancy), problems associated with the birth process, and infections. In Kenya, 12 out of every 100 live births in 2010 was a premature birth (WHO and UNICEF, 2010), and in 2015, complications associated with prematurity contributed to 24.6% of the neonatal deaths recorded in Kenya, and to 15% of deaths in children aged under five (UNICEF, 2017).

Premature and low-birth weight infants require extra care to avoid illness and death from secondary, preventable complications such as hypothermia and infection. This is a particular problem in Kenya and other developing countries, where incubators and similar technologies are often scarce, over-crowded or unreliable, as well as costly.

Kangaroo Mother Care (KMC) is a low-cost innovation recommended for the care for stable preterm neonates and low-birth weight babies.

It refers to the prolonged and continuous skin-to-skin contact between a mother (or other caregiver) and the preterm or low-birth weight baby for up to 24 hours a day. Besides prolonged, continuous skin-to-skin contact, KMC also promotes exclusive breastfeeding of the infant.



KMC allows for early discharge of the mother from a facility, and can therefore be practiced both in hospital and within the community.