

# MAKUENI COUNTY

Healthcare Innovations





Nairobi, August 2022

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MAKUENI COUNTY INNOVATIONS REPORT [Innovations in Healthcare: Makueni County]

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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 'Makueni 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.

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## **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.

**Human Development Index** - The human development index (HDI) is a summary measure of assessing progress in three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living.

**The Gender Inequality Index (GII)** - reflects inequality in achievements between men and women in reproductive health, empowerment and labour market - the higher it is the more severe the inequalities are.

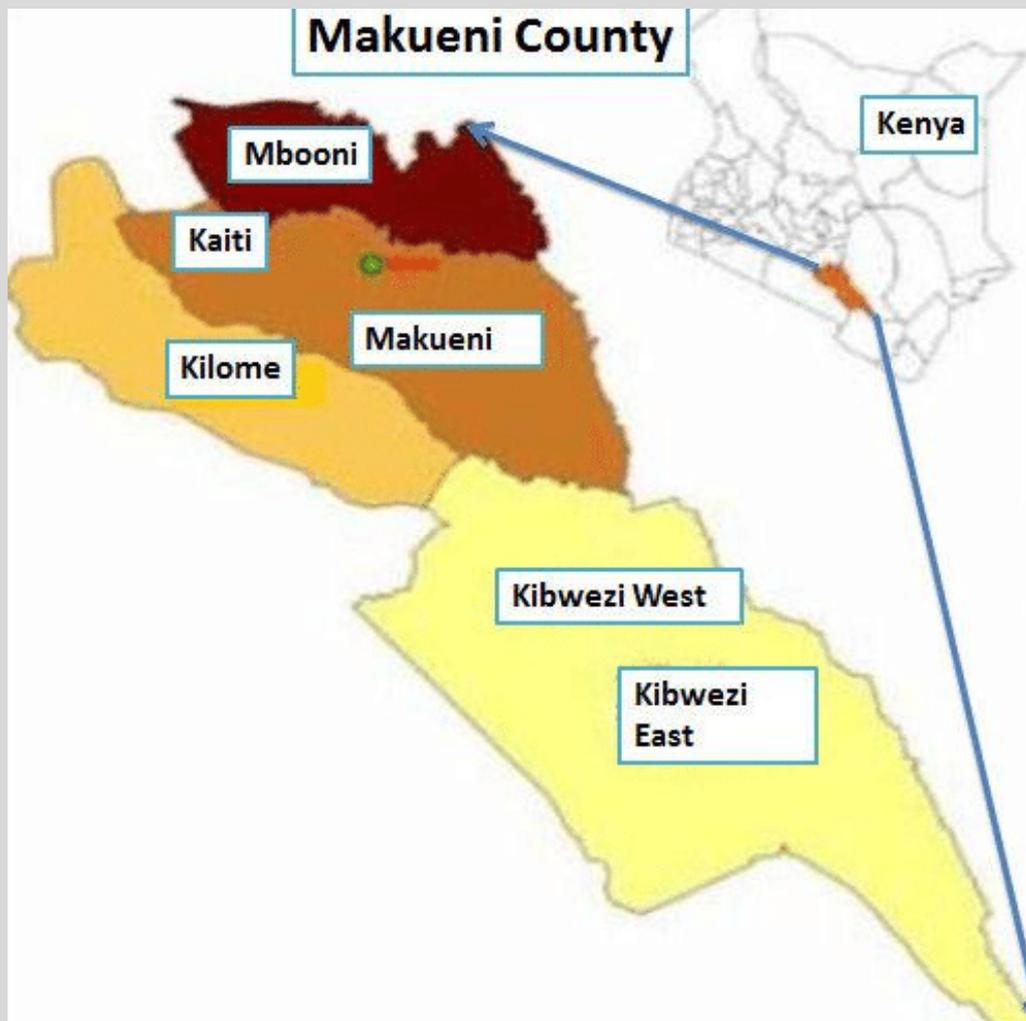
**Rural Access Index** - Measures the proportion of the rural population that can access an all-weather road within two kilometres.

# County Information

## Overview

The county covers an area of 8,034.7 Km<sup>2</sup>. The county borders several counties which include Kajiado to the West, Taita Taveta to the South, Kitui to the East and Machakos to the North. It lies between Latitude 1° 35' and 30 00 South and Longitude 37°10' and 38° 30' East.

The County is currently divided into six constituencies Mbooni ; Kilome Constituency ; Kaiti ; Makueni; Kibwezi West and East ; nine sub-counties and twenty five divisions as shown in Table Six. The sub counties are Makueni, Kilungu, Mukaa, Kibwezi, Kathonzweni, Makindu, Mbooni East, Mbooni West and Nzau



# Demographic features

The county has a total population of 987,653 people of which 489,691 are male persons and 497,942 are female persons. The population density for the county stands at 121 persons per square kilometres.

## OTHER FEATURES

FEATURE	ESTIMATE
Gini coefficient	34.1
Age dependency ratio	78.5
Old age dependency ratio	8.9
Child dependency ratio	69.6
Rural Access Index - %	73
Population owning mobile phones (%)	49
Population accessing internet (%)	9.9

# Health Information

## Health Infrastructure

The Samburu 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 county has 272 level II facilities, 60 level III facilities, 20 level IV facilities with no level V and VI. The facilities are distributed across public, private for profit and private not for profit and NGO.

The average household distance to health facility is six Kilometres which is way below the national recommended distance of four Kilometres (CIDP 2018-2022).

## Health personnel

The county health worker density is 13 per 10,000 of population and doctor population ratio is 1:22,712 which is below the accepted standards. There are nine VCTs and 138 counsellors in the county.

## HEALTH OUTCOMES

<b>INDICATOR</b>	<b>OUTCOME</b>	<b>YEAR</b>
Child immunization(%)	95.4	2019
people living with HIV	29,370	2019
Delivery at health facility(%)	91	2019
Total fertility rate	2.8	2019
Infant mortality rate	30.9	2019
Under-5 mortality rate	40.0	2019
Maternal mortality rate	479/100,000	2019
Households accessing safe drinking water (%)	44.4	2019
Health insurance coverage(%)	13.5	2015/2016

# Tech-Innovations

## Empower Health



Empower Health in Kenya was launched in 2017 as a landmark Public-Private Partnership (PPP) between the Ministry of Health of Kenya, the County Governments Makueni, Medtronic LABS, and Kenya Defeat Diabetes Association.

### 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.

Together with our 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.

## Virtual 'scrub-in' software



AI, machine learning and augmented reality-based technology platform Proximie teamed up with global non-profit organisation and Johns Hopkins University affiliate Jhpiego, on a safe surgery project in Kenya to layer in their unique software that allows physicians anywhere in the world to virtually 'scrub-in' and mentor colleagues in real time.

Proximie offered its technology to Jhpiego, to improve obstetric surgical care for women by expanding and enhancing the learning and mentorship in Jhpiego's Obstetric Safe Surgery project in Makueni County

The goal was to support the government of Kenya's commitment to reduce maternal and newborn deaths and obstetric-related injuries by improving the quality of caesarean sections. Seventy-one percent of facility-based maternal deaths in Kenya are associated with caesarean sections, and 9 out of 10 maternal deaths are linked to a lack of quality standardised care.



Proximie is a technology platform that allows clinicians to virtually 'scrub in' to any operating room or cath lab from anywhere in the world.

By empowering clinicians to share their skills in real-time, we can reduce variation in care and ensure every patient receives the best healthcare every single time.

# The Community Health Engagement Platform – M-Jali

Poor health information systems have been identified as a major challenge in the health-care system in many developing countries including Sub-Saharan African countries. Unlike other developed continents, Africa, and especially the Sub-Saharan region, still endure major problems in the access to essential human needs like shelter, food and healthcare. The system is often challenged by a lack of sustainable funding, poorly-equipped facilities, erratic supply chains, and shortages of healthcare professionals. Timely and accurate data about the health and sanitation status of most inhabitants in Sub-Saharan Africa is scanty and not readily available. Data collection happens manually and it takes three months on average before data collected at the community level is incorporated in the formal system.

M-Jali, Mobile-Jamii Afya Link, is AEL's innovative solution for improving collection, analysis and dissemination of community data. It incorporates a mobile application for capturing data at the household level and transmitting it to a web-based database.



The M-Jali platform presents huge opportunities for the future of healthcare technology through Business and Artificial Intelligence, data integration and analytics as well as monetization of data. M-Jali integrates with District Health Information Software 2 (DHIS2) – a free and open source health management data platform used by Governments worldwide as a reporting tool. DHIS2 is used to aggregate statistical data collection, validation, analysis, management, and presentation.

The M-Jali platform is used by community health workers to register household members onto NHIF to cater for their medical expenses.

# Leap, the mHealth platform

This is a mobile learning solution for training health care workers including Community Health Workers (CHWs). Leap employs an appropriate mobile learning approach to train and empower health workers using their mobile devices operating from any phone enabling the health workers to learn at their own pace and with their own mobile devices while in the community, providing for both the interpersonal and community aspects of learning.

Leap contributes to driving lasting health change for communities in Sub-Saharan Africa by increasing access to quality, timely and appropriate training by reaching learners on any device, basic or smart using Leap's SMS and audio technology.

## Addressing The Need

- Measures learners' progress through evaluations, quizzes and practical exercises, as well as real-time performance reports and supervision tools;
- Delivers any health content, tapping into our accredited content or customizing new content, to equip health workers with knowledge and skill to succeed;
- Allows learners to interact and share knowledge with their peers through group chat, communicating anytime, anywhere, at the touch of a button; and
- Engages any health worker, wherever they are, through multi-lingual instructions and learning content while supporting decisions at the community level through diagnostic trees and enabled learner support via our helpdesk system.

## THE DIALOGUE PROJECT

It sought to empower, supervise, support and include informal traditional and faith healers to deliver evidence based Mental Health Treatment Gap Intervention Guidelines (mhGAP-IG) adapted psycho-social interventions to reduce mental health treatment gap in Kenya.

DIALOGUE discovered that traditional and faith healers (the clergy) and formal health care workers can collaborate successfully in providing mental health services in rural communities with limited access to specialist care. The study also proved that trained traditional and faith healers can effectively screen and make referrals of cases of depression to primary healthcare.



## Using Mobile Phones to Empower Frontline Healthcare Workers to Manage Depression at Point of Care in Kenya Using the WHO Mental Health Treatment Gap Intervention Guidelines (mhGAP-IG)

Depression is a major public health problem and access to mental health specialists in developing countries is inadequate, especially for the poorest sectors of society.

The treatment gap in mental health is estimated to be above 80% in low- and middle-income countries (LMICs) compared to less than 40% in high-income countries, mainly due to a lack of specialized human resources

This Kenyan-based innovation aimed to increase mental health literacy and the ease of screening for depression by healthcare workers using the World Health Organization's Mental Health Treatment Gap Intervention Guidelines (mhGAP-IG) software.



Primary healthcare workers were trained, supervised and supported in delivering evidence-based interventions at the point-of-care, using the mhGAP-IG software on smart phones with a link to a central computer based at Africa Mental Health Foundation (AMHF).

This enabled a continuous dialogue between the primary care workers and a mental health specialist.

# Non-Tech Innovations

## Public Private Partnership for enhancement of the County's primary care system



Amref Health Africa, Royal Philips and Makueni County came together to explore a Public Private Partnership for enhancement of the County's primary care system. While the public sector is able to provide affordable healthcare for all, it is not able to do so in a high-quality and sustainable manner. This has shifted the burden of providing high quality primary care to the private sector, but at a high cost, thereby locking out those who cannot afford to pay. This partnership was therefore formed with an aim to improve access to high quality primary care by ALL residents of Makueni County, in a financially sustainable and scalable way.

Leveraging on mHealth innovations such as Leap and M-Jali, actively engaging Community Health Workers (CHWs) and working closely with the National Hospital Insurance Fund (NHIF) proved to be a suitable approach in moving the project forward. The CHWs were empowered with knowledge on various health matters through Leap so as to provide health education to their household members; an important aspect of preventive healthcare. Through M-Jali, they were able to register household members onto NHIF to cater for their medical expenses at the three pilot sites – Emali Model Health Centre, Tutini Dispensary and Matiku Dispensary – in the event that they fell ill; hence facilitating curative healthcare. These pilot health were upgraded so as to provide necessary healthcare to the residents of Makueni.

# County healthcare plan



County healthcare plan where citizens register into the healthcare plan with Ksh 500 per year which covers the principal beneficiary, their spouse(s) and direct dependents below the age of 18 or 24 for school going dependents.

The service aims at the provision of a package of quality essential healthcare services free of cost in all county public health facilities