



# LAMU COUNTY

## HEALTHCARE INNOVATIONS





Nairobi, August 2022

Any part of this document may be freely reviewed, quoted, reproduced, or translated in full or in part, provided the source is acknowledged. It may not be sold or used in conjunction with commercial purposes or for profit.

LAMU COUNTY INNOVATIONS REPORT [Innovations in Healthcare: Lamu County]

Prepared by:

The Open Phences Hub

P.O. Box 2433 – 00202

Nairobi.

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

## 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 'Lamu 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.

**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.

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

# COUNTY INFORMATION

## Overview

Lamu county is one of the six counties in the coastal region of Kenya. It is located on the North coast of Kenya and covers an area of approximately 6,606 square kilometres. The county is divided from the rest of the country by an extended and dry zone - the Taru desert. The County consists of a vast mainland and 65 Islands forming the Lamu archipelago. Of these Islands, the five major ones that are inhabited include Lamu, Manda, Pate, Kiwayu, and Ndau. Lamu county is composed of has two constituencies comprising the Lamu East and Lamu West. The county is also made of seven divisions, 23 locations and 39 sub locations

# Demographic features

The county has a total population of 143,920 persons. Of these people 76,103 are male and 67,813 are female. The population density of the county is 23 persons per square kilometre.

The population distribution in the county is influenced by a number of factors including access to economic opportunities such as agriculture, livestock keeping, fishing and trade

## OTHER FEATURES

| FEATURE                             | ESTIMATE |
|-------------------------------------|----------|
| Gini coefficient                    | 36.7     |
| Age dependency ratio                | 87.8     |
| Old age dependency ratio            | 8.1      |
| Child dependency ratio              | 79.9     |
| Rural Access Index - %              | 13       |
| Population owning mobile phones (%) | 45.2     |
| Population accessing internet (%)   | 12.6     |

# Health information



## Health Infrastructure

The Lamu 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. Lamu county has 5 level 4 facilities, 8 level 3 facilities and 50 level 2 facilities (KMFL).



## Health workforce

The doctor to population ratio of 1:7000, clinical officers to population ratio of 1:2800 and nurse to population ratio of 1:800 (CIDP 2018).



## Morbidity and mortality causes

The top common causes of outpatient morbidity amongst children below five years of age are: upper respiratory tract infections (30%), diarrhea (11.9%), pneumonia (4.7%), fevers (2.6%), ear infections (2%), intestinal worms (1.7%), tonsillitis (1.7%), eye infections (1.5%) and other injuries (0.9%).

The causes of outpatient morbidity for residents older than five years include upper respiratory tract infections(19.2%),skin diseases (8.9%), other respiratory diseases(6.5%), diarrhea (5.5%),hypertension(3.5%), joint pains(2.5%), intestinal worms(2.5%),dental disorders(2.2%), other injuries(1.9%) and pneumonia(1.4%).

The leading causes of mortality based on data collected for mortality survey through DHIS2 includes HIV/AIDS related (24.6%), diabetes (7%), hypertension (5.3%), anemia (5.3%), psychosis (3.5%) and stroke (3.5%).

## HEALTH OUTCOMES

| <b>INDICATOR</b>                             | <b>OUTCOME</b> | <b>YEAR</b> |
|--|----------------|-------------|
| Child immunization(%)                        | 94.4           | 2019        |
| people living with HIV                       | 2,319          | 2019        |
| Delivery at health facility(%)               | 82.1           | 2019        |
| Total fertility rate                         | 2.7            | 2019        |
| Infant mortality rate                        | 37.5           | 2019        |
| Under-5 mortality rate                       | 60.2           | 2019        |
| Maternal mortality rate                      | 306/100,000    | 2019        |
| Households accessing safe drinking water (%) | 68.8           | 2019        |
| Health insurance coverage(%)                 | 7.9            | 2015/2016   |



# Tech-innovations

## DAKTARI SMART

**M-PESA Foundation**



The MPESA foundation in partnership with Lamu county and Gertrude's Hospital Foundation launched Daktari Smart, a telemedicine initiative in Lamu county. The initiative aims to reduce the number of referrals of sick children by giving county facilities access to specialists. It also helps optimize the capacity and reach of healthcare delivery systems by helping bridge the gap of access to healthcare services in Lamu.



Daktari Smart also has a kit that comprises electronic medical devices such as the Electronic Stethoscope, Vital Signs Monitor, Derma scope Camera, Ultrasound Machine, Otoscope (examine the condition of the ear canal and eardrum) and the electrocardiogram (ECG) used to check the heart's rhythm and electrical activity.

Daktari Smart allows the health care worker at the local partner health facilities, to place the electronic medical devices such as a stethoscope or vital signs monitor on the patient. The specialist at Gertrude's Children's Hospital is then able to see the patient and hear the sounds in real-time without the interpretation from the health worker at the local facility.

# Huawei Telemedicine



## The Need

Many medical professionals prefer to work in cities such as Nairobi or Mombasa, and there is a lack of specialists with just 1 doctors to every 7000 patients. At Lamu County Hospital many staff haven't even received basic life-support training and are unable to give their patients the level of care they want to provide. This is forcing Lamu's residents to travel great distances to reach medical facilities with 86% of patients spending more on transport than on healthcare.



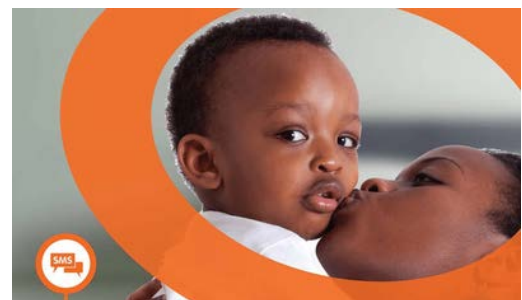
Huawei in partnership with Safaricom, Ministry of Health, United Nations Population Fund (UNFPA) and Local partners have enabled access to care-at-a-distance through the telemedicine, which allows local healthcare workers and patients to remotely consult with patients in towns and cities. In addition Huawei's digital solution allows the government to build up health data, predict and manage the demand and supply of medicine, and assess the productivity of staff workload in facilities to decide on staffing, training or investment in facilities.

# Totohealth



## Innovative Solution

Lamu county adopted the use of Totohealth, a maternity care service, to reduce high rates of maternal, new-born and child deaths, and encourage hospital deliveries and child vaccinations. The service provides residents in villages across the county with pregnancy and immunization related information and reminders through toll free SMS service.



# Non-Tech innovations

## SAFARI DOCTORS



Safari Doctors is a community based social enterprise working to advance healthcare in Lamu county. Its mission is to provide innovative, community driven healthcare solutions that promote wellbeing for marginalised communities. They run monthly mobile clinics by boat and road to hard to reach remote villages with vital health services. They also have the Safari Doctors medical centre that provides quality outpatient services on Lamu island and generates revenue to support the organisation.

They also have Youth Health Ambassadors programme that trains young men and women to become accredited Community Health Workers (CHWs).

## 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.

