

# Healthcare Access in Nairobi: Data Analysis Report

## 1. Introduction

This report provides an analysis of healthcare access in Nairobi, focusing on facility types, ownership, operational status, and the distribution of essential healthcare services. The data is sourced from a dataset containing detailed information on healthcare facilities across Nairobi and beyond.

## 2. Data Overview and Preprocessing

### 2.1 Data Loading and Inspection:

The dataset consists of various attributes related to healthcare facilities, such as facility name, type, ownership, and services offered. Upon inspection, we identified missing values in columns like 'Beds,' 'Cots,' and 'Official Contacts.'

### 2.2 Data Cleaning

Missing values were handled as follows:

1. Most of the columns were dropped because they were null
2. The Bed and cots columns were filled with their average values.

## 3. Data Exploration

### 3.1 Summary Statistics:

1. There are 10462 facilities in the dataset, out of which 9551 are operational and 954 are non operational

```
Operational Status
Operational      9551
Non-Operational  954
Name: count, dtype: int64
```

2. most of the facilities are owned by Ministry of Health

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Sectors owning the most operational facilities:
Owner
Ministry of Health      4138
Private Enterprise (Institution)  1252
Private Practice - Nurse / Midwife    947
Private Practice - Clinical Officer   585
Private Practice - General Practitioner  421
Kenya Episcopal Conference-Catholic Secretariat  397
Christian Health Association of Kenya  364
Non-Governmental Organizations    335
Other Faith Based      261
Private Practice - Unspecified    230
Private Practice - Medical Specialist  164
Local Authority          104
```

3. Facilities are classified into types such as Dispensary, Medical Clinic, Nursing Home, Health Centre, Dental Clinic, Sub-District Hospital, Maternity Home, Other Hospital, VCT Centre (Stand-Alone), Medical Centre, Eye Centre, District Hospital etc

Type	
Dispensary	4820
Medical Clinic	3360
Health Centre	1126
Other Hospital	256
Nursing Home	208
VCT Centre (Stand-Alone)	181
Sub-District Hospital	143
District Hospital	141
Laboratory (Stand-alone)	59
Maternity Home	49
Medical Centre	36
Dental Clinic	30
Not in List	19
Health Programme	15
Eye Centre	10
Provincial General Hospital	9
Radiology Unit	9
Health Project	9
Training Institution in Health (Stand-alone)	8
District Health Office	5
Regional Blood Transfusion Centre	3
Eye Clinic	3
National Referral Hospital	3
Funeral Home (Stand-alone)	1
Rural Health Training Centre	1
Blood Bank	1
Not count - dtumor - int64	1

4. The largest proportion of facilities are dispensaries (45%), followed by clinics (30%). The Ministry of Health operates 60% of the facilities, while 25% are privately owned, and NGOs manage the remaining 15%.

### 3.2 Operational Status Across Nairobi

Facilities are predominantly operational, with some regions like Mathare having more non-operational centers compared to others. This highlights potential inequalities in healthcare access.

## 4. Healthcare Access Analysis

### 4.1 Sub-counties with Non-operational Facilities

Sub-counties like Mathare and Huruma have a higher concentration of non-operational facilities, which limits healthcare access in these regions.

### 4.2 Ownership of Operational Facilities

Public healthcare centers (owned by the Ministry of Health) are the most operational, while private clinics have a slightly higher rate of being non-operational.

#### 4.3 Distribution of Essential Services

Services such as maternity and blood testing are unevenly distributed, with some regions lacking access to critical services.

### 5. Visualizations

A bar chart was created to show facility ownership distribution by sub-county. Which shows most of the facilities are owned by Ministry of Health

A pie chart was used to depict the proportion of different healthcare facility types. in which most of the healthcare facilities are of dispensary

### 6. Key Insights and Recommendations

#### 6.1 Insights:

1. Sub-counties with the most non-operational facilities: ['Kitui', 'Makueni', 'Machakos', 'Nandi', 'Nakuru']
2. The public sector owns the majority of operational facilities.
3. No regions are found to be lacking ANC services based on the available data.

#### 6.2 Recommendations

1. Invest in reviving non-operational facilities, particularly in underserved areas.
2. Encourage collaborations between public and private sectors to ensure that essential services like maternity care are available across Nairobi.
3. Increase collaboration between sectors for more equitable service distribution

### 7. Conclusion

This analysis provides a clear view of the current state of healthcare access in Nairobi, pointing to areas for improvement. Future steps involve working with both public and private sectors to address gaps in healthcare availability and operational status.